

THE UNIVERSITY OF TEXAS AT ARLINGTON
McNair Research Journal



Summer 2001 • Volume 5

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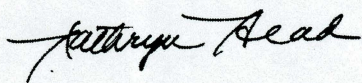
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Notes from the Director

It is with much pride that I congratulate the McNair Scholars at The University of Texas at Arlington on the successful completion of their eleven-week Summer 2001 research fellowship. As evidenced on the following pages, the Scholars expended an enormous amount of effort in conducting and reporting their research this summer. They are to be commended on their dedication in pursuing new knowledge in their respective fields.

The University of Texas at Arlington is very fortunate to have faculty mentors who volunteer their time to work with our scholars on the research projects, as well as staff members who conduct seminars and workshops – all directed toward preparing deserving undergraduate students for graduate study leading to the doctoral degree. We are also supported by the University administration who promote the McNair Scholars Program to the larger community. We would especially like to thank Dr. Robert E. Witt, President of the University; Dr. Dana Dunn, Vice President for Academic Affairs; Dr. H. Keith McDowell, Vice President for Research and Information Technology; and Dr. Philip Cohen, Dean of the Graduate School.

Best wishes, McNair Scholars, on your continued quest for new academic ventures!



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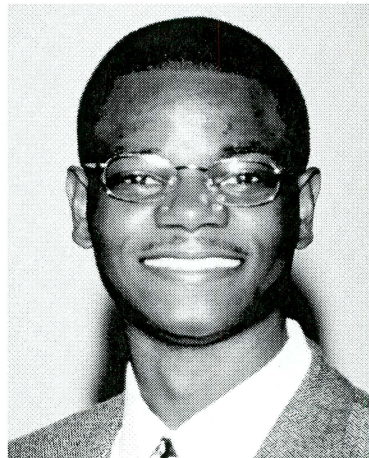
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No More Secrets: Private Information Made Public in a Society of Networks

Elizabeth V. Romero-Coca

Mentor: Dr. Rangadhar Dash, PhD, PhD

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ABSTRACT

The prevalence of Internet use in the public and private sectors is providing challenges regarding unauthorized accessibility to information regarded as confidential. This study will examine privacy and security issues and explore the current trends in safeguarding the exchange of digital information via the Internet. This study will also explore the prevention of data loss and damage.

INTRODUCTION

"An online civilization requires online anonymity, online identification, online authentication, online repudiation, online trust holders, online signatures, online privacy, and online access." Kevin Kelly, *Wired Magazine*.

Internet technology has increased the speed and accuracy of information exchange and allows users greater flexibility and freedom through the use of computer networks. The Internet has forever altered communications; users have the ability to access information regarding any conceivable topic instantly from sources all over the globe. The Internet has also altered the methods firms employ to conduct business. Modern firms are now able to reach previously closed or restricted markets. However, the Internet is a non-secure environment. With a few keystrokes, any unscrupulous individual with access to a computer and a modem can obtain an unimaginable quantity of confidential information. The dramatic increase of Internet use, as a means of conducting business, exchanging ideas, and storing information, has led to an increased awareness of the vulnerability faced by corporations, governments and individuals. Information interception by unauthorized users can lead to potential loss of privacy, property, and national security.

HISTORY

In a 1945 essay Vannevar Bush, science advisor to Franklin D. Roosevelt, "envisioned information technology as an extension of human intellect" (5). Bush's vision inspired many to articulate his vision of a world networked together to seamlessly share knowledge.

In response to the 1957 Soviet launch of Sputnik, the first artificial earth satellite, the US Department of Defense formed the Advanced Research Project Agency (ARPA) in an effort to establish US leadership in science and technology. The agency began working on ARPANET, the genesis of today's Internet. The intent of ARPANET was to "link a set of computers operated by several universities doing military research" (4).

The ARPA presented the first ARPANET papers in 1967 to the Association for Computing Machinery Symposium. One year later, the first generation of networking hardware and software was designed. By 1969, the ARPANET connected four universities in the United States. Researchers at Stanford Research Institute, University of California at Los Angeles, University of California at Santa Barbara, and the University of Utah created the first hosts of the ARPANET.

By 1971, the Internet had grown to include 23 hosts that in-

cluded many universities and government research centers around the country. Two years later, the ARPANET established international connections to the University College in London, England, and the Royal Radar Establishment in Norway.

The InterNetworking Working Group became the first of several standards-setting entities to govern the growing network and address the need for establishing agreed upon protocols. The Telnet specification is the first of these standards set forth by the InterNetworking Working Group. In 1974 Bolt, Beranek and Newman opened Telnet, the first commercial version of the ARPANET. That same year, Vinton Cerf and Bob Kahn developed the Transmission Control Protocol/Internet Protocol (TCP/IP) for the ARPANET. "TCP/IP is the network layer protocol now used on the Internet. It is also the world's most popular network layer protocol, used by 70 percent of all backbone, metropolitan, and wide area networks" (4).

Tom Truscott and Jim Ellis, two graduate students at Duke University, and Steve Bellovin at the University of North Carolina, established the first USENET newsgroup in 1979. USENET is an electronic bulletin board that enables individuals and special interest groups to post articles and messages, which are forwarded to all systems on the network (9).

In the early 1980's, Robert Metcalf at Xerox PARC (Palo Alto Research Center) developed Ethernet, which made the Local Area Network possible. "A local area network is made up of physical computers spread over a relatively limited area" (5). Gateway architecture was also developed. A Gateway defines how large networks, of similar or different architectures, can be connected together. Another important technology, File Transfer protocol, was specified.

Over the next few years, the ARPANET began moving away from its military research roots. Operations were transferred to the Defense Communications Agency. "In 1983, the Internet split into two parts, one dedicated solely to military installations (called MILNET) and one dedicated to university research centers (called the Internet) that had just under 1,000 host computers" (4).

By the mid-1980s, the personal and super-computer industry was flourishing. Corporations began joining the Internet to communicate with one another and with their customers. The Internet quickly became an essential tool for communications.

The *Morris Worm*, a self-replicating virus, was unleashed on November 1, 1988, by Robert Morris, Jr., a computer science student at Cornell University. Morris testified that he had designed the

worm to see how many computers it would reach, but "a mistake in his programming caused the worm to replicate far faster than he had expected" (6).

The Computer Emergency Response Team Coordination Center (CERT or CERT/CC) was developed December 1988 by the Advanced Research Projects Agency after the Morris Worm disabled more than 6,000 computers connected to the Internet. The organization studies Internet security weaknesses, provides services to Web sites that have been attacked and publishes security alerts. CERT/CC's continues research efforts that include improving Internet security.

In 1990 Tim Berners-Lee, a researcher at CERN, invented the World Wide Web. He created the Web by developing the software that would put hypertext online and then developing a program that would access that information (5).

Initially, the National Science Foundation's NSFNET, the backbone of the Internet, banned commercial traffic on the Internet. In 1991 the NSF lifted the ban and what started as a tool for military scientists and researchers, began to evolve into a tool of unlimited possibilities for commerce, education, and recreation. However, as the popularity of the Internet grew, concerns about Internet privacy and security also increased. "Hackers", "crackers" and "electronic break-ins" became new realities in the networked world. These threats included loss of integrity, loss of confidentiality, denial of service, and loss of authenticity.

INTEGRITY LOSS

Integrity loss refers to the "...malicious modification of data, programs, messages, and memory" (1). The most common system integrity breaches are the result of viruses. While most viral programs are designed to annoy, some viruses can cause serious system integrity loss. A virus attaches itself to a host program and once this program is launched, the virus replicates itself and infects other system files. Before a virus is detected and eliminated, programs or data files can be rendered irretrievable, modified, or erased. Interference with program functioning can also occur. A virus can create bad disk sectors, decrease free disk space, or create unwanted disk labels (3). There are many different virus types, which include file viruses, worms, and Trojan horse viruses (10).

File viruses fall into three categories: executable, macro, and boot sector viruses. Executable file viruses attach onto executable files. The virus contains a trigger, such as a certain date or time, that instructs the virus to activate (10). A macro virus is designed to seek out security weaknesses in macro-enabled applications. This virus type is usually transmitted through e-mail. The Melissa, a well-known example of a macro virus, caused the security macro in Word 2000 to become disabled (10). A boot sector virus is transmitted via floppy diskette. When an infected diskette is accessed, the virus is usually moved directly to RAM, but can also infect hard drive boot sectors. Once the virus has infected a system, it will then infect every successive diskette that interacts with that system. Boot Sector viruses accounted for 68% of all viruses in the public domain in 1998. By 1999 this number declined to 38% (10).

A worm is a freestanding program designed to replicate to the

point of congesting the target drive or network and is unlike the file virus in that it will not infect other files. Worms are usually transmitted by diskette or network connections. Trojan horse viruses are named after the mythological Trojan horse. The virus poses as a useful program that, once it is run, executes an entirely different set of commands. It is designed to alter data or probe a system for password and/or other sensitive information. This data is then returned to the virus's "architect" (10).

CONFIDENTIALITY LOSS

Confidentiality loss occurs through eavesdropping. An intruder attempts to disclose a user's secret or private information to an unauthorized party. The intruder may try to obtain information from the user's system or from the server (1).

Unauthorized users, range from sophisticated, professional hackers to novice computer users with limited computer security knowledge. The former represents the greater threat. A professional hacker breaks into corporate and government systems with the specific intent of obtaining sensitive information that can later be used to perpetrate fraud, larceny, sabotage, espionage, and other criminal activities.

The Computer Security Institute reported that 75% of 568 firms surveyed had experienced "...sabotage or theft of proprietary data due to unauthorized access" (4). Another study, conducted in 1997 by the Defense Information Agency, "...found that its own experts were able to penetrate 88% of the Defense Department Computers and were only detected on 5% of those penetrations" (4).

DENIAL OF SERVICE

Another security threat is a denial of service attack. "A denial of service attack consists of malicious acts that prevent access to resources that would otherwise be available" (1). Two types of denial of service attacks are service overloading and message flooding (9).

Service overloading occurs when a system is overloaded with requests for a specific system service such as printing, Network Information Services, or Domain Name Services. Due to the overload, the system is unable to process in a timely manner.

Message flooding occurs when a server is saturated with bogus requests. This results in loss of service to legitimate users, since the server capacity is overwhelmed.

AUTHENTICATION

An authentication attack involves an attacker impersonating legitimate users. "Most [authentication] attacks are based on IP addresses, a very weak method. Where passwords are used, an attacker can eavesdrop on an unencrypted connection, recover passwords, and then impersonate the user" (1).

Corporate and government agency web sites, including the U.S. Department of Justice, the CIA, and the U.S. Air Force, are the main targets of authenticity attacks. When an attack is launched, the attacker may insert questionable images or text onto a web site, or alter existing text, that is, change information regarding pricing or services offered.

Commonly, organizations that have experienced this type of se-

curity breach report no serious damage. However, if left undetected, this type of cyber vandalism may lead existing or potential customers to question the authenticity of the organization (2).

Authentication attacks that target individuals, however, have caused thousands of Americans significant loss, involving damage to financial resources, credit standing, reputation, and employment opportunities (7).

SECURITY MEASURES

The effective use of passwords is an important step in online security. Primary access of a system is based on the entry of a proper password. The use of a strong password creates an initial barrier that may curtail unauthorized entry. A robust password is one that is of sufficient character length, and contains a combination of uppercase, lowercase and meta-characters. When used in conjunction, the system becomes less susceptible to "brute force" attacks, the method of testing every possible password combination. As illustrated in the table below (8), an unauthorized user employing a computer that has the ability of testing 10,000 possibilities per second would require a significantly larger number of resources to achieve success if the password has sufficient length and character combination.

Password Length	Lowercase Only	All Metacharacters	All ASCII Characters
3	2 seconds	1 minute	27 minutes
4	1 minute	2.3 hours	4 days
5	19 minutes	9 days	3 years
6	8.6 hours	2 years	890 years
7	9 days	238 years	228,300 years
8	240 days	22,800 years	58,454,600 years
9	17 years	219,450 years	14,964,398,900 years
10	447 years	210,674,400 years	3,830,889,121,100 years

Table 1: Effective Use of Passwords -
Time required for a computer to test password possibilities

CRYPTION

Cryption is the process that uses mathematical algorithms to disguise information, and that can be used to effectively prevent network eavesdropping. The information is first encrypted, or disguised, by the sender. When the information has been received, decrypting the information then reverses the process (4).

Cryption methods are either symmetric or asymmetric. Symmetric cryption uses one key to encrypt and decrypt a message. While this method is quicker than asymmetric cryption and can be safe, the key must be transferred and secured or the system will fail.

Asymmetric cryption requires two keys to complete the process. A public key is a one-way algorithm used for decryption purposes, but that cannot be used for encryption. The private key is used for encryption, and like the public key, is a one-way algorithm (8).

SECURITY SOFTWARE OPTIONS

Platform for Privacy Preferences (P3P) is designed to convert a web site's privacy policy into a standard machine-readable format. A P3P-enabled web browser can then automatically display these policies to the user, compare pre-set user privacy preferences with the sites policy, and alert the user if there is a discrepancy.

PGP, or Pretty Good Privacy, is a software program designed to encrypt e-mail. PGP uses the Diffie-Hellman algorithm and asymmetric crypton process (8).

A firewall is a hardware or software device that attempts to block unauthorized users from exchanging information between two systems (10). Two categories of firewalls are packet-level and application-level. A packet-level firewall examines each network packet source and destination address entering or exiting a network. If the firewall detects an unknown address, access to or from the network is denied. An application firewall acts as an intermediary between the two networks. To gain access, the user must provide login information to the firewall for system entry (10).

An anonymizing proxy, an example of an application firewall, enables the user to set up his/her browser so that all requests made to the Internet go through a proxy server. The proxy server takes the user's request, strips off identity information, and forwards it to the intended receiver. When the receiver responds, the response is sent to the proxy. The proxy then directs the response back to that user. Because the user and the end server are communicating with an intermediary, the end server is unable to identify the original user.

CONCLUSION

In the non-secure network environment, the privacy and security of information must be safeguarded to ensure integrity, confidentiality, and authenticity. While no security is infallible, the development and implementation of a comprehensive security policy can assist in the detection and correction of network security breaches. A good plan will include an incident reporting process that culminates in a swift investigation of the incident, a risk assessment that identifies network components that require security priority and network profiles that grant access to specific data areas.

Individual user privacy and security will hinge on the implementation of available security methods. Awareness of the threats that exist, and the ability to combat those threats, will ensure the user's online privacy.

As the role of the Internet in commerce increases, so, too, will competition for the market share of each industry involved in e-commerce. Firms will begin to acknowledge and respond to the public's demand for privacy protection. Consumer privacy protection will become a competitive advantage to those firms who do respond.

ACKNOWLEDGEMENTS

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The Design of a Mechanical System for a Networked Control System

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ABSTRACT

This paper describes the design of a mechanical system to be used as a test apparatus for experiments in control of networked systems. This experimental test bed will be used to validate theory and novel methods for control of systems over a network. Ultimately the control system should be capable of estimating the full state of the mechanical system, even under the constraint of limited communication over the network between the mechanical sub-systems and the controller. To achieve this, dynamic models of the mechanical system are used. Thus, the test bed should provide a mechanical system that can be described by linear equations of motion for which the parameters are known with relative certainty. In addition to the mechanical system, an electro-mechanical system (the computer control and network) has also been specified. The design and implementation of this experimental test bed is described.

INTRODUCTION

A control system is an interconnection of components forming a system configuration that will provide a desired response. The system components include mechanical, optical, or electronic systems. Typically, an input or desired output response is entered into the system as shown in Figure 1. This value is compared with a feedback signal. A feedback signal is a measure of the actual output of the system. The difference between the desired output and the actual output (feedback) is equal to the error, which is then minimized by the control device (such as an amplifier or PC). The output of this control device triggers the actuator in order to reduce the error within the system. As a result, the output of the system converges to the value of the desired output of the system. For example, cruise ships use GPS sensors to determine bearing. If a sensor indicates that a ship is heading in an incorrect bearing, the rudder is actuated to direct the ship.

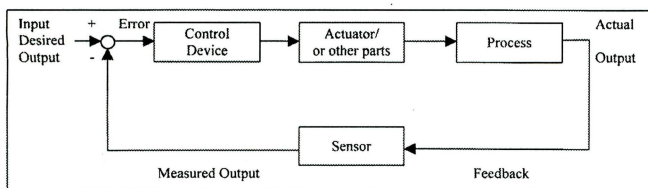


Figure 1. Closed-loop Control System

Current interest is in the use of a networked control system. Instead of using conventional wiring to connect components of the control device(s), a network is used. Using network-connected devices simplifies the hardware setup and allows data to be passed more efficiently to a physically distributed system. It eliminates expensive hard wiring while providing device-level diagnostics. The network protocol of current interest is DeviceNet. DeviceNet contains CAN (Control-Area-Network) protocol that allows it to handle time-critical applications. In comparison, Ethernet is designed for larger packet sizes and unknown time delays, where data transfer time is not critical.

In dealing with a closed-loop-controlled system with multiple feedback, components of the system send signals to the control device. In an effort to lessen bandwidth requirements, single and limited feedback is used with a step varying state estimator. This estimation will reduce a need for full state feedback and allow the use of

limited and delayed feedback of the mechanical system while remaining stable.

Therefore, a mechanical system will be designed to test state estimation facilitated by the controller and model the linear equations used to define motion. Its size must be limited for purposes of maintenance and convenience. It must be cheap and easy to repair with rapid disassembly and assembly capabilities. Overall, the mechanical system will be interconnected with a PC and controller that will send and receive information from the system.

Mechanical System

The objective of the mechanical system is to perform motion output relative to desired velocity, torque, and position. The mechanical system is composed of four carts linked by a spring and wire assembly (see Figure 2). The springs between the carts couple the system, and wire that passes through the springs is used as support for the springs. Each cart is composed of a motor that drives the system. The track constrains the carts in the direction of motion.

Below is a list of parts that were ordered for the mechanical system design:

Part:	Company:	Part Number:
Helical gear	Boston Gear	HS808R*
Collars	McMaster-Carr	6432K12
Ball Bearing	Motion Industries	6262RSJEM
Compression Springs (stainless steel)	McMaster-Carr	9663A58
Compression Springs (stainless steel)	McMaster-Carr	9663K57

The following is a list of all parts machined in the University of Wisconsin machine shop (see appendices for drawings):

Drawing Name:	Description:
Left and right front supports	Cart and motor support at head of assembly
Left and right rear supports	Cart and motor support at rear of assembly
Top plate	Shelters motor's crown
Wheel axial	Support tire hubs
Hubs	Supports tire rubber
Rod/spring holder	Supports wire and spring assembly
Track	Constrains motion of the cart
Spring Clam	Restricts spring to rod/spring holder

In assembling the cart, one should start by inserting the bearings into circular slots extruded into the support components of the carts. Join the four supports of the cart to the top plate component. The four supports contain holes that support the axial assembly. Before inserting the axial assembly, slide collars and helical gears on the front

axial. Repeat, the previous step on the rear axial. Lay the cart on the top face of the top plate. At this point, the four supports of the carts will be positioned in the air. Now, one should install two hubs per axial. Next, the cart assembly must be flipped so that the cart stands on all four supports and the wire/spring support component must be attached and tightened to the top surface of the cart assembly. The placement of the wire/spring support is located by the holes taped on the top plate of the cart. This task completes the assembly of the cart.

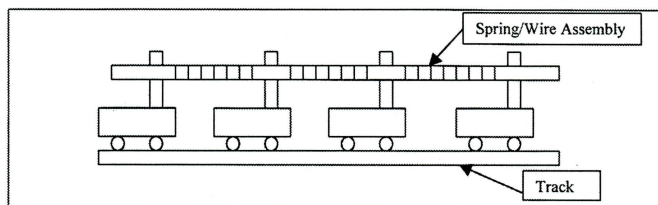


Figure 2. Cart Assembly

Electro-Mechanical System

The electro-mechanical system consists of the control components that provide force actuation to the system. Each cart contains a servomotor that receives an electrical analog input from the 6k Controller. The servomotor is adjusted relative to the input signal received and outputs position information from the Hall-Effect Encoders. Then, the analog sensor signal is sent back to the 6k Controller and, at specified times, sampled and sent back to the PC. The 6k Controller acts as an information relay between the mechanical system and the PC (refer to Figure 3).

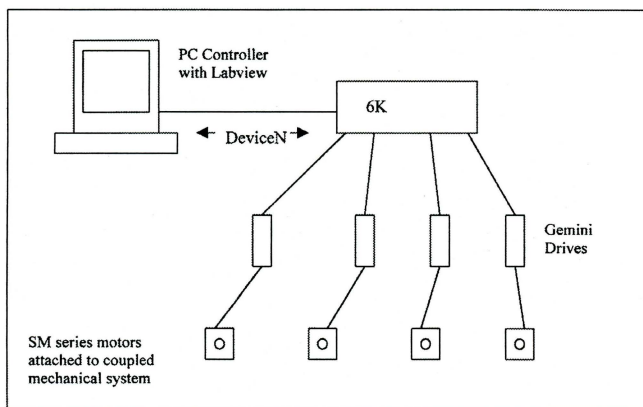


Figure 3. Electro-Mechanical System

The following is a list of the electro-mechanical system components:

P/N	Description
6K2-DN	2-axis controller with DeviceNet interface
GV-L3E	Gemini amplifier
SM161AENGSN	NEMA16, 1/2 stack servo w/encoder feedback

Design Considerations and Calculations

The carts of the mechanical system were designed from base to crown with the primary criterion being convenience. The mechanical system should have elementary assembly and repair qualities. It should also be easy to transport from location to location. The cart system's velocity, acceleration and contingency to slip were calculated, and culminate this section of the paper.

The design process began with determining wheel size. A wheel size of 1.75 inches in diameter was chosen because it is small and accessible. Wheel hubs were designed to fill in the inner diameter located within the wheel. The axial design was based on the inner diameter of the gears chosen for the system. The inner diameter of the gears is 0.50 inches and the outer diameter of the axial is 0.480.

Helical gears were chosen for the carts because they join and rotate at 90 degrees. The gear's assembly is attached to the motor's shaft and cart axial. The initial bore diameter chosen for the gears was 0.25 inches, selected for convenience. Contrary to specification, these gears did not have a setscrew restraining mechanism and were interchanged for a larger size. The final size bore diameter chosen was 0.50 inches because such gears were available from the vendor.

The right, left, front, and rear support heights were constrained by the size of the motor and bearing diameter. The motor should not touch the landscape, or allow gear coupling, and be locked within the cart's housing. Therefore, the support heights are designed to be 2.36 inches in height and 1.12 inches in thickness.

The additional cart components (crown, wire/spring plate, and system track) were all designed to be serviceable. The crown was designed to compliment resulting dimensions of cart components and has a length of 6.41 inches. The wire/spring plate's thickness was constrained by motor position within the cart due to binding. Screw holes within the plate and crown assembly must bypass the motor's position. The track is 96 inches in length and is designed to allow expansion of the mechanical system.

Problem Statement #1:

Determine the acceleration and velocity of the cart.

Givens:

- weight of cart system and wheel (F_{weight}): 1.4 lbf
- mass of cart system: 1.4 lbm
- peak torque (T): 2.5 lbf*in
- rotor inertia of motor: 4.4×10^{-5} lbm*in*s²
- density of rubber: 0.0397 lb/in³
- wheel thickness: .52 in

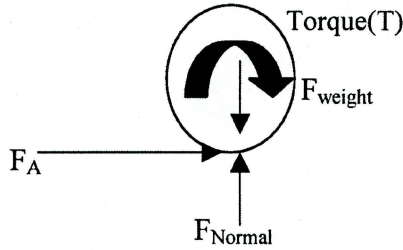
Assumptions:

1. Force is distributed evenly within the system
2. Torque distributed evenly through system

Unknowns:

- a – acceleration
- μ_s – coefficient of friction
- I – tire moment of inertia
- r – radius of wheel

Schematic:



Equations: (Force Balance equations)

$$+ \rightarrow \Sigma F_x = F_A = -ma; \text{ where } F_A = F_{\text{friction}} = \mu_s N \quad (1)$$

$$- \uparrow \Sigma F_y = F_{\text{Normal}} - F_{\text{Weight}} = 0 \quad (2)$$

$$+ \curvearrowright \Sigma M = -T + F_{\text{friction}} r = I \alpha; \alpha = a/r \quad (3)$$

Solution:

The radius is located with the moment force balance equation. In order to solve for acceleration, moment of inertia (I) must be calculated.

First objective: find moment of inertia

The wheel of the cart is modeled as an ellipse.

$$\Sigma M = -T + F_{\text{friction}} r = I \alpha$$

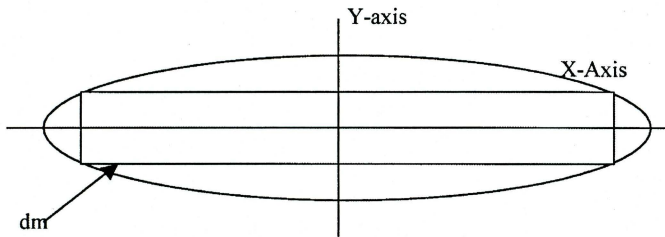


Figure 4. Wheel of Cart Modeled as an Ellipse

**moment of inertia for a cylinder is $I = \frac{1}{2} mr^2$

$$dI = \frac{1}{2} (dm) x^2; \text{ where } dm = \rho dV = \rho(\pi x^2 dy)$$

Substitute $dm = \rho(\pi x^2 dy)$ into $dI = \frac{1}{2} (dm) x^2$

$$dI = \frac{1}{2} \rho (\pi x^2 dy) x^2 = \frac{1}{2} \rho (\pi x^4 dy) \quad (4)$$

The equation of an ellipse is $(x^2 / a^2) + (y^2 / b^2) = 1$, where a is the distance from the origin to the surface of the ellipse in the x -direction, and b is the distance from the origin to the surface of the ellipse in the y -direction.

$$(x^2 / r^2) + (y^2 / (t/2)^2) = 1; \text{ where } r = \text{radius of the ellipse, } t = \text{thickness of the ellipse}$$

$$x^2 = (1 - (4y^2/t^2)) r^2$$

Convert x^2 into x^4 for direct substitution into Equation 5

$$x^4 = ((1 - (4y^2/t^2)) r^2)^2$$

$$x^4 = (r^2 - (4r^2y^2/t^2)) (r^2 - (4r^2y^2/t^2))$$

$$x^4 = r^4 - (4r^4y^2/t^2) - (4r^4y^2/t^2) + (16r^4y^4/t^4)$$

$$x^4 = r^4 - (8r^4y^2/t^2) + (16r^4y^4/t^4)$$

Substitute x^4 into $dI = \frac{1}{2} \rho (\pi x^4 dy)$

$$\int dI = \frac{1}{2} \rho \pi \int (r^4 - (8r^4y^2/t^2) + (16r^4y^4/t^4)) dy,$$

**where the density of rubber is $\rho = 0.0397 \text{ lb/in}^3$ and thickness $t = 0.51 \text{ inches}$

$$I = \frac{1}{2} (0.0397 \text{ lb/in}^3) \pi (0.2550 r^4 - 0.6800 r^4 + 0.8160 r^4)$$

Multiply I by four in order to account for the rotation of four wheels

$$I = 4(0.0159 r^4 - 0.04235 r^4 + 0.05085 r^4)$$

$$I = 0.0976 r^4$$

Therefore,

$$-2.5 + (ma) r = (0.0976 r^3) a \quad (5)$$

$$-2.5 + (1.4) .875 (a) = 0.0654 (a)$$

$$1.225 (a) - 0.0654 (a) = 2.5$$

$$1.1596 (a) = 2.5$$

$$a = 2.1559 \text{ in/s}^2$$

**The acceleration of the carts at peak torque and wheel radius of 0.875 is 2.1559 in/s^2

Second objective: Find cart velocity at peak torque

The velocity will be calculated via Newton's law of motion

$$v^2 = v_0^2 + 2a_c (s - s_0); \text{ where } s = 12 \text{ in}$$

The initial velocity (v_0) and position (s_0) of the system is zero

$$v^2 = 2 (2.1559) (12)$$

$$v = 7.1932 \text{ in/s}$$

**The velocity of the carts at peak torque and wheel radius of 0.875 is 7.1932 in/s

Problem Statement # 2:

Determine if cart will slip.

Given:

- weight of cart system and wheel: 1.4 lbf
- peak torque (T): 2.5 lbf \cdot in
- chosen radius (r): 0.875 in
- mass: 1.4 lbfm
- acceleration: 2.1559 in/s^2

Unknowns:

- μ_s – coefficient of friction

Equations:

$$F \leq \mu_s N \quad (1)$$

$$F = T/r \quad (2)$$

Solution:

$$F = T/r$$

$$F = (2.5 \text{ lbf} \cdot \text{in}) / (0.75 \text{ in})$$

$$F = 1.8750$$

Thus,

$$F \leq \mu_s N$$

The coefficient of friction is designed at 0.40 for analysis at worse case.

$$1.8750 < (0.40)(1.4 \text{ lbf})$$

$$1.8750 < 0.56$$

**As a result, there will be slippage in system at initiation. Therefore, the torque at initiation must decrease. The maximum amount of torque that can be applied to the system without slippage is 0.42 lbf·in.

SUMMARY

A mechanical system is designed to test limited feedback within an electro-mechanical system and model motion equations. Each cart in the system is constrained in the longitudinal and transverse directions of motion by a track. This stems non-linearity in the system due to backlash. Figure 2 shows an approximate assembly of the mechanical system. Although the figure illustrates four carts coupled within the system, more carts can be added or subtracted from the system.

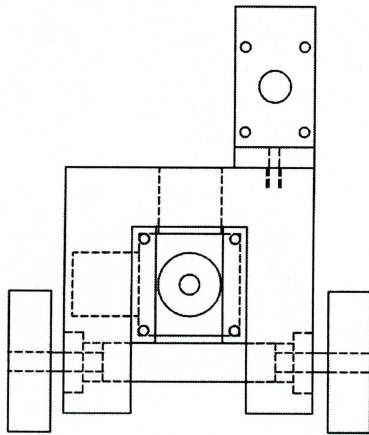
ACKNOWLEDGEMENT

I would like to acknowledge Jason Dykstra for his guidance and support in this project. He helped me understand the fundamental concept behind control systems and was instrumental in the completion of this project.

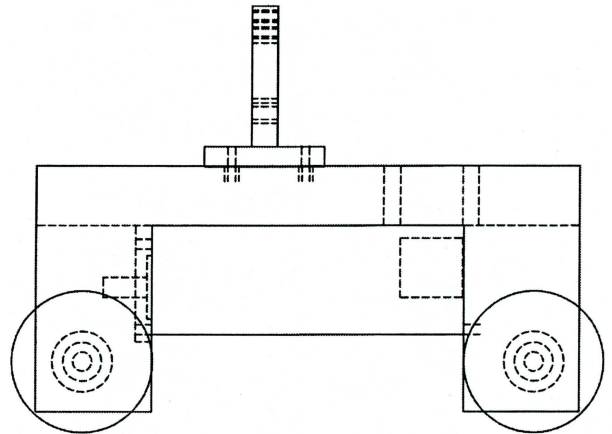
APPENDICES

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Appendix 2	Cart Axial Drawing
Appendix 3	Cart Assembly Crown Drawing
Appendix 4	Cart Assembly Front Left Leg
Appendix 5	Cart Assembly Rear Right Leg
Appendix 6	Cart Assembly Front Right Leg
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Appendix 9	Cart Assembly Rod/Spring Support Drawing
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Appendix 1 Cart Assembly

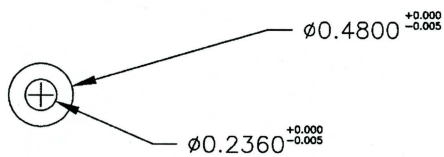


Front View

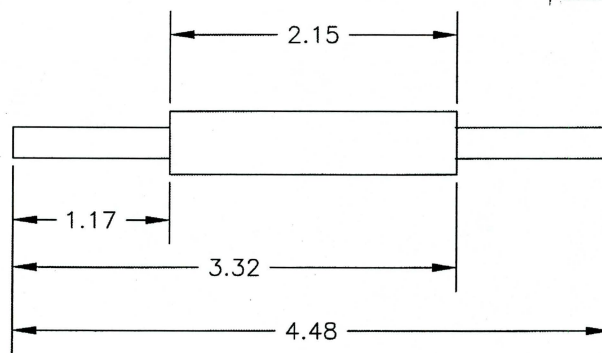


Side View

Appendix 2 Cart Axial Drawing



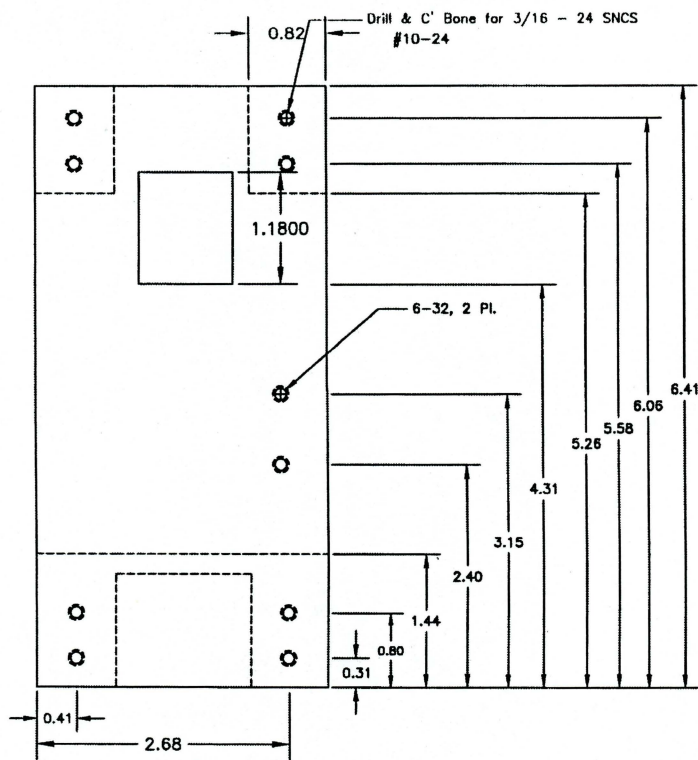
Front View



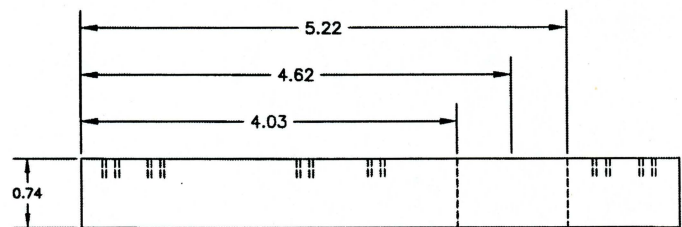
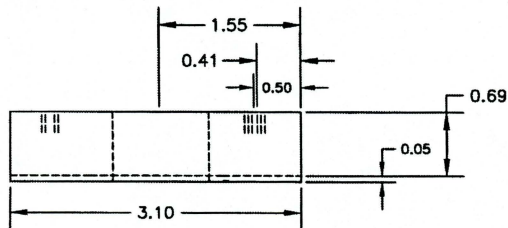
Right View

**measurement: inches
**wheel axial drawing
**6061 Aluminum
**2 each

Appendix 3 Cart Assembly Crown Drawing



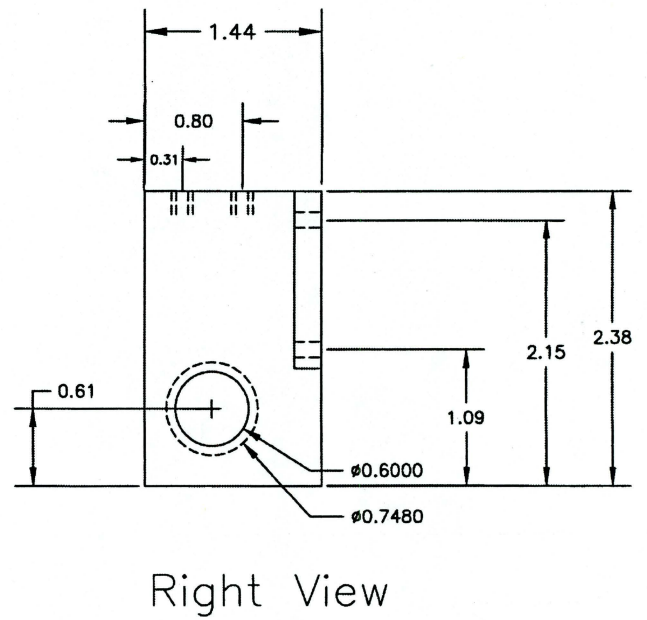
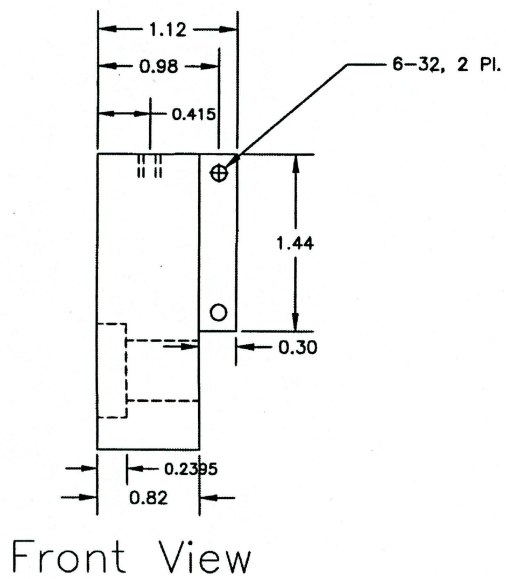
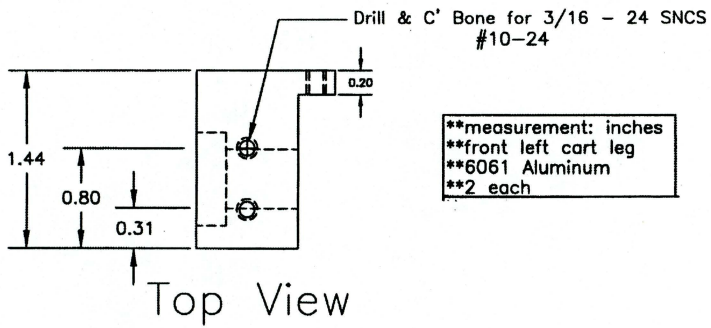
**measurement: inches
**cart top
**6061 Aluminum
**2 each



Front View

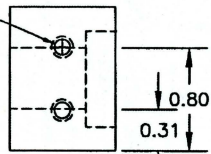
Right View

Appendix 4
Cart Assembly Front Left Leg



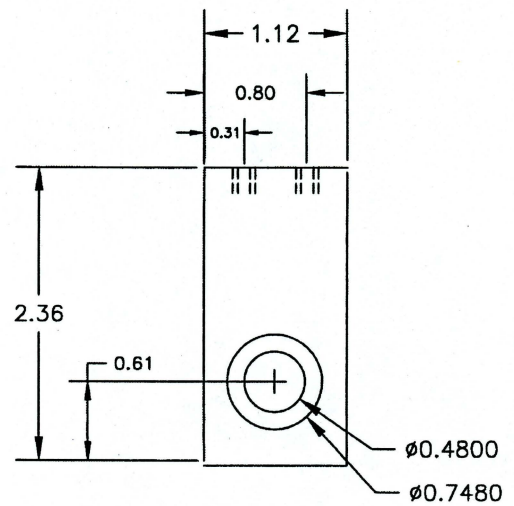
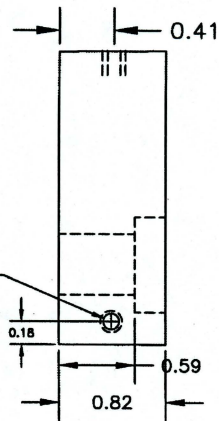
Appendix 5
Cart Assembly Rear Right Leg

Drill & C' Bone for 3/16 - 24 SNCS
#10-24

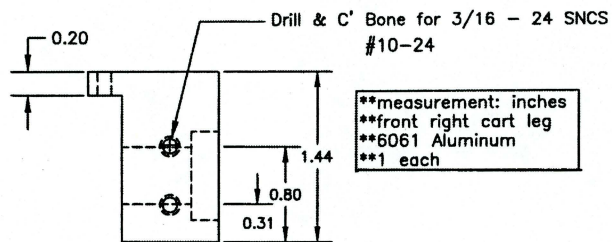


**measurement: inches
**rear right cart leg
**6061 Aluminum
**1 each

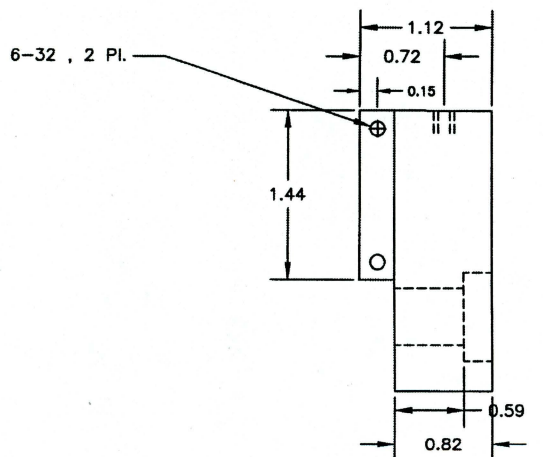
Drill & C' Bone for 3/16 - 24 SNCS
#10-24



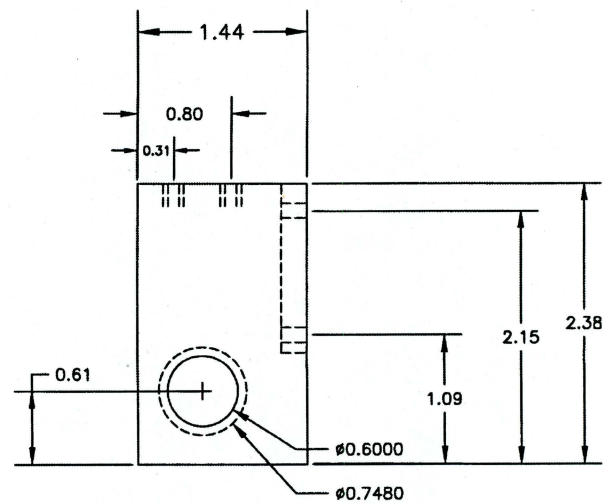
Appendix 6
Cart Assembly Front Right Leg



Top View

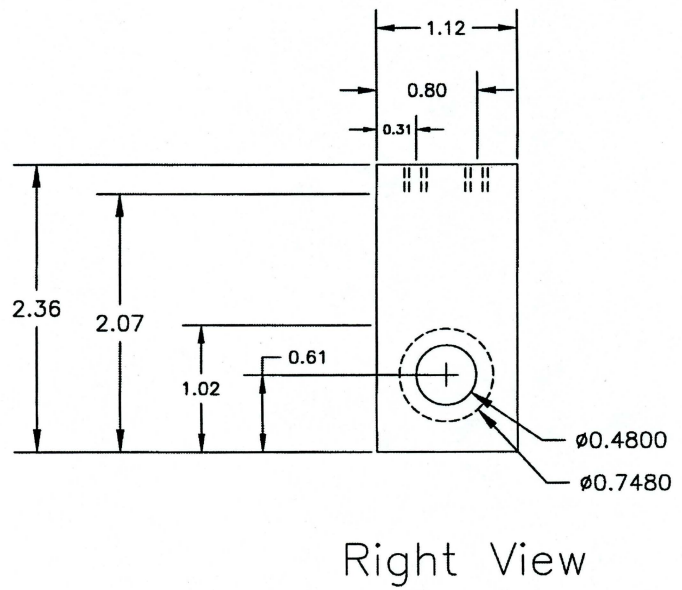
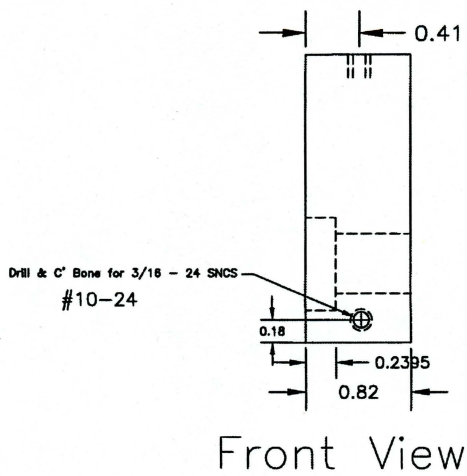
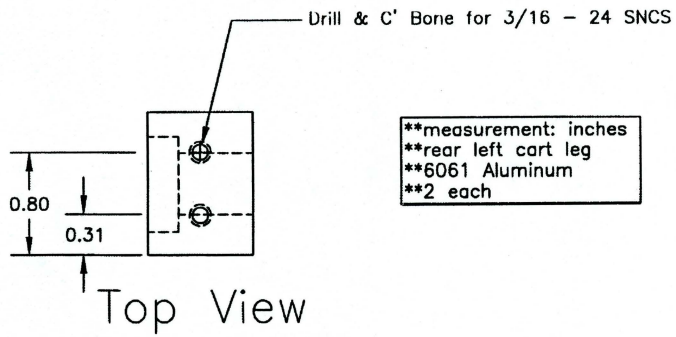


Front View

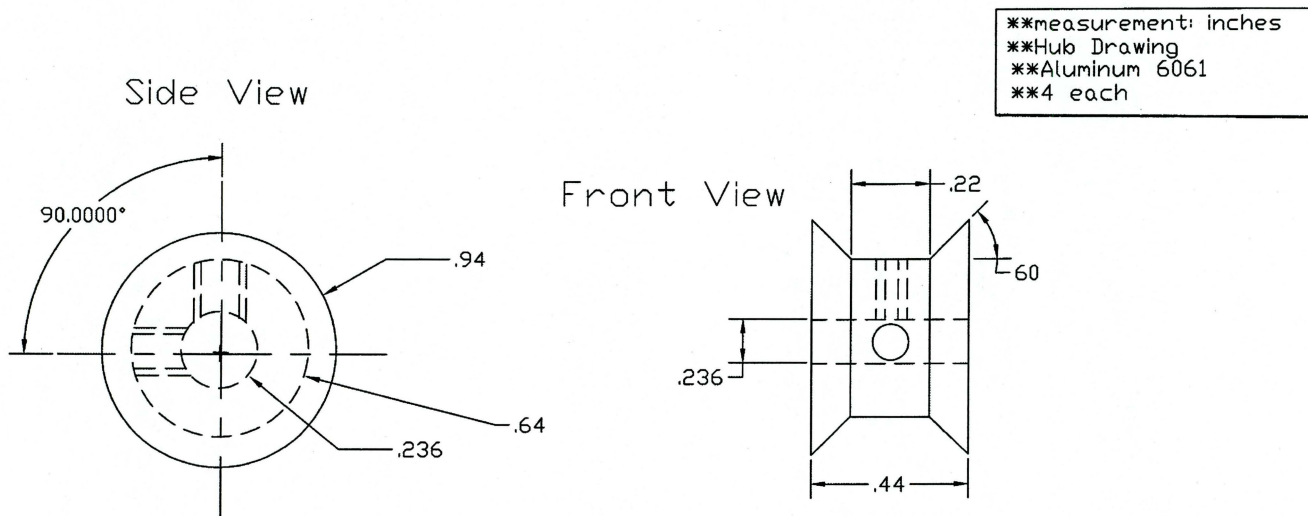


Right View

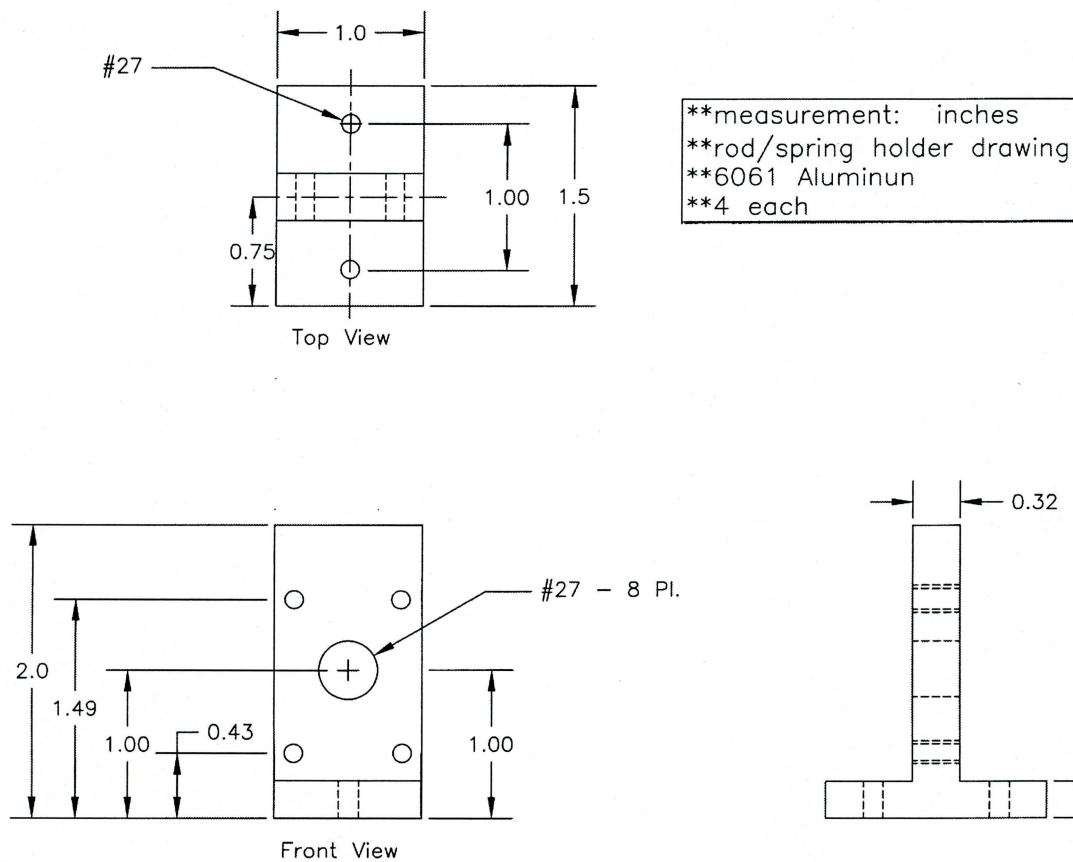
Appendix 7
Cart Assembly Rear Left Leg



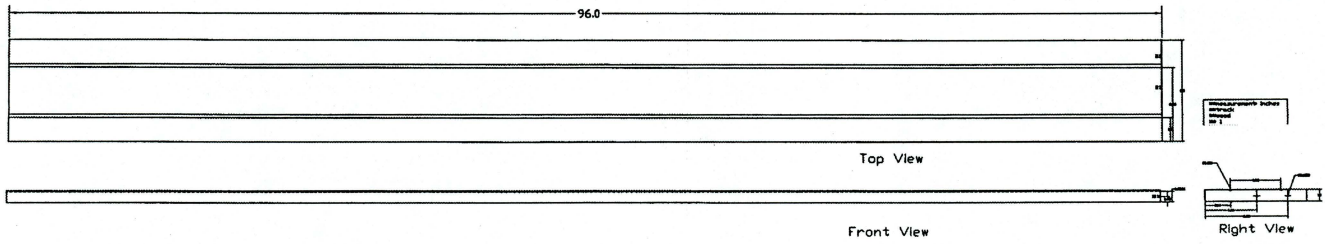
Appendix 8
Cart Axial Hubcap Drawing



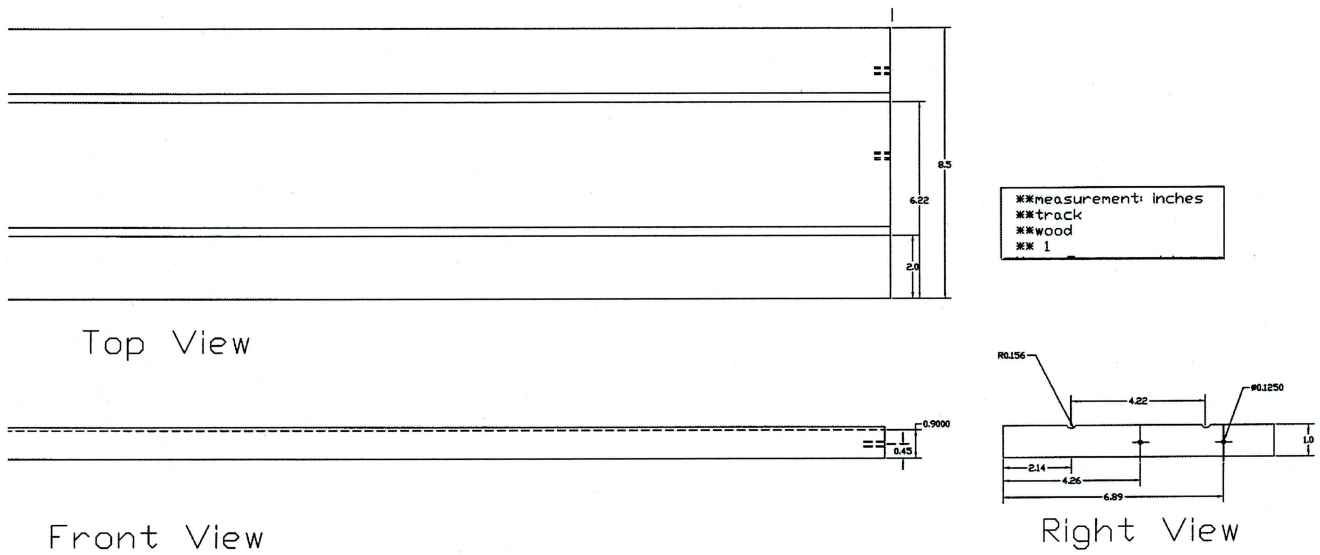
Appendix 9
Cart Assembly Rod/Spring Support Drawing



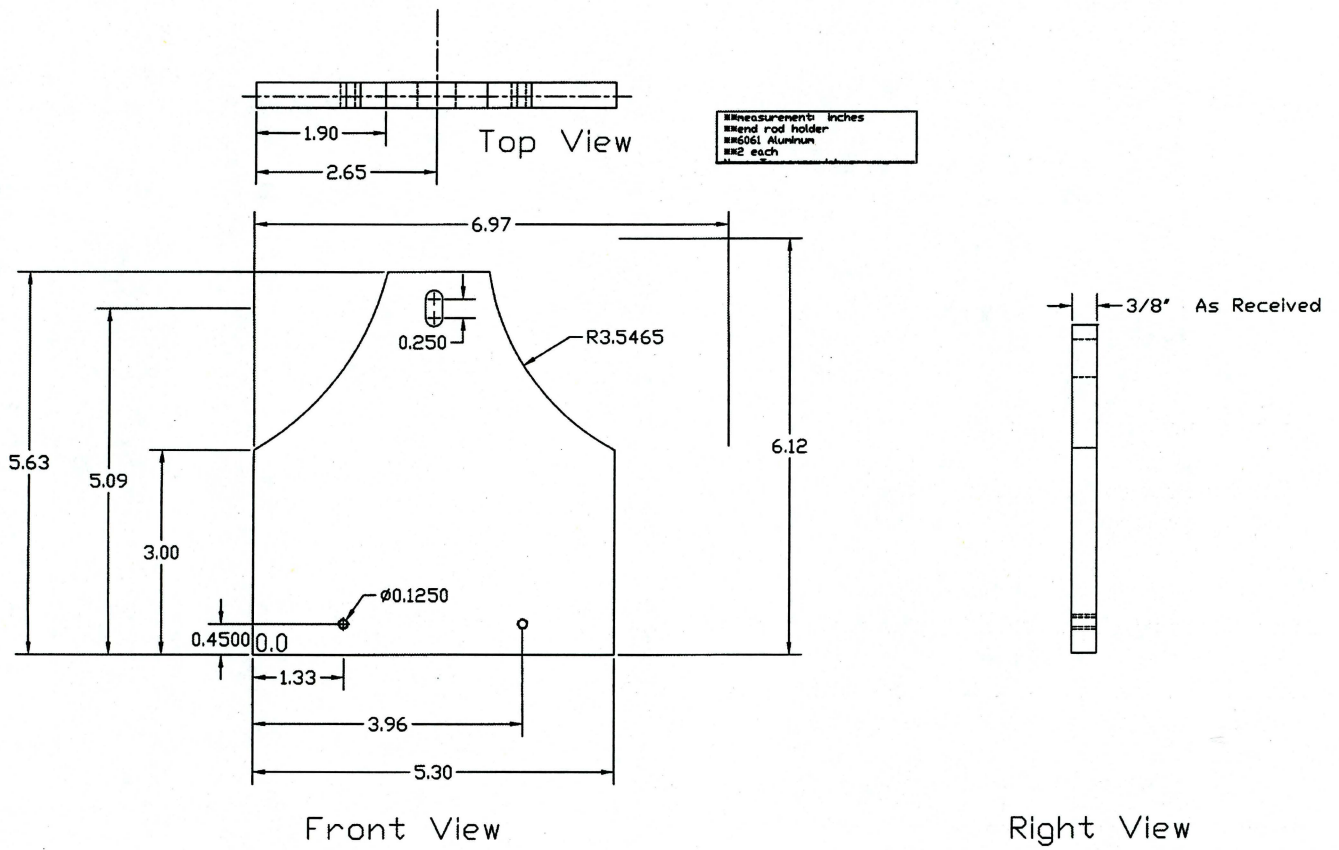
Appendix 10
Cart Track Drawing # 1



Appendix 11
Cart Track Drawing # 2



Appendix 12
Cart Assembly End Wire Holder



Contemporary Chicana Art and Literature: An Amalgamation of Ethnic and Feminist Identity

Mary Cavazos

Mentors: Dr. Elizabeth Ordóñez, Department of Modern Languages
and Prof. Benito Huerta, Department of Art and Art History

ABSTRACT

Chicana issues are unique because they combine ethnic and feminist concerns. For this reason, the Chicano and feminist movements of the 1960's only partially, and rather indirectly, advanced Chicana themes. Chicanas were compelled to seek other forms of expression that would fully allow the advocating of their social, ethnic, and feminist concerns through art and literature. These issues, important to Chicanas, are made manifest in the art of contemporary Chicana artists such as Yolanda M. López, Celia Alvarez Muñoz, and Alma López. They are also explored in the literature of contemporary writers Gloria Anzaldúa, Ana Castillo, and Sandra Cisneros. I will use their creations to show how contemporary Chicanas are reconstructing the icons of *La Virgen de Guadalupe*, *La Malinche*, and *La Llorona*.

INTRODUCTION

Don't give me your lukewarm gods. What I want is an accounting with all three cultures – white, Mexican, Indian. I want the freedom to carve and chisel my own face, to staunch the bleeding with ashes, to fashion my own gods out of my entrails. And if going home is denied me then I will have to stand and claim my own space, making a new culture – una cultura mestiza¹ – with my own lumber, my own bricks and mortar and my own feminist architecture (Anzaldúa, *Borderlands* 22).

The 1970's was the first time that the United States saw women of Mexican descent burst forth with their own art and literature. A Contemporary Chicana² Renaissance emerged. Chicanas developed a distinctive feminist voice by creating both written and visual texts. This expression was influenced by the Women's Liberation Movement³ and was a resounding statement against the "machismo," or the flamboyant display of manliness, they encountered within the Chicano Movement⁴. Chicanas asserted a familiar feminist message while placing ethnic issues that focused on women at the forefront of their art and literature.

First, they created a manifesto, *Chicanas Speak Out*, directed at questioning the religious and cultural myths, traditions and icons that constrained feminine sexuality and identity. Chicanas defined positive cultural identities and expressed them with figures and icons denoting empowerment, independence, and self-identity. With the invocation of experience and personal expression, they were able to redefine the symbolic function of traditional imagery. By taking religious and mythological archetypes – *La Virgen de Guadalupe*, *La Malinche*, and *La Llorona* – and recasting them as figures denoting feminine strength and sexual power, the artists have given traditional imagery a personality with which Chicanas may share an affinity. This affinity is established not because the image's look is contempo-

rary, but because it incorporates the hearts and spirits of Chicanas that had been previously silenced.

As cultures evolve and flow with time, the Chicana artist contends with a society that may have distorted and diluted her cultural identity. She is compelled to incorporate the complex emotions of modern times into her artistic expression. She embodies herself (her being, her persona, her essence) in her new creations, for she is aware that she belongs to a people living in a present shaped by the past. My analysis of Chicana artists and writers is based upon the examination of a new Chicana aesthetic, where tradition collides with contemporary complexities. In this light, my analysis asks: How are Chicano/Mexican myths and cultural iconography reconstructed with the purpose of addressing contemporary issues of identity, feminism, and ethnicity?

This research explores the unique ways in which the artists Yolanda M. López, Celia Alvarez Muñoz, and Alma López, along with writers Gloria Anzaldúa, Ana Castillo, and Sandra Cisneros, criticize tradition and culture by redefining myths and icons. It also addresses how, through their distinct media, these artists and writers manage to reconstruct icons of womanhood so that they, and their public, can relate to them personally as contemporary women. Thus, this cultural analysis conceptualizes the feminist and ethnic themes contemporary Chicana artists and writers blend in their works.

The first section provides a review of previous research that frames and guides this study. The second presents an overview of the traditional Chicano/Mexican myths and icons that have silenced Chicanas. Finally, this paper will analyze the artistic and literary worlds of Chicanas. The most interesting parallels between the written word and its visualization occur in the visual texts of Y. López, C. Muñoz, and A. López, as well as those found in the written texts of G. Anzaldúa, A. Castillo, and S. Cisneros.

¹ Anzaldúa is referring to the people of mixed Spanish and Indian blood. The Chicana is part of this culture.

² The Chicana is a bicultural hybrid, drawing from the heritage of two cultures and two nations, in this case, Mexico and the United States. In order to signify the importance of Chicana endeavors, I chose to use the term Chicana to refer to women of Mexican descent born or raised in the United States. Carmen Tafolla, in "Split a Human," states that "although [the Chicana] shares many values with her Mexican sisters, her own culture is a unique blend of dual experience and creative invention of new forms expressly her own" (13).

³ The Women's Liberation Movement was an outgrowth of earlier waves of feminism.

⁴ The Chicano Movement sought total liberation from oppression, exploitation, and racism. The participants or activists were inspired by the belief that cultural pride and ethnic unity were what was needed for political mobilization and empowerment. Women were active in this movement, but they realized that their concerns were not being recognized.

LITERATURE REVIEW

In Tey Diana Rebolledo's *Women Singing in the Snow: A Cultural Analysis of Chicana Literature*, she demonstrates how Chicanas have looked towards one another for role models. Rebolledo suggests that "there will be a coming together of Chicana artists and writers in a common struggle, and there will be increasing collaboration between the two groups as they represent their perspectives on culture and society" (Rebolledo 209). She realizes that Chicana writers have thrown off the taboos of the past, especially those related to traditional myths and icons; they are now writing texts to liberate themselves and celebrate their 'persona.' This research serves to prove Rebolledo's assertion that Chicana artists and writers have come together and are engaged in the same empowering process. I will expand on this union by exploring the written and visual texts which contemporary Chicana artists and writers are creating.

Yet, all have not welcomed this type of expression. Many feel that some contemporary Chicana artists and writers have degraded the most sacred religious icon of the Chicano/Mexicano culture – *La Virgen de Guadalupe*. An online article, "Lesbians Insult 'La Virgen de Guadalupe'" from *La Voz de Aztlan Editorial*, criticizes the artwork of the Chicana lesbian artist, Alma López. *La Voz de Aztlan* believes that there is a "lack of respect for one of Mexico's most revered spiritual symbols, by some Chicanas, [that] demonstrates that a lack of ethnic identity" can often lead to a confusion of sexual identity as well. Many Roman Catholics and Archbishop Michael Sheehan have condemned the contemporary versions of *La Virgen de Guadalupe* as sacrilegious and insensitive. They recommend that those images should be removed from display. One unnerved Catholic, José Villegas, says that "Our Nuestra de Guadalupe does not belong to the new age interpretation of the millennium century and never will." (www.almalopez.net)

Responding to her critics, Alma Lopez, a practicing Catholic herself, declared, "I feel that if my work is removed it means that I have no right to express myself as an artist and a woman. It means that as Chicanas we can only be sexualized or only be virgins. It means that only men can tell us how to look at the Virgin and relate to her personally" (www.almalopez.net).

Moral or not, the fact is that the traditional myths and icons – The Virgin of Guadalupe, *La Malinche*, and *La Llorona* are being reconstructed as vehicles of personal expression. In Chapter 5, "Myths and Archetypes", of *Infinite Divisions: An Anthology of Chicana Literature* compiled by Tey D. Rebolledo and Eliana S. Rivero, the story of *La Malinche* is retold by Chicana poets. Also, Anne Smittle's online essay, "The Story of La Malinche: The Mexican Eve: A Woman of Historical Contradictions," gives a critical perspective on *La Malinche*. A more negative view of all three icons is found in Tey D. Rebolledo's, "From Coatlicue to La Llorona: Literary Myths and Archetypes," found in *Women Singing in the Snow: A Cultural Analysis of Chicana Literature* (49-81).

Traditional Myths and Archetypes

Many anthologies and texts detail the dichotomous female stereotypes of the past – that of the virgin and that of the "whore." The most accepted archetype of a woman in Mexican and Chicano cul-

ture is the pure, virtuous lady. The icon of La Virgen de Guadalupe represents that archetype – the good woman and the perfect role model for Chicanas.

Our Lady of Guadalupe: Faith and Empowerment Among Mexican-American Women by Jeanette Rodriguez gives a critical account of the Virgin of Guadalupe. The Virgin of Guadalupe embodies the virtues of purity, passivity, obedience, motherhood, and love. According to tradition, on December 9, 1531, the Virgin Mary appeared to Juan Diego, an Indian, on the top of a hill – Tepeyac. She gave him instructions to have the bishop, at that time Bishop Zumarraga, build a church on that site, where the Nahuas had worshiped an important pre-Colombian Nahuatl goddess, Tonantzin. Juan Diego did as he was told, but the bishop did not believe him. Then the Virgin appeared to Juan Diego a second time, three days later, and told him to pick flowers and take them to the bishop. When he presented them as instructed, roses fell out of his mantle and imprinted beneath them was the image of the Virgin Mary.

Catholics today call her the Virgin of Guadalupe or Our Lady of Guadalupe, but this virgin has a past. Before the Catholic Church took the icon as its own, she was known by many other names and depicted different qualities. Her Indian name is Coatlatlopeuh, and she is believed to have laid the precedent for the lore of the Aztec serpent goddess, Coatlicue, and Tonantzin, the good mother. Coatlicue, or "Serpent Skirt", was a spin off from Coatlatlopeuh; Coatlicue displayed a human skull or serpent head and a necklace of human hearts. Men and women feared her for her intimidating posture, appearance, and thirst for human sacrifices. This figure was an affront to the male warrior culture that over time came to dominate the Aztecs way of life. "Emasculating" Coatlicue, the Aztecs took the Coatlicue icon and converted it into Tonantzin, the good mother. The repressive methods of the Catholic Church continued this mindset. According to Anzaldúa's essay, "Coatlatlopeuh, She Who Has Dominion Over Serpents," the Spaniards and their Church continued to split Tonantzi[sic]/Guadalupe "[...] they desexed [Her][...] taking the serpent/sexuality out of her [...] [thus] making *la Virgen de Guadalupe/Virgen Maria* into chaste virgins" (52). Tonantzin was then transformed into Guadalupe, the chaste, protective, and ideal mother. Coatlicue, thereby, became Guadalupe's antithesis.

In contrast to the benevolent nature of the Virgin of Guadalupe, *La Malinche* (also known as Malintzin Tenepal) is referred to as the bad mother – the "whore." *La Malinche* is the young Nahuatl woman of noble birth that was sold to the Spanish conquistador, Hernán Cortés, in 1519. The Spanish baptized her as Doña Marina as she aided Cortés' conquest of the Aztec empire and, ultimately, Spain's colonization of Mexico. Her ability to speak both Mayan and Nahuatl made her a priceless asset as a translator. Being in constant close contact with Cortés, she naturally became his mistress and gave birth to the first "mestizo." The word "Malinche" or "Malinchista" was used to describe her as a woman who betrayed her country. Today, it is often used to describe a woman who acts out against the established rules of her community or her man. She is also called, "*La Chingada*" or the "violated one." This myth has been used to control women and to prevent them from being traitors to their race and/or man, father, or son.

Just as complex and misunderstood as *La Malinche*, is the figure of *La Llorona*, the weeping woman. The lore of *La Llorona* melds both Indian and Spanish legends. These legends include images of women who murdered or abandoned their children. In some tales, *La Llorona* drowns her children due to her husband's infidelity and her family's poverty and suffering. Feeling that the children's plight was so bad that they would be better off dead, she drowns them during a short lapse of sanity. The soul of *La Llorona* – and other mythical women like her – cannot rest until she finds her children and redeems herself as a mother, even if the redemption takes place in the afterlife. *La Llorona* haunts ditches, rivers, and streams, calling and weeping for her lost children.

Gloria Anzaldúa places these three feminine figures in a cultural context. She writes that Chicanas claim three mothers:

La gente Chicana tiene tres madres (The Chicano people have three mothers)...All three are mediators: Guadalupe, the virgin mother who has not abandoned us; *la Chingada* (Malinche), the raped mother whom we have abandoned; and *la Llorona*, the mother who seeks her lost children is a combination of the two (Anzaldúa, *Borderlands* 30).

To answer the repression, restriction, and oppression of Chicanas, contemporary Chicana artists and writers are taking these traditional mythical images to express the essence of contemporary women. The irony is that Chicana artists and writers are taking the traditional imagery that was once used to silence their predecessors and using it as the vehicle to drive their feminist messages.

DISCUSSION

We are looking at what was handed down to us by previous generations of poets, and in effect [we are], rejecting, reshaping, restructuring, and reconstructing that legacy and making [that] language and structure ours—suitable to our moment in history (Castillo, *Massacre* 165).

The artists and writers in this analysis are rediscovering “herstory” (the history of women) by reinventing and reconstructing past artistic and literary expressions for a new dynamic society. They are tearing down the stereotypical images of Chicanas to create a space for new and non-traditional images of themselves. These are Chicanas with new visions and stronger attitudes. The restructured imagery is a visual testament of how the future of the Chicana is being constructed by what is taking place today. This is in stark contrast to the static, ironclad rigidity of traditional depictions. The Chicana of today is superimposing her own being onto traditional feminine icons rather than allowing herself to be sculpted by a lifeless archetype.

La Virgen de Guadalupe

The image of *La Virgen de Guadalupe* is found throughout Mexican and Chicano neighborhoods. She permeates everyday life. She is hung on walls, she is on calling cards, she is on T-shirts, she is on air-fresheners, and she is even on computer desktops. Undoubtedly, she “is the single most potent religious, political and cultural image of the Chicano/mexicano” (Anzaldúa, *Diosa de las Américas* 30). Today, the technological and fast-paced life of the Chicano community meld into her.



Figure 1. Ester Hernández, *La Virgen de Guadalupe Defendiendo los Derechos de los Xicanos*, 1975, etching and aquatint.



Figure 2. Yolanda M. López, *Portrait of the Artist as the Virgin of Guadalupe*, 1970, oil pastel on paper.

In their effort to claim the virgin as a Chicana feminist icon, Chicana artists and writers have assumed a feminist ideal and have thus formed the *Virgen of Guadalupe*. Chicana artists dramatically force their expression through the traditional image of the Virgin of Guadalupe. One of the first images depicting a powerful Virgin appeared in Ester Hernández's 1975 print, *La Virgen de Guadalupe Defendiendo los Derechos de los Xicanos* (Figure 1). In this print, the Virgin is depicted as a strong martial artist. La Chicana now can defend herself.

Similarly, Yolanda M. López's *Guadalupe Triptych* (1978) represents the Virgin of Guadalupe as a marathon runner, a seamstress, and a grandmother. In *Portrait of the Artist as the Virgen de Guadalupe* (Figure 2), one of the drawings of the series, López illustrates herself as a marathon runner. A young woman strides forward energetically, with a smile on her face, holding a snake in her right hand and the Virgin's cloak, covered with stars, draped over her left shoulder. She appears determined and ready to confront whatever obstacles lie ahead. To demonstrate her empowerment, "crushed under her foot is the angel, described by López as a middle-aged agent of patriarchy, whose wings are red, white, and blue" (Gaspar de Alba 141). Unlike the traditional representation of the Virgin who is usually portrayed with her head lowered, her eyes gazing down, and her hands clasped together at her breast, López's Virgin gazes directly at the viewer. López has turned this portrait into a strong feminist statement exuding the power of contemporary women; it is one of the best-known images in Chicana art.

The first generation of Chicana artists merely reinterpreted the icon of the Virgin of Guadalupe. Artists of this era are not only reinterpreting the image of *La Virgen* but are reshaping it by melding pre-Columbian or Aztec goddesses into her facade. These goddesses fortify the Virgin's image, adding complexity, intrigue, and strength. It is this likeness with which today's Chicana shares an affinity. Today's Chicana may or may not be a virgin; she may be submissive at some times and may be absolutely opinionated at other times. One point we know for sure is that she cannot be constrained by what men, other women, and society at large says she should be. Whether chaste or worldly, she is who she is. This theme of a woman finding her place in society, while simultaneously realizing her identity, links Yolanda López's drawings with other contemporary Chicana artistry and literature. Among them are the works of artists Alma López and Celia Muñoz and the literary works of Sandra Cisneros, Ana Castillo, and Gloria Anzaldúa.

Alma López, a Chicana artist raised in Los Angeles, has created artwork that addresses contemporary issues of Chicanas in a manner similar to the Chicana artists of the 1970's. However, her visual language reflects the personal experiences and reality of a cultural activist in the beginning of a new millennium. It is through her demonstration of feminine sensuality, through the images of pre-Columbian female deities and the Virgin of Guadalupe, that she is able to explore the multiplicity of her identity. She creates photo-based digital images that combine folk art with current computer technology to "create a new aesthetic" – more like her Chicana self. López's *Our Lady* (1999) features a digital photograph of performance artist Raquel



Figure 3. Alma López, *Our Lady*, 1999, digital print.

Salinas as a contemporary Virgin dressed in a floral bikini standing on a crescent held aloft by a nude butterfly angel, which is the image of Raquel Gutierrez, a friend of the artist. In Alma López's statement, she writes:

When I see "Our Lady" as well as the works portraying the Virgin by many Chicana artists, I see an alternative voice expressing the multiplicities of our lived realities. I see myself living a tradition of Chicanas who because of cultural and gender oppression, have asserted our voice...I see beautiful bodies that are gifts from our creator. Maybe because my mother breast-fed me as a baby, I see breasts as nurturing. Maybe because I love women, I see beauty and strength. (www.almalopez.net).

López depicts a Virgin with whom she can identify and who expresses her sexual identity. By replacing the traditional icon of a small cherub with its wings painted green, white, and red (the colors of the Mexican flag), she portrays a visual metaphor for "queer Chicanas/os" or lesbians, bisexuals and gays with a bare-breasted angel with Viceroy butterfly wings. The Viceroy butterfly mimics and resembles the Monarch butterfly. For this reason, in an essay, "Mermaids, Butterflies and Princesses," López suggests:

The Viceroy pretends to be something it is not just to be able to exist. For [her], the Viceroy mirrors parallel and intersecting histories of being different or 'other' even within our own communities [...] So from outside and inside our communities, we are perceived as something we are not. When in essence, we are those vulnerable Viceroy butterflies, trying to live and survive (190).

Alma López, in the act of creating these digital images, is also laying a public claim to herself and her sexuality. It is a continuation of the freedom that the modern Chicana is experiencing by living how she wants to live.

It is interesting how Alma López's image of *Our Lady* (1999) was inspired after reading an essay titled, "Guadalupe the Sex Goddess" by Sandra Cisneros, a well-known Chicana writer. In the essay, Cisneros wonders what the Virgin is wearing under all her clothes. Are *La Virgen's* genitals like her own, displaying the same coloration and shape? Is *La Virgen's* "panocha"⁵ ethnic—if there is such a thing? López provides an answer to Cisneros' questioning of whether or not Guadalupe was a woman like herself. Cisneros finds that in Guadalupe's pre-Columbian antecedents, besides discovering Tonantzin, she finds other mother goddesses such as Coatlicue, the creative/destructive goddess that is mentioned earlier in this analysis. It is because of the power of these goddesses that "la Lupe" intrigues Cisneros, "not the Lupe of 1531 who appeared to Juan Diego, but one of the 1990's who has shaped who [Chicanas] are today" (51).

In another digital print, Alma López reinterprets the imagery of an Aztec legend that appears in many Chicano/Mexican *almanagues* or calendars, especially since the Chicano Movement, and that appears on low rider cars, t-shirts, and murals. This myth consists of a warrior named Popocatepetl and an Aztec princess, Ixtacihuatl. Popo and Ixta's love was opposed by their rival tribes, and one day Ixta, hearing false rumors of Popo's death, kills herself. When Popo finds Ixta dead, he gives orders to build two pyramids beside each other: a smaller one for Ixta and a taller one for himself so that he can forever guard her. They become transformed into the twin, snow-covered volcanoes found in Mexico City today. One is able to easily distinguish them for when snow falls on the volcanoes, it rests on the two hills of the one named Ixta – the snow rests on her breasts. Because the female in this myth, and in most artistic images, is presented as a disempowered woman, lying in the Aztec warrior's arms or across his feet, dressed in transparent drapery that reveals her breasts and legs, and dependent on a male to survive, Alma López reinterprets this legend of love and names her new creation "Ixta". In *Ixta* (1999) (Figure 4), López places two female figures as the center of the artwork and has the traditional image serve only as a backdrop, to demonstrate her overpowering and feminist reconstruction. López locates one of the female's bodies lying across the U.S./Mexican border and the other in a pseudo-Christ-like position, kneeling as if guarding or resurrecting the dead woman. This instills a message of women coming together and helping each other – healing the wounds left by a male-centered culture.



Figure 4. Alma López, *Ixta*, 1999, digital print

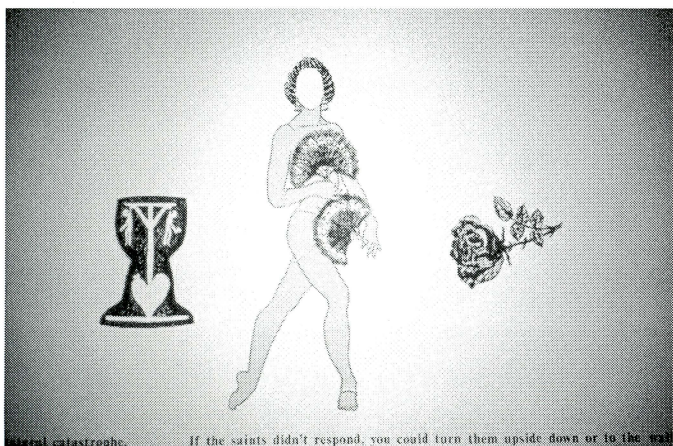
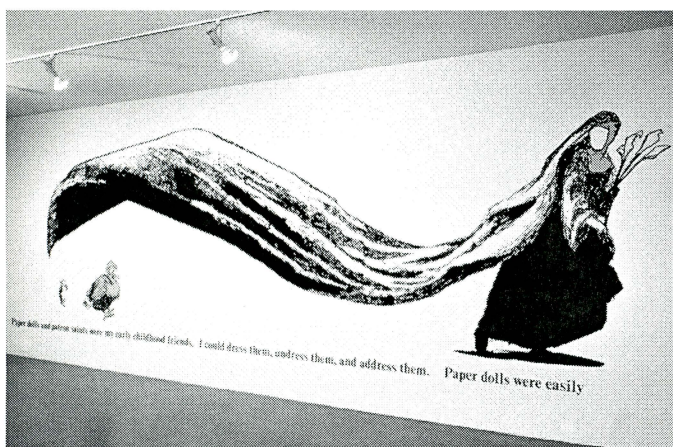
This image seems to parallel a poem by Ana Castillo, a well-known contemporary writer, titled, "Ixtacihuatl Died In Vain." Castillo draws upon the Aztec myth to express a relationship between two women (Toltec 39). By shifting the attribution of gender and making the myth a female-centered one like Alma Lopez has done, women can say that "[they] are Ixtacihuatls / sleeping, snowcapped volcanoes / buried alive in myths / princesses with the name of warrior / on [their] lips" (2.6-10).

Like the already mentioned Chicana artists and writers, Celia Muñoz, a contemporary Chicana artist who grew up in El Paso, also creates artwork that comments on women's issues and reflects personal expression in an indirect manner. In a 1989 multimedia/mural/slide/video installation titled "Rompiendo la Liga (Breaking the Bindings)," Muñoz draws on Catholic religious symbols and combines black and white paper dolls with a narrative text running along the bottom of the walls. "Paper dolls and patron saints were my childhood friends [...] I could dress them, undress them and address them," (Tyson 1989) the text begins. In addition to the linear narrative, juxtaposed with it are bejeweled saints, and, interestingly, all the women figures are faceless. In Figures 3 and 4, one can see how the Chicana is changing through history – a woman fully clothed, like the *Virgen de Guadalupe*, striding and moving into the present, lifting off her clothing, as the *Virgen de Guadalupe* does in Alma López's *Our Lady* (1999). The figure in Muñoz's installation transforms into a nude and faceless fan dancer walking forward. This represents the

⁵ This is a slang term for a woman's genitals. Its real definition though is "corncob".

Chicana women that “move through history, left to right, with more or less clothing, [and] more or less freedom” (Pritikin 1989).

This installation also seems to parallel the prayers and pleas made to patron saints and the Virgin of Guadalupe that make up Sandra Cisneros’ short story, “Little Miracles, Kept Promises.” The short story is mostly filled with short personal prayers given to Catholic saints. In one prayer, a young girl named Rosario has cut off her long, beautiful hair and pinned a braid of it by the statue of the Virgin of Guadalupe, just as she promised if her prayer was answered. Of course, there are times that those patron saints fail to listen to prayers and pleas, but “one could undress them or turn them to the wall” (*Rompiendo la Liga* 1989) if that ever happened. In Cisneros’ story, this does not happen; the Virgin answers Rosario’s prayer. For Rosario, the Virgin of Guadalupe represented the passivity of women in her family. Rosario wanted a different image for herself and addresses the Virgin by saying, “I wanted you bare-breasted, snakes in your hands. I wanted you leaping and somersaulting the back of bulls. I wanted you swallowing raw hearts and rattling volcanic ash. I wasn’t going to be my mother or grandma. All that self-sacrifice, and all that silent suffering. Hell no. Not here. Not me” (*Women Hollering Creek*, 127). After being ambivalent toward the Virgin at first, Rosario recognizes that within the Virgin lie’s Tonantzin and all the other powerful Aztec goddesses that gave her life.



Figures 5 and 6. Celia Muñoz,
Rompiendo La Liga, 1989, mixed-media installation

Rompiendo la Liga (Breaking the Binding)—that is what these contemporary Chicana artists and writers are doing by utilizing techniques to recontextualize the history of Chicanas. At the same time, they are succeeding in bringing about an amalgamation of women’s/ feminist issues and identity themes.

La Malinche and La Llorona

In the past, writers looked into her face and saw their own; now they look through her to find themselves (Phillips 114).

Contemporary Chicana artists and writers continue re-imagining the story of *La Malinche*, or Malintzin, the legendary mistress of Hernán Cortés and first mother of an Indian and Spanish child – a mestizo. In contemporary Chicana literature and art, *La Malinche* serves as a figure of the sexually empowered woman who contests the patriarchal image of the passive and submissive woman. Gloria Anzaldúa, in *Borderlands/La Frontera*, uses the image to represent silent, brutalized and marginalized peoples living in the United States and Mexico. Anzaldúa states in this book that she did not sell out her people. Rather, they sold her out. She refers to *La Malinche*, and the fact that *La Malinche* was originally betrayed by her own family. Anzaldúa, a Chicana lesbian, can identify with *La Malinche*, not only because she is a woman, but also because her choice of sexuality is not accepted by the Chicano/Mexican community. In Chicana art the image of *La Malinche* is presented directly and indirectly. In her book, *Santa Barraza: Artist of the Borderlands*, edited by Maria Herrera-Sobek, Santa Barraza depicts through artworks her own experiences of living in the borderlands, while Gloria Anzaldúa depicts them through writing. Barraza, being a mestiza herself, creates a painting, *La Malinche*, in which she places an Indian woman, gazing down like the traditional image of the Virgin of Guadalupe, except this woman is bare-breasted with a small child, a mestizo, crouched between her breasts. Unlike the bare-breasted angel in Alma López’s “*Our Lady*” (1999), this woman’s breasts are not fully exposed and are covered by a large cactus type plant. In the background stands the image of Hernán Cortés, gazing straight at the viewer.

The legend of *La Llorona*, the weeping woman, has been challenged by many contemporary writers; there exist hundreds of different versions of this myth. Fortunately, this myth and all other myths created by men in order to impose a system of beliefs upon women, continues to be written about by emerging Chicana writers. In Ana Castillo’s novel *So Far From God* the image of *La Llorona* appears in Chapter 10. The tale that appears in this novel is different from the traditional one. Castillo, instead, writes that *La Llorona* drowns her children to run away with her lover, and ever since then she has haunted rivers and bodies of water, weeping and wailing for her lost children. Castillo emphasizes that the traditional purpose of this myth is to teach women to be subordinate and obey their husbands. Therefore, in her novel *Sofia*, the mother of four daughters (La Loca, Esperanza, Fe, and Caridad), never tells them the myth. Sofia refuses to pass on the negative lessons of a myth created to undermine women. Sandra Cisneros in “*Woman Hollering Creek*” also uses the symbolism of *La Llorona*, turning the image into a source of feminine resistance. A battered Mexican wife, Cleófilas, lives in a violent atmosphere and decides to return to Mexico. When parting, and as she passes through

the creek, Woman Hollering (Felice), the woman driving the truck, yells loudly explaining, "Every time I cross that bridge I do that. Because of the name. You know. Woman Hollering. Pues [(Well)] I holler" ("Woman Hollering Creek", 55). Then, she begins laughing and gurgling out of her "own throat, a long ribbon of laughter like water" (56) comes out. Felice represented *La Llorona* — a woman hollering triumphantly rather than a woman suffering.

When examining the art that depicts the legend of *La Llorona*, one finds the figure of a ghostly woman near the body of a baby, about to take him away (See Figure 7). In other artworks, *La Llorona* is depicted as an Indian woman that may be *La Malinche*. *La Llorona* is a contemporary symbol representing the mourning of the Chicana for both her lost culture and 'persona.'



Figure 7. Celia Rodriguez, *Llorona*.

CONCLUSION

It is too simplistic to assert that mere "expression" was the catalyst behind the works of the aforementioned artists and writers. The catalyst was the longing in the hearts and souls of women for true, life-like images that looked as they did but exuded the admirable qualities women seek to realize. Chicana writers turned mythical personalities into real personages; Chicana artists made the lifeless icons burst with vibrance and warmth.

The figures of the Virgin of Guadalupe, *La Malinche* and *La Llorona* may symbolize many different qualities, but they remain like cold statues — inimitable characters — if artists do not impart a personality — a soul — in them. Traditional society may have created these icons and then expected everyone to live up to the image. Chicana artists and writers depart from the ideal and express what they are and let the audience be the judge of whether that is good or bad. To the artist and writer, that matters not.

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Reies Lopez Tijerina: The Rise and Fall of *King Tiger*¹

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ABSTRACT

This research is a sociological/historical analysis of a central figure in the Mexican American Civil Rights Movement, Reies Lopez Tijerina. The analysis technique used to conduct this research was historiography. This research examines Tijerina's leadership style using the Weberian model of charisma and charismatic authority. This paper includes historical background of New Mexico, the social issues surrounding the movement, Tijerina's early life, and analysis of Tijerina's charismatic leadership style.

INTRODUCTION

Research dealing with Mexican American social issues has been relatively scarce in the field of sociology. In my review of published material (sociological texts or journal articles), I have found no mention of the Mexican American Civil Rights Movement, also known as the Chicano Movement, or its leaders.² By using the Weberian Model of charisma and charismatic authority, I hope to shed light on the leadership style of one of the most controversial figures in the Mexican American Civil Rights Movement, Reies Lopez Tijerina. Tijerina became active in the Mexican American Civil Rights Movement in the 1960's with his efforts to reclaim land that once belonged to New Mexican land grant heirs.

This paper will explore the historical background and social circumstances in New Mexico in order to better understand Reies Lopez Tijerina's leadership of his principle organization: the Alianza Federal de Mercedes. The analysis of Tijerina's charismatic leadership style will be divided into two sections: his rise and fall. I hope that this paper will help to further interest in and research of this important period of American history and one of its most significant social movements.

LITERATURE REVIEW

Sociologist Max Weber was the first to develop the concept of charisma. Various individuals have subsequently used the term, without precise understanding, to characterize individuals. Charisma has commonly become a term of flattery used to describe any individual with a minimal ability to excite a crowd. Weber, however, had something more complex and important in mind:

The 'term' charisma will be applied to a certain quality of an individual personality by virtue of which he is set apart from ordinary men and treated as endowed with supernatural, superhuman or at least specifically exceptional power or qualities. They are such as are not accessible to the ordinary person, but are regarded as of divine origin or as exemplary, and on the basis of them the individual concerned is treated as a leader. (Eisenstadt, 1968, p. 48)

The use of the term charisma in this paper is not intended to prove that Tijerina possessed any supernatural powers. His leader-

ship style could have been a gift from birth or acquired through life experiences. Charismatic attributes will be used purely as a comparative model to analyze Tijerina's leadership style. For example, Weber states that charismatic leaders believe themselves to be prophets on a mission from a higher source. Obviously, I cannot prove that Tijerina was a prophet and that a divine source granted him power. I can, however, prove that Tijerina and his followers did see him as such. So, in fact, Tijerina's leadership did possess charismatic attributes.

In order to accurately depict charisma and its importance in the study of leaders and social movements, I used Weber's original writings from Max Weber On Charisma and Institution Building, edited by S.N. Eisenstadt (1968), and Max Weber: An Intellectual Portrait by Bendix (1960). I also employed Persuasion and Social Movements by Stewart et al. (1994), and Studies in Social Movements, edited by McLaughlin (1969), to gain insight and describe specifically the relationship between social movements and charisma. Persuasion and Social Movements is a collection of theories and summaries of findings in the fields of sociology and social psychology related to social movements and the use of persuasion within social movements since the 1960's. The bulk of information I used came from Chapter 5 in this book, Leadership in Social Movements, which covers the nature, attainment, and maintenance of leadership in social movements. Studies in Social Movements is also a collection of numerous perspectives on social movements in the social science fields. The main methodological approach in this book is psychological, and I use its perspectives on charisma in my work. Finally, in order to provide necessary background on the history of New Mexico, the Alianza Movement and Tijerina, I used Tijerina's translated autobiography, They Called Me King Tiger: My Struggle for the Land and Our Rights (2000), Blawie's Tijerina and The Land Grants (1971) and Gardner's Grito! The New Mexico Land Grant War of 1967 (1970).

Tijerina was the only leader of the movement to write his memoirs. They were first published in Spanish in 1978 and have only recently been translated into English by a fellow Chicano Movement leader, Dr. José Angel Gutierrez. The book is written in the form of journal entries and is sometimes difficult to follow. Tijerina weakens the book at the end with short entries that include only minor de-

¹ *King Tiger* was a nickname given to Reies Lopez Tijerina after the courthouse raid. *Reies* in Spanish comes from *rey*, which means king and *Tijerina* comes from the Spanish word *tigere* meaning tiger. This nickname suggests Reies status as a leader as well as his ferocious style.

² The term *Chicano* was once a derogative word used to describe Mexican Americans. During the movement Mexican Americans wore the name with pride. The movement is referred to as the Mexican American Civil Rights Movement and the Chicano Movement. I will use both terms interchangeably through the text. However, I would like to point out that Tijerina never used the word; he preferred the term *Indo-Hispano* that highlighted the native's Indian and Spanish roots.

tails; nonetheless, it gives valuable insights into Tijerina's personal thoughts that cannot be found in secondary sources. Blawis' book is short, and perhaps with a somewhat biased tone, but provides valuable information regarding the most significant time in the movement. Gardner is a journalist and his work reflects that. It provides a very intimate look at the events surrounding the courthouse raid.

METHODOLOGY

The data used for this research consist of primary (Tijerina's autobiography) and secondary sources (see literature review). The analytical technique used is historiography, which the social sciences define as "the method for discovering from records and accounts what happened during some past period" (Berg, 2001, p. 211). I have closely relied upon documentaries, primary and secondary resources and informal conversations with Dr. José Angel Gutierrez, founder of the Chicano Movement in Texas and colleague of Reies Lopez Tijerina. Although the historiographical approach is not a widely used method in sociology, it is nonetheless extremely important to the study of sociology because one cannot hope to understand present social conditions "without understanding the situations within which these developments occurred" (as cited in Berg, 2001, p. 212). Through the collection and analysis of historical information one can infer the social conditions that gave rise to Tijerina and provide a comparative model to study future social movements.

HISTORICAL BACKGROUND

The Anglo-American quest for expansion came long before the occupation of New Mexican Territory. The first great Anglo conquest was Texas, which Anglos began to settle in 1824. The newly independent Mexican nation, eager to see its territory populated, allowed Stephen F. Austin to settle Anglo-American families in Texas.³ The new settlers disliked the laws and customs of Mexico. The Mexican government tried to meet the needs and demands of Anglo-American settlers without success.⁴ Mexico's antislavery sentiments did not work well with Anglo slaveholders in Texas, and Anglo settlers soon revolted. The Anglos in Texas declared their independence and took power, establishing an independent nation – The Republic of Texas. The Mexican government never acknowledged Texas independence and bitterly resented its later annexation by the United States. A Mexican governor at the time said, "What used to be called stealing is now called annexation" (as cited in Blawis, 1971, p. 20). The legitimacy of Texas independence, as well as that of its legal boundaries, has never been resolved.

The spirit of Manifest Destiny reigned supreme in the United States in the nineteenth century. Sam Houston, former president of the Republic of Texas stated, "...since Mexicans are no better than

Indians, I see no reason why we should not go on the same course and take their land" (as cited in Blawis, 1971, p. 26). In April of 1846, the United States Congress voted in favor of war with Mexico. In the fall of that same year American troops occupied New Mexico. The Treaty of Guadalupe Hidalgo, which gave the U.S. control of New Mexico, Arizona, California, Utah, and parts of Colorado, Oklahoma, Nevada, Kansas, and Wyoming, was ratified on May 19, 1848. Mexico lost half of its territory; the total U.S. area was increased by over 50 percent. The land occupation did not stop there. In order for Mexico to pay off the debt the US had acquired during the war, Mexico agreed to the Gadsden Purchase giving the US control of the remaining portions of New Mexico and Arizona.

The Mexican government attempted to ensure the protection of its former citizens in the Treaty of Guadalupe Hidalgo by including provisions that its former citizens' land grants be honored, as well as receiving full rights as U.S. citizens. Article VIII of the Treaty of Guadalupe states:

In the said territories, properties of every kind, now belonging to Mexicans not established there, shall be inviolably respected. The present owners, the heirs of these and all Mexicans who may hereafter acquire said property by contract, shall enjoy with respect to its guarantees equally ample as if the same belonged to the citizens of the United States. (as cited in Rosales, 2000, p.10)

Article IV of the Treaty guaranteed their rights to practice their religion, culture, and language. These components of the treaty were not to be honored. The Anglo-American was not ready to see the conquered natives as equal.

CHARISMA AND THE SOCIAL SITUATION IN NEW MEXICO

Social stress in and of itself does not give rise to a movement; likewise, a charismatic leader alone does not guarantee a movement. Both a stressful situation and a leader with the ability to voice this frustration are necessary for the rise of a charismatic movement.⁵ A leader without a cause relevant to a specific social group is not likely to be well received nor is his message likely to evolve into any type of action (McLaughlin, 1969, p. 248). "No prophet can succeed unless the circumstances are propitious. He succeeds when a potential following exists because of the problems that some people face" (as cited in McLaughlin, 1969, p. 247).

The social stress present in a charismatic movement is different from the social stress in other movements. Weber alleged that social structures are intended to provide for the needs of the ordinary citizens and to address the usual troubles that might arise, but not to overcome extreme circumstances (Bendix, 1960, p. 299). The cir-

³ The Mexican government allowed Anglo-Americans to settle under the condition that those settled would adhere to the Roman Catholic faith, the laws of the Mexican government, learn Spanish and stop the transportation of slaves after 1829.

⁴ The Mexican government allowed the Anglo settlers many exceptions that it did not offer to natives, such as allowing them to keep slaves as well as exempting them from certain taxes.

⁵ I coined the term *charismatic movement* to distinguish movements led by charismatic leaders from other types of movements. I define a charismatic movement as a movement in which decision making and the course of action are based on the impulse of the leader. In short, without the leader there is no movement.

cumstances surrounding the New Mexican land grant issue fell outside the realm of what the bureaucratic authority in New Mexico could handle practically. The issue encompassed a magnitude of problems: the justice of U.S. invasion and occupation of Mexican territory, the U.S. failure to fulfill the promises of an international treaty, and the unjust treatment of a conquered people who for over one hundred years had not been fully recognized as citizens in their native land. It became more than a question of land; it became a struggle to regain a culture that had been raped and a justice that the people had never received. This extraordinary situation gave rise to an extraordinary leader, Reies Lopez Tijerina.

Over one hundred years had passed since the Anglos gained control over New Mexico, yet the bitterness still remained in the hearts of the Indo-Hispano population. The Treaty of Guadalupe Hidalgo, which guaranteed the natives that their land holdings would be upheld, did not keep land-hungry Anglos from developing schemes to acquire them. Rather than protecting the rights of the natives, the military rule the United States government set up in New Mexico facilitated the intimidation and suppression of Indo-Hispanos by land speculators. The system set up for natives to legitimize their land grants was confusing and very costly. Most of the Indo-Hispanos did not understand the American system nor were they able to work within it. The natives, unfamiliar with property taxes were not informed about the accumulation of unpaid taxes on their land until it was being sold at auction. The effects of the land loss were to be felt by the Indo-Hispano for years to come. The Indo-Hispano population would be trapped in a cycle of poverty.

The debilitating poverty of the Indo-Hispano in New Mexico facilitated Tijerina's rise. Blawis' work on the events surrounding the land grant struggle included a report done by *Hunger USA* that described the dire situation in poverty-stricken New Mexico. Of 256 counties suffering chronic malnutrition and severe hunger, six of these counties (all of which had high concentrations of people with Spanish surnames) were in New Mexico. The work also stated:

Anemic mothers sorrowed over infants who died at three times the national average; school nurses noted *resecos*, little dry patches on the skin of little children caused by malnutrition; and doctors reported the third highest incidence of rheumatic disease in the nation, a consequence of unattended strep infections. (as cited in Blawis, 1970, p. 108)

These poverty issues were very closely tied to the land. "Two Midwest professors who studied Rio Arriba and Taos counties found starvation amidst plenty; ranches badly in need of more stock and of more grazing land for the stock they have, while not far away is good unused graze land, 59% of it in the hands of the forest service" (as cited in Blawis, 1970, p. 110). In 1965 the forest service revoked half of small farmers' grazing permits. This kind of abuse forced many small farmers into migrant work adding to the social stress in the Indo-Hispano community and resulting in an increase in poverty.

TIJERINA'S EARLY LIFE

Tijerina was born in Falls City, Texas in 1923. "Reies says the birth took place on a heap of cotton sacks in a one bedroom adobe shack" (Gardner, 1970, p. 31). Tijerina was to be one of seven surviving sons. Throughout his life Tijerina was to hear stories of land grants stolen by Anglos (Gardner, 1970, p. 33). His grandfather:

insisted that he was a legal heir by grant of the Spanish king to the Laredo land he had lost, and told his sons and his grandsons so again and again. He also told them tales of murder, lynching, burning and other countless wrongs done to his people by the Texans, the *Tejanos*. He told of the three times he fled across the border to escape the Texas Rangers. He was fondest of telling of how he had been strung up by vigilantes once, only to be cut down at the last minute.... (as cited in Gardner, 1970, p. 33)

Tijerina's own father had also been a landowner but was run off, forcing him and his family into migrant work. "He told his children of how he was a Laredo land grant heir and had his land taken away from him, and would tell of others who had been run off their land and worse" (as cited in Gardner, 1970, p. 32). The life of a migrant worker left little room for schooling. Consequently, Tijerina did not learn to speak English until the age of eleven, learning to read and write even later.

At the age of fifteen Tijerina met a Baptist preacher and was converted to the Protestant faith. Tijerina began his studies to become a preacher at an Assembly of God Bible School.⁶ The superintendent of the school said that Tijerina was "fanatical, more peculiar in his thoughts, I guess- he was not orthodox. When he went to school he was a sincere student. I don't know when he left school, he began to get these far out ideas about how people should conduct themselves" (as cited in Gardner, 1970, p. 39).

Tijerina became a preacher at an Assembly of God church but was dismissed for preaching "unorthodox views." In 1955 he established a village in Arizona called the Valley of Peace. Tijerina hoped to create a utopia where the inhabitants practiced bible teachings literally. Paradise failed, and after constant harassment by neighbors, the disciples were forced to leave Arizona. Tijerina, however, had already found another calling in New Mexico. Instead of preaching salvation Tijerina began to preach land reclamation, a subject of much more interest to his Indo-Hispano followers. His church became the Alianza Federal de Mercedes and his disciples were land grant descendants. Tijerina felt a new and irresistible calling to defend his people, the Indo-Hispanos that were suffering horrible injustice at the hands of the Anglos.

THE RISE: CHARISMA AND THE LEADERSHIP OF REIS LOPEZ TIJERINA

A charismatic leader is an individual who "possesses extraordinary gifts of the body and mind" (Bendix, 1960, p. 299). Such extraordinary gifts were seen in Tijerina's early life and were to follow him throughout his leadership in the Alianza. Although Tijerina was

⁶ There are discrepancies about how old Tijerina was when he entered bible school.

a self-taught man, he possessed astonishing intelligence. Tijerina single-handedly traveled to Mexico and Europe in search of documents that would prove that the United States had violated the Treaty of Guadalupe Hidalgo and the rights of the Indo-Hispano population.

A charismatic leader's involvement in a movement is not one based on personal principle. "The leader is called by the higher power and cannot refuse" (Bendix, 1960, p. 301). Tijerina himself experienced this sense of duty. In his autobiography, Tijerina wrote repeatedly of his visions:

They told me that they had come from far away, that they would take me to an old ancient regime. My wife said, 'Why my husband? Aren't there others?' The three responded, 'There is no other in the world that can do this job. We have searched the earth and only he can do this.' (Tijerina, 2000, p. 5)

The charismatic leader is an individual who refuses to live any aspect of what one might consider an ordinary life. A charismatic leader usually rejects possessions and a steady income, but Weber makes clear that this has more to do with the leader's refusal to live an ordinary life than a moral conviction against possessions (Bendix, 1960, p. 301-302).⁷ To the dismay of his family, Tijerina felt the need to cleanse himself of his possessions quite often. Tijerina said:

I used to take the Mexican nationals, the ones who came to hoe the beets, into town in my car or wherever they wanted to go and lend them my car and let them use the gas. So I gave them my new watch and three suits, so as to feel at ease with my heart's desire. When I read that Socrates' wife threw a bucket of hot water on him when he wouldn't make money, I rejoiced, because my wife was always angry at me for doing the same thing and giving my things away to the poor. (as cited in Gardner, 1970, p. 40)

The charismatic leader's rebellion against a normal life is also a trait in Tijerina's life. The charismatic leader is characteristically radical.⁸ A charismatic leader's position and tactics are frequently, "incompatible with the rules and actions that govern everyday life" (Bendix, 1960, p. 300). This radicalism can be seen in Tijerina's tactics to regain the land of the Indo-Hispano. Although Tijerina and the Alianza are associated with many events, I will focus on the two most radical events that received immediate attention: the occupation of the Echo Amphitheater in 1966 and the Tierra Amarilla courthouse raid in 1967. In October of 1966, 350 Alianza members took possession of the nineteenth century land grant community of San Rio de Chama. This land had been a Spanish grant awarded to a group of settlers in 1806. The grant had once belonged to more than 350 families. In the late 1800's, the land grant rights of these families had been confirmed, but Congress still approved a new land grant of 1,200,664 acres, called the "Maxwell Grant," conveying the land to Thomas B. Catron. It was later turned into Kit Carson National

Forest. Alianza members decided to resettle the land and evict the "invaders." The members picked a mayor, a marshal, and other leaders for their newly reclaimed pueblo. They held the land over a weekend, arresting and putting on trial two forest service officers for trespassing on their property.

The Courthouse Raid was the most memorable event by the Alianza. Angry with District Attorney Alfonso Sanchez for denying them the right to assemble, twenty Alianza members raided the Tierra Amarilla Courthouse in Rio Arriba County. Their mission was to issue a citizen's arrest to District Attorney Alfonso Sanchez for violating their right to peacefully assemble. This event turned into a two-hour shoot out and brought national attention to the Alianza. Tijerina was the mastermind of such events. The charismatic leader must have imagination, "to create new ideas, tactics, and organizational structure" (Stewart, Smith & Denton, Jr., 1994, p. 93).

There are also traits of irreverence in charismatic leaders toward the establishment and tradition. Charismatic leaders "detest[ed] accepted dogma... challenge[ed] and insult[ed] both established order and established social movement organizations and their tactics" (Stewart et al., 1994, p. 93). This characteristic can be seen throughout Tijerina's life, beginning with his work as a Pentecostal preacher:

Reis says that he began instructing his flock to cease paying tithes assuring them that the church was there to help the poor, not to take from them, and that he took a hammer and beat the collection plate flat before their eyes. A month later he was relieved of his ministry and asked to leave the church. (as cited in Gardner, 1970, p. 44)

Afterward Tijerina turned his attention to the hypocrisy of the government in its failure to give justice to the people of Indo-Hispano descent. No one was spared from Tijerina's criticisms, sometimes Indo-Hispanos were the most condemned:

My worst enemies were not the Anglos, but the Hispanics who opted for the 'American way of life.' The Anglo has used our own brothers to lead the way toward the 'American way of life.' These are the ones who commit treason against their own culture to avoid hunger. I always guard myself against them, all the time. (Tijerina, 2000 p. 38)

Tijerina possessed a magnetic attraction that is necessary for a charismatic leader. The leader must have, "the ability to attract people to the notion of collectivity and to draw people together into meaningful organization" (Stewart et al., 1994, p. 93). The land grant problem had been going on for over one hundred years, yet only Tijerina had been able to effectively organize a large number of land grant descendants and gain nationwide attention.⁹ Part of this success has to do with the fact that charismatic leadership is based on "personal rule" (Bendix, 1960, p. 300). Tijerina had the ability to relate to the troubles facing the Indo-Hispano and to manifest in

⁷ This characteristic of charisma has diminished in modern times.

⁸ The use of the term *radical* is not to be taken negatively. Other charismatic leaders such as Gandhi and Hitler were radical because their messages fell outside of the status quo of that time period. Obviously they had two very different messages yet both were considered controversial at the time.

⁹ There were others who tried to regain the land, such as *Las Gorras Blancas*, a group of Hispanos who wore hoods and rode out at night and vandalized property of Anglo landowners, but no leader had gained such extraordinary popularity as Tijerina.

words and actions what the Indo-Hispano had tried to express for over one hundred years. "The charismatic leader tends to be a show person with a sense of timing and the rhetorical skills necessary to articulate what others can as yet only feel, strive towards and imagine but cannot put into words or translate explicitly into action" (Stewart et al., 1994, p. 96). In addition:

He [Tijerina] was speaking the magic words, the issue, the struggle had been alive for over two generations and here was a man, a man on a white horse, a man with tremendous charisma who plugged into deep felt passions more than a feeling of passion and he turned the spirits over. (National Latino Communication Center & Galans Production, Inc. [NLCC], 1996)

The leader must serve as a symbol of the movement. "Leaders tend to become totally identified with the cause and often the cause becomes totally identified with them" (Stewart et al., 1994 p. 95). This is particularly true of charismatic leaders. Tijerina himself became the voice and face of the movement and sometimes saw himself as only that. "The leader is the 'face' of the social movement for members, the public and the mass media" (Stewart et al., 1994, p. 96). Tijerina was to become an icon resembling the leaders of the Mexican Revolution in the eyes of the Indo-Hispano. "It was like Emiliano Zapata and Pancho Villa were alive again and they had come and claimed their land again" (NLCC, 1996).

THE FALL: CHARISMA AND THE LEADERSHIP OF REIS LOPEZ TIJERINA

The same characteristics that contributed to Tijerina's success eventually led to his downfall.¹⁰ Weber's study states that charismatic leadership is ultimately unstable, "the very opposite of institutional permanence" and leads to a "transformation of charisma" (Bendix, 1960, p. 303; Eisenstadt, 1968, p. 21)). Weber speaks of three developments that ultimately lead to the decline of charisma: the functions of the leader become divided among other individuals, the power of the individual declines or the movement begins to institutionalize decreasing the need of the leader (Bendix, 1960, p. 303). If charisma becomes institutionalized then it loses its meaning. The movement itself replaces the former institution and becomes the established norm. The Alianza movement, however, reached its end before this could happen. Tijerina's movement was not institutionalized. After his imprisonment the movement became disoriented and with no effective successor to take his place began to decline.¹¹ After his incarceration Tijerina's position was taken by over by his brother, Ramon Tijerina. Ramon, however, did not possess the same charismatic qualities that gave his brother power and success. "In a strict sense the problem is insoluble, for charisma is an inimitable quality that some higher power is believed to have bestowed upon one person. Consequently, a successor cannot be chosen at all" (Bendix,

1960, p. 305). After Tijerina was released from prison his message changed to one of peaceful coexistence. This, however, did not result from a change in his views but was the result of his conditions of parole.¹² As his message changed, so did his following. The problem of succession was to lead to the movement's decline.

Many of the people who had worked with Tijerina mentioned what they consider his inability to organize. "Reies was so single minded around his issues...Reies was not an organizer, he was a leader" (NLCC, 1996). Tijerina of course had the ability to organize as seen in his work in the takeover of the Echo Amphitheatre and his ability to recruit. What they were most likely referring to was his one-dimensional personality, which made it difficult for him to compromise on issues. The inability to compromise is very common in charismatic leaders because they believe their mission comes from a higher source. To compromise would be to go against the divine source that had given them power and would end in ultimate failure. Tijerina lacked an organizational personality. "An organizer must have an *organizational personality* to maintain order and structure within the movement organization and to deal with the uncertainties and disorder movements inevitably encounter when confronting institutions. When all else seems irrational, the effective organizer must remain rational and in control" (Stewart et al., 1994, p. 94). To be rational is fundamentally contrary to what a charismatic leader is; a charismatic lead must deny the rationality of institutionalized society. Tijerina was very irrational and often was the cause of disorder in his own movement.

Tijerina was so centered on reclaiming the land, that he would seek no other compensation or solution for the problems of the people of New Mexico. Tijerina failed to be a pragmatic leader. "The pragmatic leader brings common sense and a healthy skepticism to the movement, seeks to reconcile diverse interests, desires 'communication' rather than 'excommunication,' and replaces unattainable goals with diffuse goals and a broader range of targets" (Stewart et al, 1994, p. 99). Tijerina in no way sought to reconcile differences with the Anglo-dominant institution because he believed that Anglos were the enemy. Tijerina was also more than happy to "excommunicate" Hispanics that he believed were *vendidos*, sellouts, or Hispanics that were soft on issues. "The pragmatist believes that ideals and principles are useless without organization and implementation" (Stewart, et al., 1994, p. 99). Tijerina was all about his ideas and was often frustrated with the tedious yet necessary aspects of the movement. Many necessary plans went undone adding to the disorder in the movement.

CONCLUSION

There is much work to be done on this topic, yet I believe that this brief analysis of Tijerina's leadership style is beneficial to an understanding of the events surrounding the Alianza movement and

¹⁰ Although one can argue that there were many things that contributed to Tijerina's failure, such as police harassment, this paper will focus only on leadership flaws that led to his downfall.

¹¹ Tijerina was imprisoned for two years for his involvement in the events at Tierra Amarilla.

¹² The condition of his parole were that he could not hold office in the Alianza and could not speak of land grant recovery or risk being put back in jail.

the Mexican American Civil Rights Movement as a whole. The concept of charisma, although very much debated, is still a valuable source in the description of leaders and the analysis of just what is necessary to be effective. Whether a leader is a prophet or not is impossible to prove, yet this paper does support that Tijerina and his leaders did believe he was, and this had a lot to do with his success. Tijerina's leadership style possessed all the attributes of charismatic authority that Weber describes and can explain both his success and his ultimate failure.

ACKNOWLEDGEMENT

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Student Expectations vs. Student Matriculation and Retention: A Marketing Management Perspective

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ABSTRACT

This research investigates student satisfaction at the University of Texas at Arlington during the summer of 2001. Each spring semester U.T. Arlington distributes a lengthy and thorough student population survey. However, the current research (and survey) examines the summer student population, measuring for significant differences. Convenience sampling by questionnaire was conducted during the month of June. The survey consists of two designs, one for undergraduate and another for graduate students. Data collected includes information on demographics, student and personal objectives, university expectations, and impressions of U.T. Arlington. A second research method consists of examining student responses in relation to particular variables, including gender and race. A copy of the latest available U.T. Arlington student survey is compared with the goals and conclusion of this study. The combined results reflect the current expectations and needs of the summer student body.

INTRODUCTION

Throughout the educational structure of America, everyone – students, teachers, politicians, the general public – wants the school system to meet specific goals and needs. Education in America is a beacon of hope for creating a better quality of life. Americans believe in the power of schools to educate their youth (Spring 121). Students believe in the power of their schools to transform them. Texans believe in the power of their schools to develop successful leaders.

One of the major questions for universities and community colleges in the nation today is “How do we improve on student satisfaction?” The solution to this problem is surely the key to a higher matriculation and retention rate, or is it? Dr. James R. Crosby states: “If Bible colleges could stop or reverse this trend (decline in enrollment) through an investigation of critical retention factors and an application of appropriate recommendations, they might more easily maintain or increase their enrollments.” (Diss. 85)

Investigating retention factors is becoming commonplace among the nation's universities and colleges. However, the role of the university in the marketplace remains complex. Michael Rothschild, a professor of economics and dean of social sciences at the University of California, San Diego, is also a research associate of the National Bureau of Economic Research. Rothschild states: “We believe that the market context of higher education – whether universities compete, how they compete and the consequences of that competition for university input, production, pricing and output decisions – is interesting in its own right and important for understanding...” (Clotfelter 172)

What does student satisfaction and marketing have in common and what is their relationship? Understanding and achieving student satisfaction in relation to marketing has become increasingly challenging yet possible. I am reminded of this short story I heard several years ago.

Once there was a Good Samaritan who was walking beside a river. Suddenly he heard someone call for help! He looked around and saw a man drowning. Without hesitation, he dove in and rescued the man. No sooner had he returned to shore, than he heard another cry for help. Again, he rescued a drowning victim. As he reached the shore, he could hear more cries for help. Again and again he continued to save drowning victims throughout the day while the banks of the river filled

with curious onlookers cheering him on. As the Good Samaritan collapsed on the bank with another saved life, he suddenly picked himself up and started running up river. Stunned, his audience turned toward his back and in a very demanding tone called out to him ‘Why are you running away’ followed by ‘How could you leave these drowning people?’ Hearing this, he stopped, turned around and replied, ‘I am not deserting these people, I am running upstream to find out WHAT is pushing all these people in the river.’ Then, he turned and ran as fast as he could to find the problem. (Anonymous)

The role of the University of Texas at Arlington is like that of the Good Samaritan. While the University knows that it cannot and will not please every student, it can be found up river confronting the issues and searching for the best possible solutions. One of the most important and revealing tools effective in building a strong, healthy, and honest relationship between the student body and the University is the U.T. Arlington Comprehensive Student Survey. Collecting student feedback via compliments, suggestions, and complaints provides a means for increasing student satisfaction. It is also an excellent opportunity to get into the hearts and minds of the students.

The Office of Institutional Research and Planning administers a survey in the spring session of each year. The results for the year 2000 survey, given in the spring of 2001, are still being processed; therefore, unavailable for my research. However, copies of the latest U.T. Arlington student survey (1999) are obtainable from the above mentioned office. Comparing my student survey results with some of the demographics and concerns of the 1999 survey proves interesting.

The 1999 Comprehensive Student Survey (CSS) represents almost 15% of the Spring 1999 student population. The CSS serves as a constant comparison for my summer survey. A total of 138 questions focus on various aspects of student satisfaction at U.T. Arlington. My survey differs somewhat from that of 1999 in content and comprehensiveness, as well as technique. For example, it was designed as a shorter questionnaire to encourage greater participation.

The questionnaire I designed and distributed consists of 51 questions answered on a Scantron. Due to limitations of time, convenience sampling proved to be my best choice (the university uses random sampling). Convenience samples take place at the convenience of the researcher and participants, usually in high traffic areas. It was critical for the validity of this survey to be aware that transient

students – students attending other colleges and universities during long semesters – often attend summer classes at U.T. Arlington. By eliminating transient students, I obtained the sample population I am seeking. I gathered more than 500 undergraduate and 150 graduate student surveys on campus. The approximate length of time required to complete the survey was fifteen minutes. With the survey sample complete, I discarded all transient students for a more accurate representation. The final count was 374 undergraduate and 100 graduate surveys, representing approximately 5% of the Summer 2001 student population (9,833).

The next step was scanning the surveys at the campus computer center, which eliminated any human error. To obtain final results and analyze the data, I used SAS, a 25 year-old software program used by more than 90% of Fortune 500 companies. After weeks of design and implementation, my survey was ready for evaluation.

RESULTS OF SUMMER 2001 SURVEY

Conducting countless interviews with various campus faculty and staff for advice and permission to execute my survey took weeks. However, in less than an afternoon, modern technology scanned and analyzed the results of my data. The following results are based on 51 questions asked to undergraduates and graduates alike. The use of graphs gives a visual picture of data collected in this survey. Graphics not discussed in the paper reveal little or no difference between the 1999 and 2001 survey.

Demographics

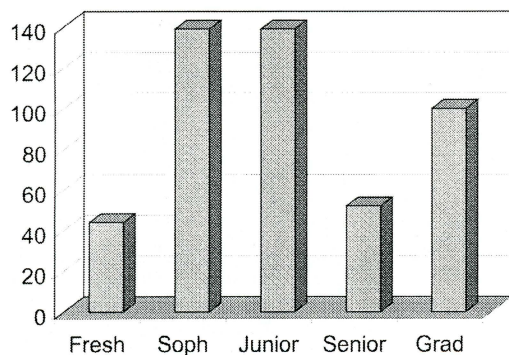


Figure 1 Student Classification (Number of Responses in Each Classification)

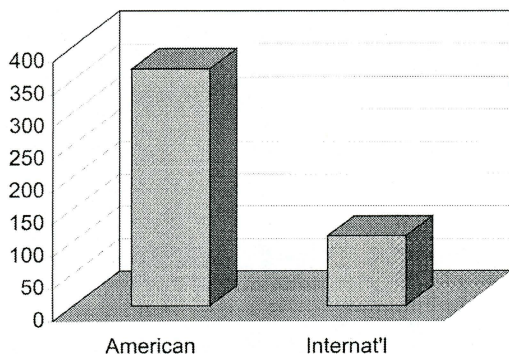


Figure 2 Student Citizenship (Number of Responses)

Comparing the Summer 2001 Survey to the 1999 CSS results (above) indicates: less than 1% more freshmen, 16.42% more sophomores, 2.62% more juniors, 26.3% less seniors, and more than 6.26% more graduate students were represented in this survey.

The percentages of American and International students were extremely close to that of the 1999 survey.

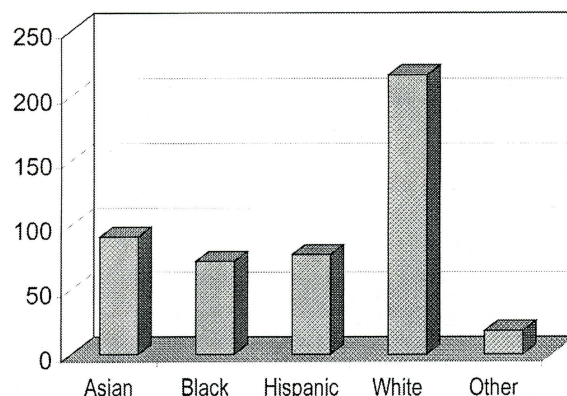


Figure 3 Student Ethnicity (Number of Responses)

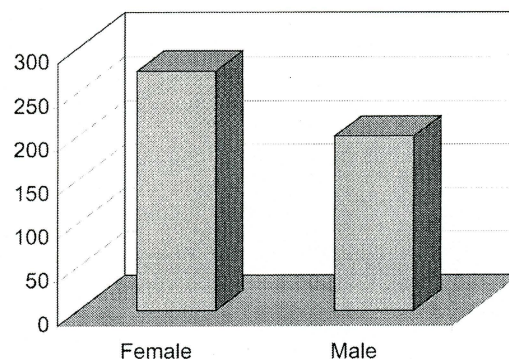


Figure 4 Student Gender (Number of Responses)

The Summer 2001 Survey has a greater representation of Blacks (5.69% more) and Hispanics (6.74% more) when compared with U.T. Arlington's 1999 CSS. The difference in ethnic composition may account in part for the variation in responses between the two surveys. The Summer 2001 Survey includes a 2.7% increase in female participants compared to 1999.

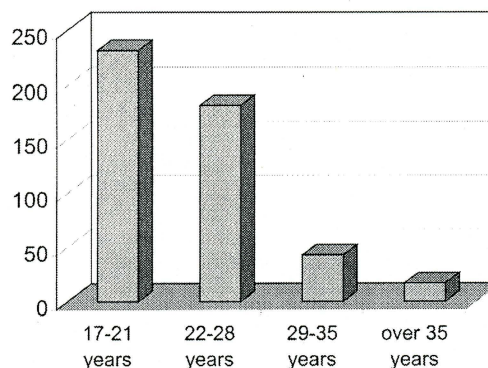


Figure 5 Student Ages (Number of Responses)

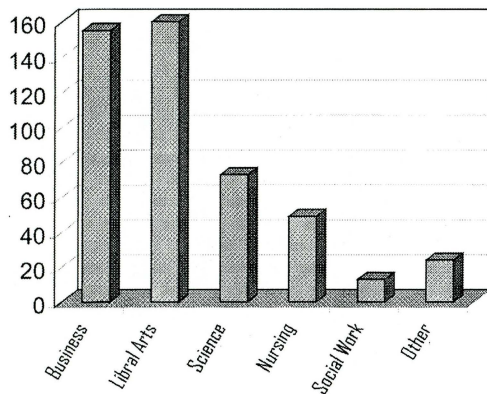


Figure 6 Student Majors (Number of Responses)

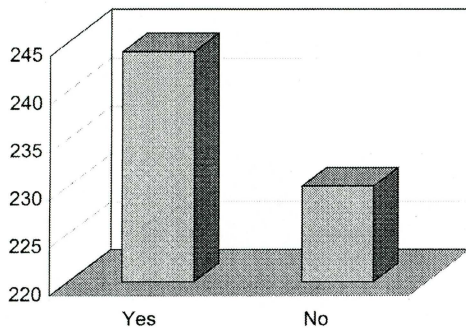


Figure 7 Do Undergraduate Students Plan to Attend U.T. Arlington Graduate School? (Number of Responses)

Question number 8 asks the undergraduate student if he/she plans to attend graduate school at U.T. Arlington. Nearly 54% of the undergraduates answer yes, compared to 29% in 1999.

Reasons for Enrolling at U.T. Arlington

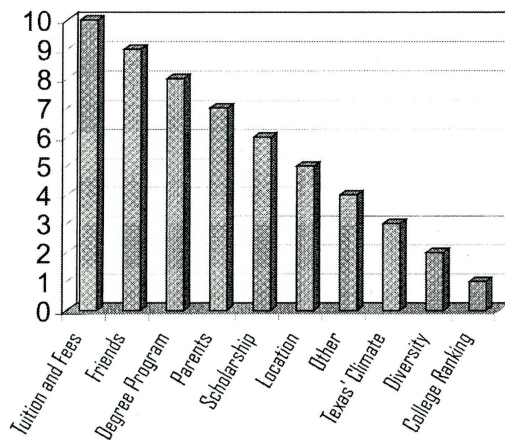


Figure 8 Reasons for Enrolling at U.T. Arlington

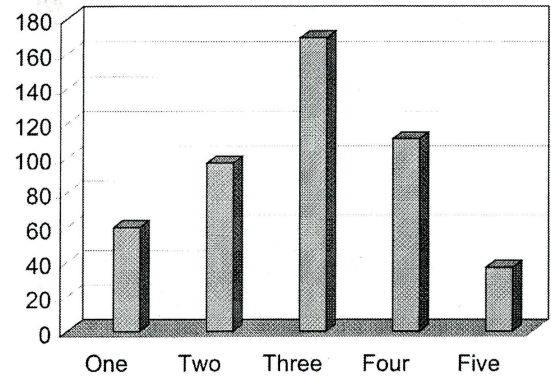


Figure 9 Visited Website Prior to Enrolling
One = Once, Two = 2 to 3 visits, Three = Several visits, Four = Never visited, and Five = Never knew about it

The responses listed above are shown in descending order (ordinary classification) the totals for each response are: Tuition & fees 239, Friends 187, Degree Program 158, Parents 143, Scholarships, 81, College Location 55, Other Reasons Not Listed 45, Texas Climate 29, Student Diversity 9, and College Ranking 2. This chart combines answers to questions 9 and 10 allowing for a possible 948 responses.

Another surprising result is that of question number 9. When asked the main reason/reasons for attending U.T. Arlington, almost 49% of the students gave the cost of tuition and fees as their answer. In 1999, tuition accounted for less than 11% of the reasons students had for attending. Convenience (location) accounts for slightly less than 12% of the reasons that students select U.T. Arlington in the summer of 2001, comparing with 44% in the Spring 1999 CSS. Certainly, this is a reflection of the current decline of the nation's economy; however, it is important to note that income status is not included in the Summer 2001 Survey.

Student Representation

Questions 13 and 14 refer to student satisfaction in respect to ethnicity and physical impairment. The questions allow for five responses ranging from "strongly agree" to "no comment". Almost 26% of the students strongly agree, 43% somewhat agree, and 15% have no comment on satisfactory student representation of their ethnicity. The remaining responses show 14% being somewhat dissatisfied and 2% strongly dissatisfied. Hispanics and Asians show a 2:1 ratio of dissatisfaction with representation compared to White or Black undergraduates. Graduates show no distinction by race. When the gender variable is applied, there is no significant difference among any of the students. I could not find any related questions on the 1999 CSS.

The fourteenth survey question of my questionnaire proved to be very challenging. Less than 4% of the students surveyed indicate a physical impairment. The combined results of undergraduates and graduates are: 18% strongly agree, 41% somewhat agree, 5% strongly disagree, 11% somewhat disagree, 25% no comment on satisfactory representation of the physically impaired. There is no noticeable gender or ethnic difference.

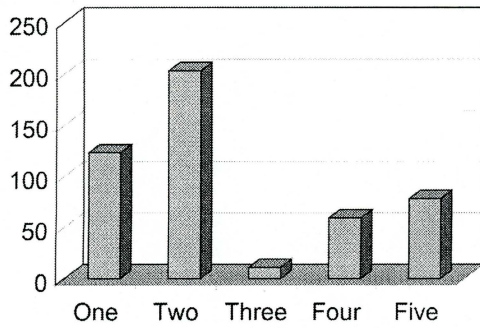


Figure 10 Student Satisfaction with Ethnic Representation

One = Strongly Agree, Two = Somewhat Agree, Three = Strongly Disagree, Four = Somewhat Disagree, and Five = No Comment.

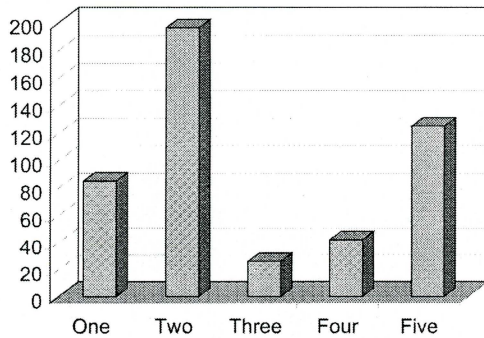


Figure 11 Student Satisfaction with the Representation of the Physically Impaired

One = Strongly Agree, Two = Somewhat Agree, Three = Strongly Disagree, Four = Somewhat Disagree, and Five = No Comment.

Student Organizations

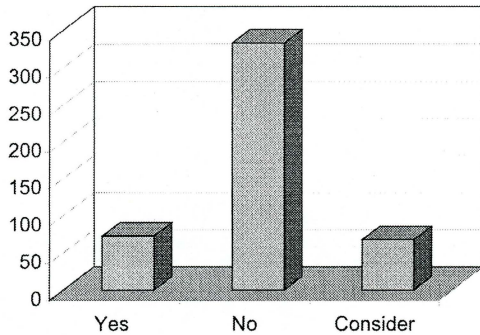


Figure 12 Fraternity or Sorority Membership

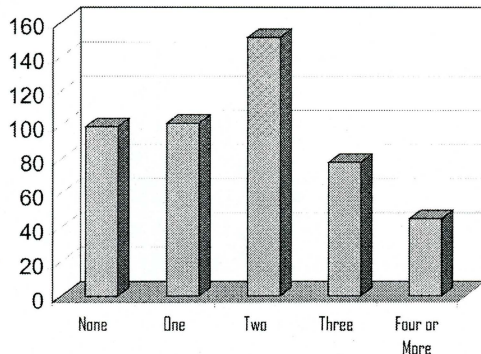


Figure 13 Student Organization Membership (Number of Organizations the Student Joined)

Questions 15 - 17 focus on membership in student organizations. More than 70% of the respondents do not belong to a sorority or fraternity. However, nearly 21% are members of at least one, and 32% are members of at least two, school organizations. Almost 10% are members of four or more school organizations. These results prove to be much higher than the 1999 CSS results that show less than 24% of the students are members of one organization. In 1999 only 10% claimed to be in two organizations and 2% in three or more organizations. One explanation for this is that summer students are generally very serious students, often the ones who are heavily involved in campus life.

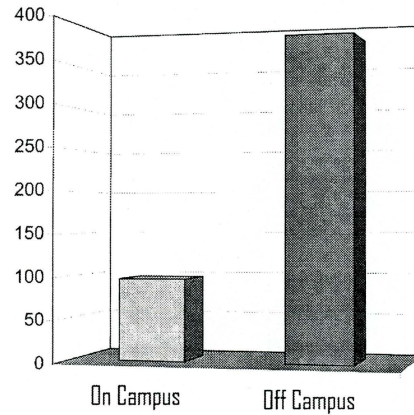


Figure 14 Location of Student's Residence

Student Residence and Food Services

The responses to question number 18 (regarding residence) are similar to findings in 1999. The CSS asked if the student would move into a campus facility if space were provided; 75% of the students respond "No."

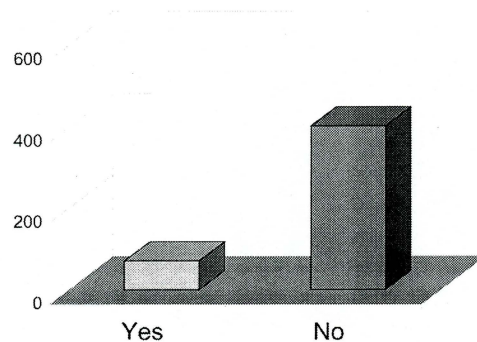


Figure 15 Are you on a Meal Plan?

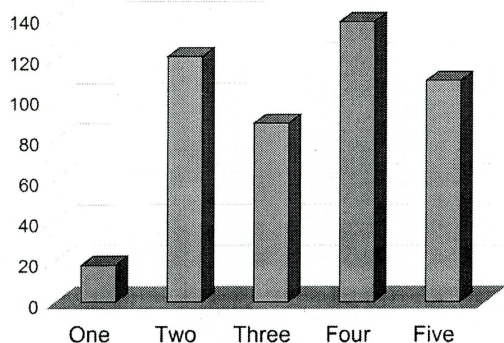


Figure 16 Student Satisfaction with U.T. Arlington Food Services
One = Strongly Agree, Two = Somewhat Agree, Three = Strongly Disagree, Four = Somewhat Disagree, and Five = No Comment.

More than 79% of the students surveyed live off campus, a significant factor in evaluating food plan responses. The majority of students surveyed who live on campus (21%) are on a food plan (75%). A complete view of student satisfaction with the food served at U.T. Arlington shows the following results: 3% strongly agree, 26% somewhat agree, 18% strongly disagree, 30% somewhat disagree, and 23% have no comment. The 1999 CSS reported that 37% of the students find the food service very satisfying, while 22% are just satisfied. Approximately 20% of the students are dissatisfied, leaving the remaining 21% that never used or were unaware of the food services in 1999.

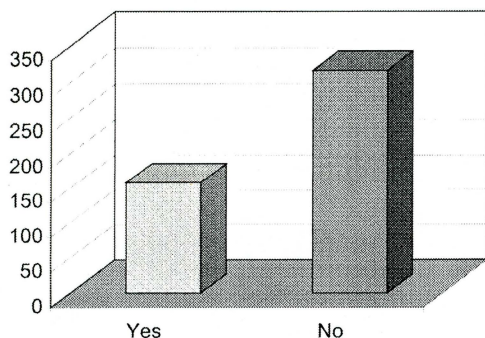


Figure 17 Are U.T. Arlington Meals Affordable?

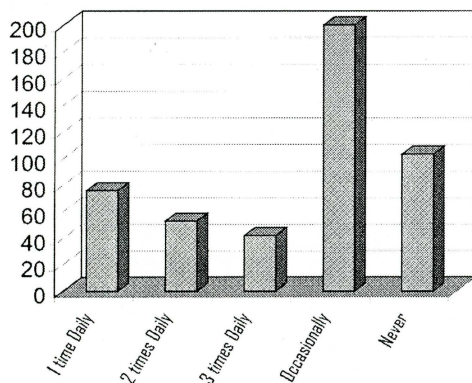


Figure 18 Are Meals Regularly Eaten at U.T. Arlington?

Students overwhelmingly (70%) agree that the food is not affordable for most college students. The number of meals consumed daily by students at campus facilities are: 18% once a day, 4% twice daily, 11% three times daily, 42% occasionally, and 15% never eat at the college.

Character and Layout of the Campus

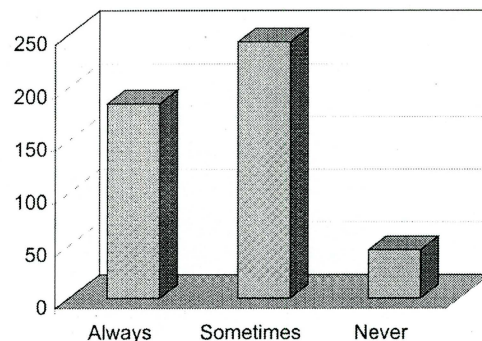


Figure 19 Is the U.T. Arlington Campus Layout Student Friendly?

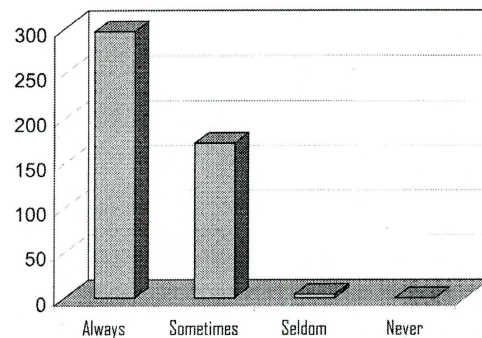


Figure 20 Do Students Find Other U.T. Arlington Students Friendly?

Note: "Campus friendly" is defined as having reasonable access and distance to campus buildings, elevators, classes, bookstore, libraries, health care facilities, food areas, parking areas, and dorms.

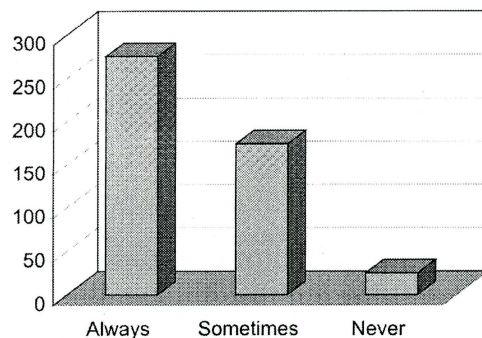


Figure 21 Is Enough Time Allowed Between Classes to Arrive at the Next Class on Time?

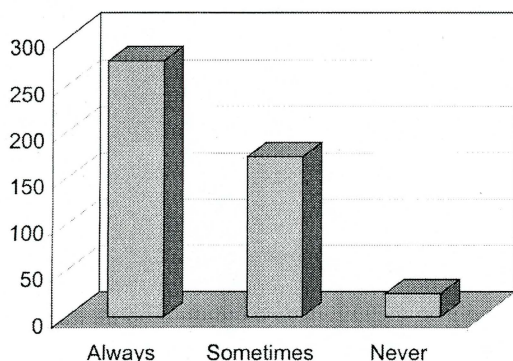


Figure 22 Do you Experience Problems with Parking?

Nearly 60% of the students reply they always have enough time to get to class, whereas 37% respond with "sometimes". Campus parking is always a big problem for 27% of the students, whereas: 37% sometimes, 3% seldom, 19% rarely, and 14% never have parking problems. Graduates have much less of a problem parking compared to undergraduates. Almost 50% respond negatively to the campus parking issue in 1999. It is important to note that several students commented on the loss of a student parking lot when Arlington Hall was built.

Over 63% of the students respond that they find other students at U.T. Arlington "Always Friendly." Nearly 37% respond to "sometimes friendly" and 1% "seldom friendly". Gender and ethnicity variables show no significant differences among responses.

Discrimination and Safety

Offending experiences

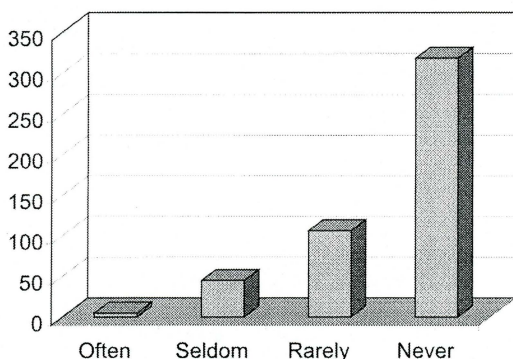


Figure 23 Have You Been Offended Based Upon Your Gender?
(Frequency of Offense)

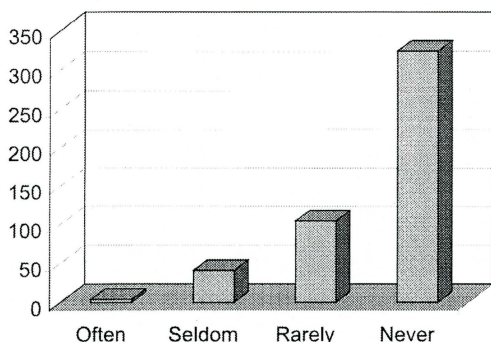


Figure 24 Have You Been Offended Based Upon Your Ethnicity?
(Frequency of Offense)

Almost 68% of the students reply they have never been offended because of their gender. Less than 1% answer "often", 9% "sometimes", followed by 22% that are "rarely" offended. I do not know if these offenses have occurred between students or between students and faculty, or both. This result warrants further investigation. There are pamphlets and posted instructions throughout the campus telling where to report discrimination. The results show no relationship to ethnic background of respondent. However, negative responses show a much greater correlation (3:1) with females than males. It is important to note that with the rise of progressive pedagogy and its emphasis on eliminating gender bias in education, gender discrimination is declining (Darling 243).

Question 25 focuses on experiences of being offended because of ethnicity. The results are: 1% "often", 9% "seldom", 21% "rarely", while 69% have "never" been offended on campus. When analyzed for patterns among undergraduates, Blacks and Asians respond negatively twice as often as Whites or Hispanics. Among graduate students, gender proves to be a more important variable for negative responses.

Campus Safety

When asked if safety is an issue, the following responses occurred: 9% always feel safe, 14% sometimes feel safe, 5% seldom feel safe, 36% rarely feel safe, while 36% of all surveyed students never feel unsafe. (No correlation with gender or ethnicity was apparent.) In 1999 nearly 70% of the students responded with "Satisfied" to "Very Satisfied" regarding crime prevention and campus security. Only 15% of the students had a dissatisfied response in 1999.

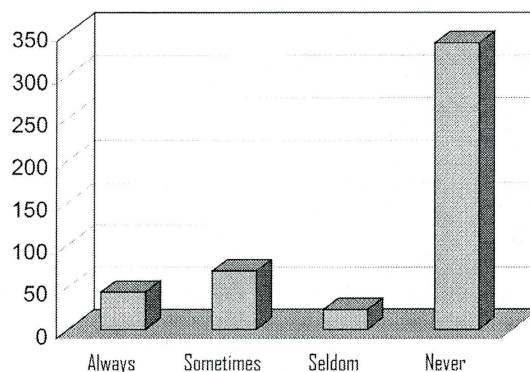


Figure 25 Do you Feel Unsafe on the U.T. Arlington Campus?

Campus Services

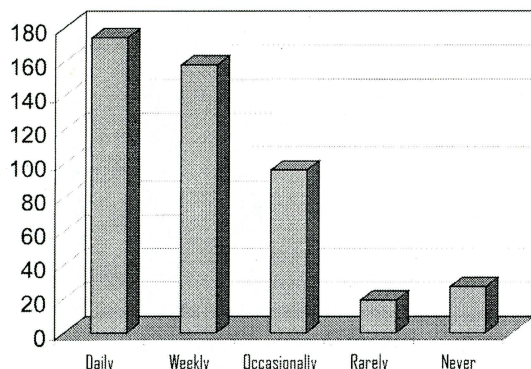


Figure 26 Do You Visit the Campus Libraries?

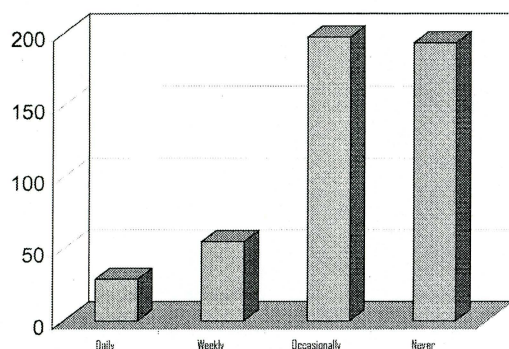


Figure 27 Do You Visit the Coffee Shop in the Central Library?

The daily use of library services was reported by 37% of the students, followed by 33% weekly visits indicates that 70% of the students are regulars at the U.T. Arlington libraries. A total of 6% reply they never visit any library on campus or online.

Almost 6% of the students make daily visits to the new coffee shop in the main library, whereas 11% visit weekly, 41% visit occasionally, while 42% have never visited the new coffee shop.

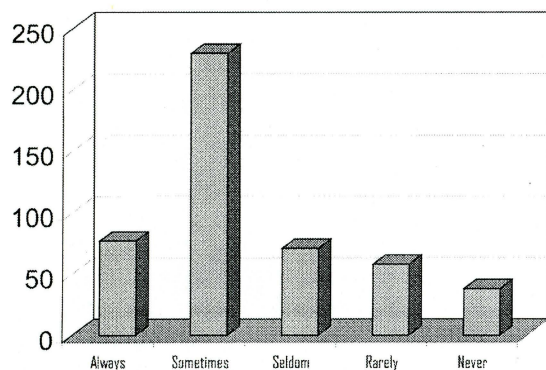


Figure 28 How Often Students Read The Shorthorn

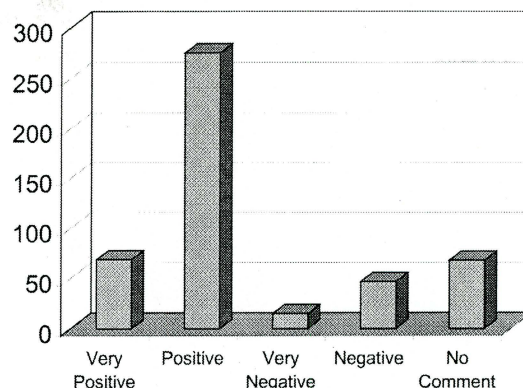


Figure 29 Student Experiences with the Admissions Office

The next question pertains to the campus newspaper, The Shorthorn. Close to 17% respond to “always” reading the paper; 41% weekly, 15% “sometimes”, 21% “seldom”, and 6% “never” read it. No correlation with ethnicity or gender is found in relation with the responses. However, among the graduate students, Asians and Hispanics read The Shorthorn by a 2:1 ratio over Whites or Blacks. In 1999, almost 34% answer (CSS question #36) they never read The Shorthorn; however, on CSS question 85, nearly 16% responded they are not aware of the school paper. The school paper is available in every building on campus.

Most students describe their experiences with the Admissions office as positive. The responses are: 15% very positive, 58% positive, 10% very negative, 3% negative, and 14% no comment. The results are similar to 1999. However, a few graduate students note that the policy regarding readmission after missing one long semester needs to be revised. These students say they have always remained in good standing and do not understand why they must reapply. Furthermore, why they must do so two months in advance?

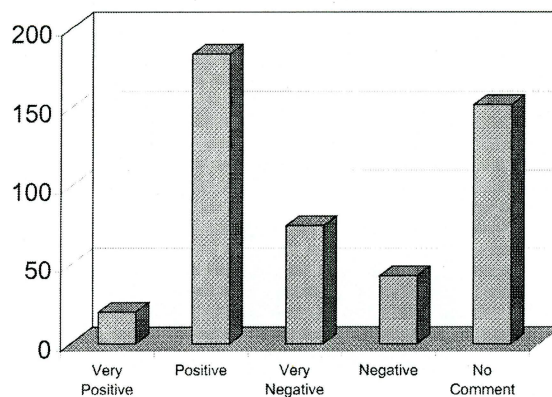


Figure 30 Student Experiences with the Financial Aid Office

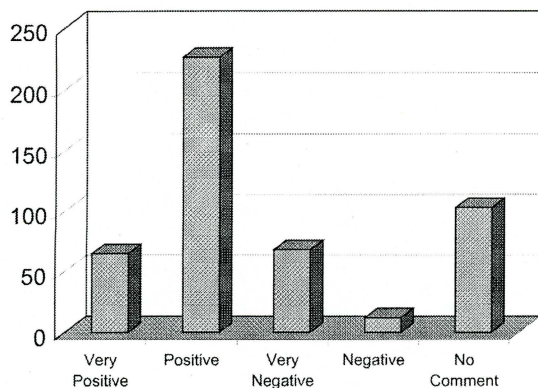


Figure 31 Student Experiences with the Bursar's Office

Less than half the students respond positively when asked about their experiences with the Financial Aid office. Having worked in this office for a year, I realize that the biggest problem exists in students not understanding U.T. Arlington's financial aid processing methods. The results are: 4% "very positive", 39% "positive", 16% "very negative", 9% "negative", and 32% "no comment". In 1999 more than 50% of the students show satisfaction with the financial aid opportunities; however, no specific question refers to the services of the Financial Aid office.

An evaluation of student experience with the Bursar's Office is the next focus. The results are: 15% "very positive", 48% "positive", 12% "very negative", 3% "negative", and 22% having "no comment". On the 1999 CSS, 78% claim satisfaction while 11% are unsatisfied. The other 11% do not use or are unaware of the Bursar's services.

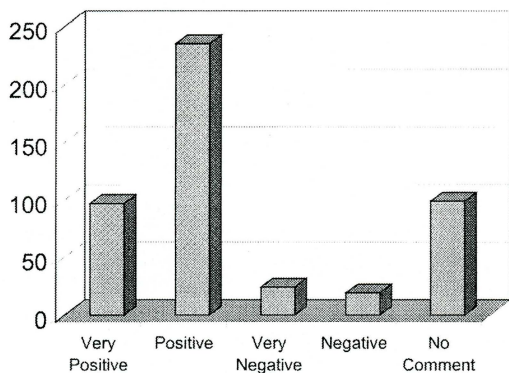


Figure 32 Student Experiences with SAM

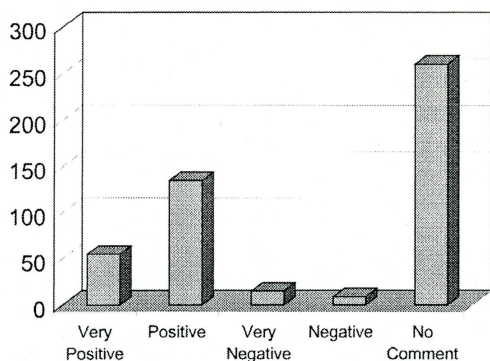


Figure 33 Student Experiences with Counseling and Career Services

More than 70% of the students respond in a positive manner regarding SAM, U.T. Arlington's automated voice response system for student information. Negative responses are 9%, while students with "No Comments" regarding experiences with SAM account for the remaining 21%. No comparable question appears on the 1999 CSS.

The greatest response by the students (55%) regarding their experiences with Counseling and Career Services is that they never visit the office! Over 40% respond positively, leaving 5% with negative responses. Positive responses are up 6%, negative responses are down 6%, but students that are unaware of or never use these services are remarkably similar when compared with 1999. However, one graduate student notes on his 2001 survey that if you are a doctoral candidate, you might just as well forget about getting any help from Counseling and Career Services. This student goes on to list a page and a half of complaints with U.T. Arlington.

None of the responses in the campus services section of the Summer 2001 Survey correlate with the variables of gender or ethnicity.

Advisors & Academics

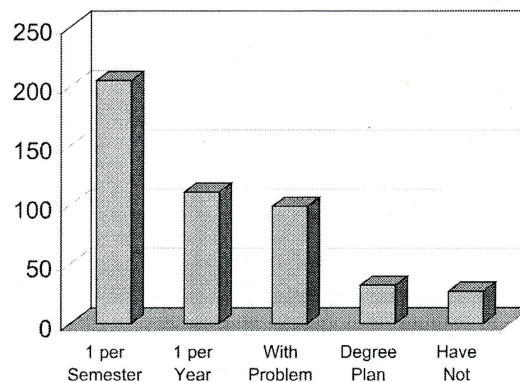


Figure 34 Do Students Visit Their Academic Advisors?

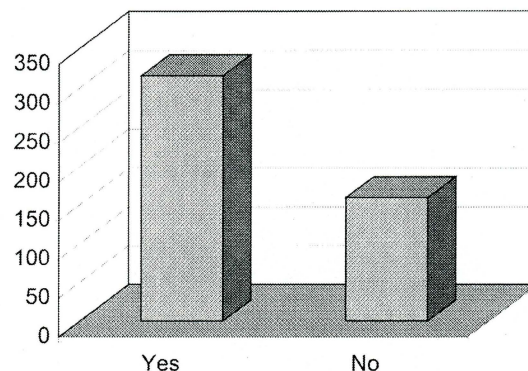


Figure 35 Do Students Know Their Academic Advisors?

Over 70% of the students know their advisor. Almost 6% say they never visit their advisor, while 44% reply that they visit every semester. Yearly visitations account for 23% of the responses, whereas 21% visit only when they have a problem. The remaining 6% visit their advisor simply to get a degree plan. More importantly, more than 58% of the students respond positively to encountering problems with their degree plan.

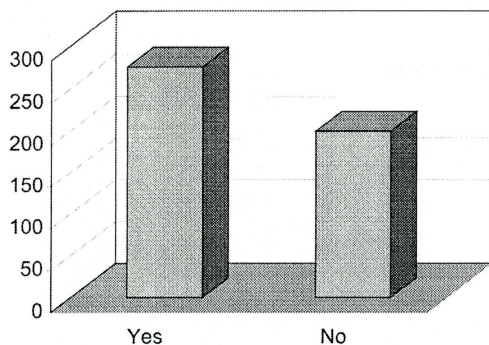


Figure 36 Do Students Encounter Problems with Their Degree Plan?

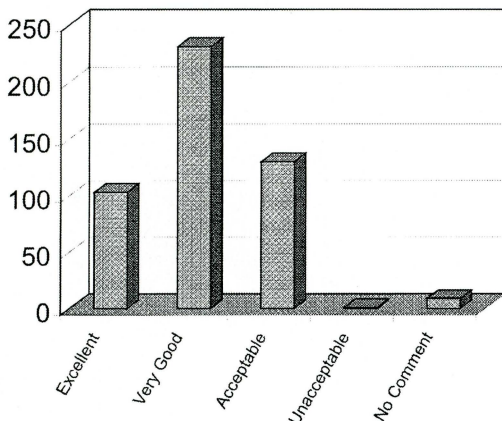


Figure 37 Student Experiences with Professors

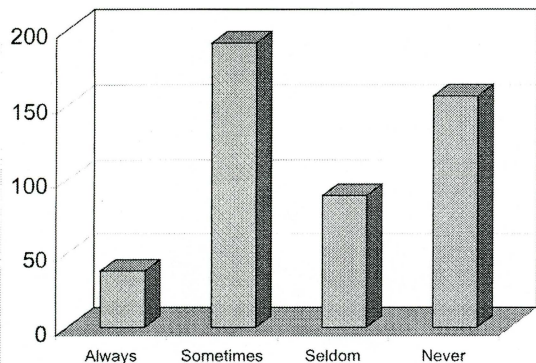


Figure 38 Do Students Encounter Language Problems with Professors Resulting in Misunderstandings

The next question, number 40, asks the student to rate their professors. More than 22% respond "Excellent", while 49% answer "Very Good." The response "Very Good" is substantially higher than the other responses of undergraduates and graduates. Almost 28% find their professors acceptable. The remaining 1% responds to being unsatisfied or having no expectations of their professors. Although there is no question in 1999 that compares to this one, over 75% of the students in 1999 respond that they are satisfied with the amount of concern faculty shows them.

Enquiring about any language problems between student and professor proves to be another interesting question. While 8% respond they always encounter language problems resulting in misun-

derstandings with a professor, 40% respond to sometimes encountering such circumstances. One student comments that professors with heavy accents should be required to take a speech class before teaching at U.T. Arlington. No comparison with the 1999 CSS is available regarding this question.

Slightly more than 17% of the students surveyed respond to knowing the U.T. Arlington Alma Mater while 83% do not know it. Students can always find the lyrics to the song in the school catalog.

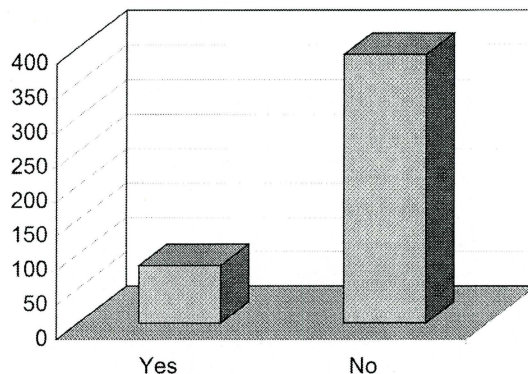


Figure 39 Do Students Knows the Alma Mater?

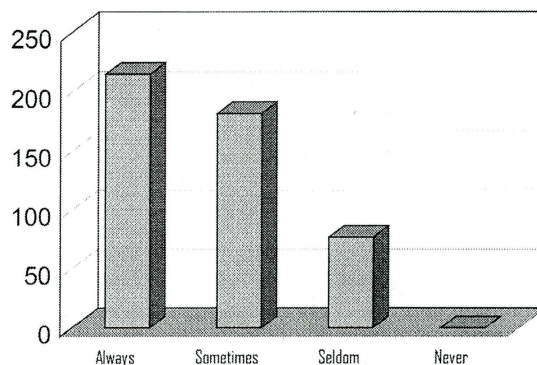


Figure 40 Would You Recommend U.T. Arlington to Other Students?

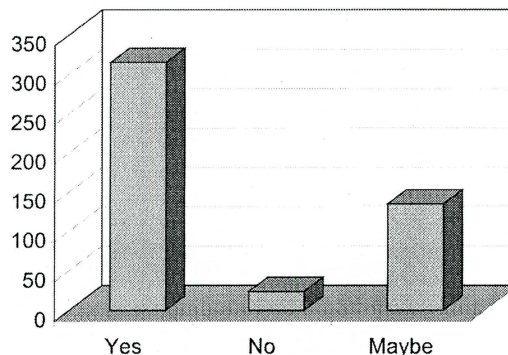


Figure 41 Has U.T. Arlington Met Your Overall Expectations?

Question 46 asks the student if he/she will recommend U.T. Arlington to future college students. More than 67% answer "yes" and 28% answer "maybe" they will recommend U.T. Arlington. The remaining 5% of students that answer negatively are equally split

among undergraduates and graduates. The negative response to this question on the 1999 CSS is 15% (10% higher than summer) 2001.

Nearly 45% of the students respond that U.T. Arlington always meets their expectations, whereas 39% indicate it sometimes meets their expectations. The remaining 16% (most of them graduate students) answer that seldom does U.T. Arlington meet their expectations. Rating U.T. Arlington on a scale of 1 - 5 with one being the lowest and five the highest, students rate U.T. Arlington: 1 = less than 1%, 2 = 6%, 3 = 16%, 4 = 49% and 5 = 28%. These responses are similar to 1999 responses regarding student satisfaction with U.T. Arlington in general.

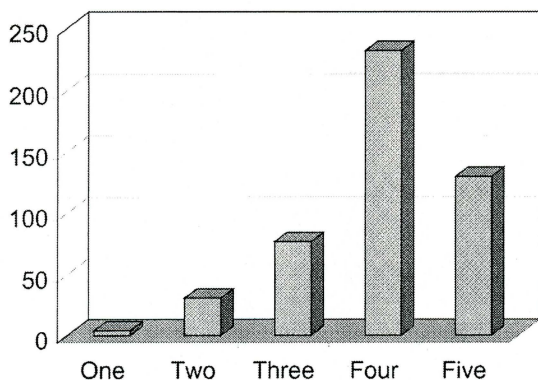


Figure 42 Students Rate U.T. Arlington
One = Lowest through Five = Highest

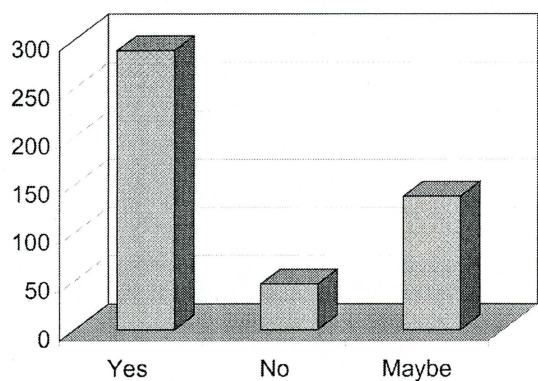


Figure 43 Will You Support U.T. Arlington Alumni Association after Graduation?

Almost 61% of the students say they will support the U.T. Arlington Alumni Association after graduation. However, 29% answer "maybe", while 10% respond such negatively regarding support after graduation. The largest response among the graduate students is "maybe", while among the undergraduates "yes" is the largest response.

Although 88% of the students respond that any issues they have are covered in this survey, 12% have additional concerns. One student writes that as he progresses through the university, he becomes more neglected and feels less important. He takes umbrage at being forced to leave his fraternity house (it had to be torn down) two years earlier than originally promised.

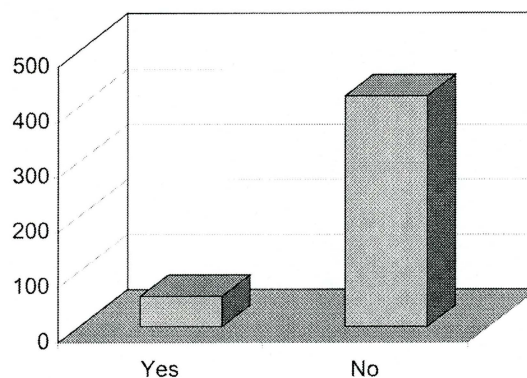


Figure 44 Students Having Issues Not Addressed in Summer 2001 Survey

Approximately 24% of the students note there is a course they want to take that is currently not being offered at U.T. Arlington. Religion and sports are the categories of classes most often requested. Another student notes that the open time for activities at the Activities Building is much too short, especially during the summer.

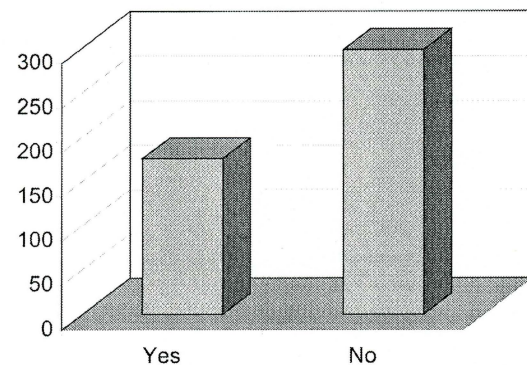


Figure 45 Have You Heard U.T. Arlington Referred to as a Commuter School?

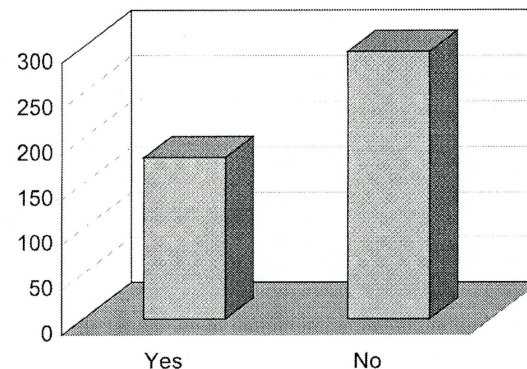


Figure 46 Do You Perceive U.T. Arlington as a Commuter School?

Image perception often labels the U.T. Arlington as a commuter college. According to Fred Henry, the Assistant Director of Transfer Students, it is just that! He goes on to say, "UTA is situated in an area with 15 neighboring community colleges and many students commute back and forth from these colleges." However, Mr. Henry also states that U.T. Arlington is a "Traditional School." In fact, he explains that U.T. Arlington has a dual personality. This makes the

University very unique. Perception is the key word and thus the inspiration for the last two questions of my Summer 2001 Survey. Although 37% say they have heard of U.T. Arlington being referred to as a commuter school, less than 32% see it as such.

Survey Summary

Student enrollment continues to climb at U.T. Arlington, yet there remains room for even greater growth. Focusing on the current expectations and needs of the student body presents an effective way to improve student retention and increase enrollment. After evaluating the Summer 2001 Survey, I began looking at areas that show substantial student dissatisfaction. Among these issues were: student representation of U.T. Arlington minorities, handicap facilities, campus food services plus food cost, student parking, fraternity housing replacement, improved lighting, and more evening police patrols. There are problems between students and staff in the Financial Aid, Bursar's, and Admissions Offices, as well as difficulties with students understanding their degree plans, and, finally, language problems between students and professors.

Budgets and contracts determine the outcome of some of these issues. Other issues require efforts at change by U.T. Arlington staff and students. While U.T. Arlington has unresolved issues, it is important to realize it is no different or worse than other public universities. Most importantly, U.T. Arlington is constantly looking at improving student satisfaction.

DISCUSSION OF U.T. ARLINGTON AND ITS MARKETING STRATEGIES

Global market researcher and author, Dr. G. Clotaire Rapaille, emphasizes the "Seven Secrets of Marketing." After reading his book, I realized that the secrets include, but are not limited to:

- The structure is the message
- The power of cultures to make or break you
- Knowing the mindset of the target market
- Knowing the time, space and energy of the cultures in your target market
- Solving the right problems
- The more global, the more local
- Cultural awareness

The University of Texas is a modern 390-acre campus located a short distance from downtown Arlington. Founded in 1895, the structure of U.T. Arlington is strong, withstanding time and change. So is its message to students old and new. The University's mission statement declares that, the goal at "U.T. Arlington is to pursue knowledge, truth, and excellence in a student-centered academic community characterized by shared values, unity of purpose, diversity of opinion, mutual respect, and social responsibility."

U.T. Arlington is diverse and growing stronger in diversity, not only in the student body but also among the faculty and staff. Each year students are encouraged to participate in student organizations promoting cultural awareness. Programs, festivals, and activities take place on campus throughout the year representing a variety of cultures. Often weeks and months are dedicated to learning about spe-

cific cultures. These programs and events continue to increase with student interest.

U.T. Arlington began advertising in the modern sense of market differentiation about seven years ago. Today marketing strategies range from recruiting high school and community college students to attracting international students. The university web site remains an effective tool in U.T. Arlington's strategy to be marketable worldwide. However, while conducting research in the Fort Worth Public Library and U.T. Arlington library, I noticed the University of Texas at Arlington is seldom, if ever, listed in several publications, such as The Young Woman's Guide to the Top Colleges and Black College Student's Survival Guide. Although, U.T. Arlington's student population is certainly well represented in the areas of female, minority, and international students, making itself better known to writers of such books, as those mentioned above, can only lead to greater recognition. Public Affairs may consider developing a program that studies such books and send authors literature and/or invitations to visit U.T. Arlington.

The University of Texas at Arlington regularly studies the habits, needs, and wants of its students. Independent studies, comprehensive student surveys, research programs and student organizations reveal existing and potential problems. Administrators and sociologists review different perspectives to ensure the best possible solution. They investigate student responses and potential modifications as well.

U.T. Arlington abounds with examples of major innovations such as the Professional Program in Business (PPIB), also known as the fast-track program. Students with excellent academic credentials can earn a masters degree in five years. Also, the Bachelor of Arts in Interdisciplinary Studies provides individualized plans that allow students to expand outside of the traditional degree by developing themes that fall beyond departmental boundaries.

Moreover, the Honors College affords unique learning opportunities to gifted and highly motivated students. This college is unique in articulating its own mission statement as well as sharing U.T. Arlington's. Student bonding, faculty support, encouragement, and social activities, represent the tip of the iceberg for this very innovative and creative community

The Maverick Scholar Association is another program that allows 15 – 25 students to form groups with other students in a related academic field. Each group takes core classes together, often forming lifetime relationships with other students in their discipline.

Then there is the McNair Scholars Program designed for students of exceptional academic accomplishment to prepare for graduate school. It includes an intense summer research program that further builds academic skills while training students in a variety of research techniques.

High school and community college students visit U.T. Arlington regularly. Some are brought to the campus on school field trips, while others visit with their parents or on their own. School programs, services, and organizations set up displays and have students, staff, and faculty on hand to address questions. Admissions and fi-

nancial aid brochures and catalogs are given to the students. Merchandise that bears U.T. Arlington's name is also a part of U.T. Arlington's advertising program. Official letters of invitation to recruitment events generally excite parents as well as prospective students.

U.T. Arlington also hosts the Special Olympics Texas games. This is a statewide event that strengthens U.T. Arlington's image both locally and throughout Texas. Many of the volunteers are students, staff, and faculty giving back to the Arlington community, showing through volunteering what it means to be associated with U.T. Arlington. Most student organizations and U.T. Arlington programs make every effort to encourage students to volunteer for all types of service, ranging from working in local shelters to giving aid in the event of national disasters. Service remains the key to highly effective marketing strategies.

CONCLUSION

A first step in increasing student retention is identifying the existence of a problem in its early stages and collecting data necessary to determine its nature. Defining what kinds of attrition are to be studied (semester-to-semester, entry-to-graduation) is the next step. The entire college community must be involved, from the president to faculty and staff, in finding successful solutions. It is also essential to develop a holistic perspective on non-persistence. Finally, it is critical that the university follow through with an excellent communication program that constantly informs the college community of the results of such studies.

The general consensus of some experts posits that, "A campus-centered environment during the freshman year leads to a higher retention rate" (Noel, et al. 148). Others argue, "Substantive academic advising and orientation is the sure path to a higher retention" (Brown 221). Just as important are student-oriented goal statements, proficiency examinations, and evaluations of the institution's ability to increase student competence. However, many experts agree, "There are three major research phases" (McCarthy 85).

Phase One is the analysis of student enrollment behavior. Phase Two is the assessment of the multidimensional interaction that occurs between students and the collegiate environment. The final phase is the evaluation of outcomes-program effectiveness and/or intervention impact. With the distribution and evaluation of my survey, I was able to incorporate two of the three phases in my research.

Commuting students are a majority of the undergraduates in this country and their numbers continue to grow as the cost of tuition and campus residency rises. The rapid change of our society forces us to become lifelong learners. For many different reasons commuting students make less of a commitment to attending and continuing college than residential students. Colleges that wish to better serve commuter students and help them to achieve their diverse goals must know them well and attend carefully to their needs.

After carefully analyzing my survey, studying the results, comparing it to a recent and more comprehensive instrument (1999 CSS), while researching university student needs and retention theories, I have come to the following conclusions: the number one attraction

regarding U.T. Arlington enrollment is overwhelmingly the low cost of tuition and fees compared to other universities of the same size, population, and diversity. The influence of parents and degree programs come in at a close second and third. Marketing the University's low tuition cost an excellent education in a diverse and affordable metroplex, should be easy. However, in order to attract entering freshman, U.T. Arlington must compete with 15 community colleges in the immediate area. Many of these colleges market themselves on television. One such institution is Tarrant County College in Fort Worth, which advertises around-the-clock on a local station.

Since U.T. Arlington is both a commuter and a traditional institution, marketing strategies must be carefully evaluated. Recruiters, campus visitations, catalogs, service pamphlets, the web site, mail outs, community involvement, and word-of-mouth are major marketing tools for U.T. Arlington. Undoubtedly the University needs to develop a more creative, attention-grabbing web site given the fact that web styles power today's market.

Advertising Arlington Hall on the cover of U.T. Arlington Magazine is another positive marketing strategy. Magazines and newspapers showing students, parents, and the community that U.T. Arlington is building newer and better facilities add to campus, neighborhood, and city pride. Traditional students living in the new dorms feel that U.T. Arlington truly cares that they have an exceptionally nice place to live while they are attending school. Again word-of-mouth is an important marketing key.

Food service is an issue that can be addressed and resolved to provide a greater student satisfaction. However, the same is probably not true about parking. Unless U.T. Arlington builds more parking lots for students, the parking problems will only increase as student population rises.

Student satisfaction with the services of the Admissions, Bursar's, Financial Aid, and Counseling and Career Services Offices are typical in a public institution, according to researchers, such as Lee Noel. However, U.T. Arlington should not settle for being typical, but develop programs that improve service and student relations.

Most students feel safe at U.T. Arlington, but there appears to be some concern with more lighting at night and more police patrols. Perhaps the near kidnapping of a student this past academic year triggered this concern. U.T. Arlington encourages students to report all suspicious and criminal activities.

Most students are satisfied with their professors, while a quarter of the students found their teachers only acceptable. This may be investigated further for a more complete view of teacher-student satisfaction. The teacher shortage in Texas and across America may explain why some professors don't measure up to others. However U.T. Arlington maintains that it employs the highest standards when selecting faculty.

The University of Texas at Arlington continues to grow and expand its services. It strives to develop new and innovative programs for students. The University regularly studies the habits of students, their wants, needs, complaints, and praises with comprehensive student surveys, feedback from student government and other student

29. How often do you visit the campus libraries (including on-line)?
(a) Daily (b) Weekly (c) Occasionally (d) Rarely (e) Never
30. How often do you visit the new coffee house at the main campus library?
(a) Daily (b) Weekly (c) Occasionally (d) Never
31. How often do you read the U.T. Arlington Shorthorn?
(a) Always (b) Sometimes (c) Seldom (d) Rarely (e) Never
32. How would you describe your experiences with the Admissions Office?
(a) Very positive (b) Positive (c) Negative
(d) Very negative (e) Never thought about it
33. How would you describe your experiences with the Financial Aid Office?
(a) Very positive (b) Positive (c) Negative
(d) Very negative (e) Never thought about it
34. How would you describe your experiences with the Bursar's Office?
(a) Very Positive (b) Positive (c) Negative
(d) Very negative (e) Never thought about it
35. How would you describe your experiences using Sam (U.T. Arlington automated student information at (817) 272 -2726)?
(a) Very Positive (b) Positive (c) Negative
(d) Very negative (e) Never thought about it
36. How would you describe your experiences with the Counseling and Career Services Office?
(a) Very Positive (b) Positive (c) Negative (d) Very negative (e) Never visited
37. Do you know who your academic advisor is?
(a) Yes (b) No
38. How often do you visit your academic advisor?
(a) Once a semester (b) Once a year (c) When I have a problem
(d) Just to get my degree plan (e) I haven't
39. Have you encountered any problems with your degree plan?
(a) Yes (b) No
40. How would you describe your experiences with your professors at U.T. Arlington:
(a) Excellent, they exceeded my expectations (b) Very good
(c) Acceptable, some met my expectations and some didn't
(d) Unacceptable, they never met my expectations (e) I have no expectations of my professors
41. Is a course or courses currently not offered at U.T. Arlington that you want to take?
(a) Yes (b) No
Name of class _____
42. Have you found the students at U.T. Arlington friendly and polite?
(a) Always (b) Sometimes (c) Seldom (d) Never
43. Have you encountered language problems resulting in misunderstandings between you and your professor?
(a) Always (b) Sometimes (c) Seldom (d) Never
44. Do you know the school Alma Mater?
(a) Yes (b) No (c) Not interested
45. Has your over-all experience at U.T. Arlington met your expectations?
(a) Always (b) Sometimes (c) Seldom (d) Never
46. Will you recommend U.T. Arlington to future college students?
(a) Yes (b) No (c) Maybe, depends on my overall experiences here.
47. Will you support U.T. Arlington alumni after graduating?
(a) Yes (b) No (c) Maybe, depends on my overall experiences here.
48. On a scale of 1-5; (1 being the lowest and 5 the highest) how would you rate your experience at U.T. Arlington?
(a) 1 (b) 2 (c) 3 (d) 4 (e) 5
49. Is there an area not addressed in this survey that you want to comment on?
(a) Yes (b) No Comment: _____
50. Have you ever heard of U.T. Arlington referred to as a commuter school?
(a) Yes (b) No
51. After attending U.T. Arlington would you ever refer to it as a commuter school?
(a) Yes (b) No Please answer why or why not on comment line below.
Comment: _____

LITERATURE REVIEW

Researching student behavior in colleges, past and current trends, were vital in discerning the results of my survey in this research. It was necessary to understand how the university setting has changed as well as the needs and expectations of the students. Comparisons with other universities of like size and diversity were also a valuable resource. My research included, but was not limited to the following texts:

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The Effects of Hate Crime Legislation on the Incidence of Hate-Based Acts Over a Nine-Year Span

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ABSTRACT

This study analyzes the effectiveness of hate crime legislation over a nine-year period. It is hypothesized that the emergent hate crime statutes will have an insignificant effect on the number of hate crimes via post-enactment. Qualitative and quantitative content analyses of the data were conducted on ten states, using the states penal codes and criminal procedures. Ten states in the United States were initially examined and findings showed that three of the ten states lacked hate crime statutes. Consequently, three additional states were examined. The relationship between hate crime laws and the incidents of bias crime acts was inconclusive because three of the thirteen states decreased in the number of hate crimes, five increased and five had no applicable data. However, hate crime statutes were more punitive than felony statutes due to sentence enhancement statutes.

INTRODUCTION

Today racial epithets and discrimination are politically incorrect and socially intolerable. This situation, however, is incongruent with the fact that hate crimes have increased in number in recent years from 4,755 in 1991 to 10,706 in 1996 (Uniform Crime Report, 1991-1996) and fails to explain the media's use of high profile cases that nurture on-going fear of increased violence and victimization. The media have highlighted many horrific acts believed to be an age-old problem. For example:

A 49-year old Black man was hitchhiking, picked up by three white men who beat him, spray painted his face, chained him to the back of their pick up truck and dragged him for more than two miles to his death (Heimlich, 1998, p. 1).

According to the *Austin Chronicle* (1998), after investigation and apprehension of the three defendants, it was discovered that two of the three men were members of a white supremacist prison gang. Janet Heimlich (1998) reported prison officials as saying one defendant wore a tattoo of a black man hanging from a tree.

In June 1984 a 50-year old, Jewish radio personality known for belittling, antagonizing and berating racists on the air was gunned down in front of his Denver home. His assailants turned out to be members of a Neo-nazi hate group that awards points to its "Aryan Warriors" for killing Jews, Blacks, government officials and reporters (Levin and McDevitt, 1993).

Cases such as those previously mentioned lead America to believe that the only individuals that commit hate crimes are members of historic hate groups such as the Klu Klux Klan. Individual hate mongers pose more of a problem than the hooded men wearing sheets; in fact, hate group membership in the U. S. is at an all-time low (Richards, 2001).

Likewise, Martin (1996) stated that what the media do not show are less visible offenses identified as "hate crimes" such as the incident where a black male was driving through a predominately Mexican-American neighborhood, stopped to repair a tire and was attacked by a group of ten Mexican-Americans leaving a bar (Uniform Crime Report, 1999).

During the attack, the offenders called the victim by a well-known and recognized epithet used against blacks and told him that blacks were not welcome in the neighborhood. This incident would be reported as Anti-Black because the victim and offenders are of different races, the offenders used a racial

epithet and the facts reveal no other reason for the attack than the stated one, i.e., to keep blacks out of the neighborhood." (Uniform Crime Report, 1999, p. 7)

In another example,

A 51-year old white male wielding a tire iron attacked a 29-year-old Japanese-American male. The victim suffered severe lacerations and a broken arm. The incident took place in a parking lot next to a bar. Investigation revealed that the offender and victim had previously exchanged racial insults in the bar, the offender having initiated the exchange by calling the victim by a well-known and recognized epithet used against the Japanese and complaining that the Japanese were taking away jobs from Americans. An Anti-Asian/Pacific Islander offense would be reported based on the difference in race of the victim and offender, the exchange of racial insults, and the absence of other reasons for the attack (Uniform Crime Report, 1999, p. 7).

HISTORY

Cases similar to those cited above ignited growing concerns at various government levels consequently forcing the judiciary, Congress, and private organizations to respond to societal demands. This initiated an anti-hate motivated movement that began decades prior to the enactment of the Hate Crime Statistics Act of 1990. Hate crime legislation as a type of behavior and policy response emerged in the late twentieth century (Jenness, 1999). First, was the Supreme Court desegregation ruling of southern schools in the 1954 case of Brown vs. Board of Education. Although this landmark case proved to have "momentous implications for American race relations," Brown failed to desegregate southern schools without the assistance of the Civil Rights Act of 1964 (Klarman, 1994), which provided criminal and civil sanctions for civil rights violations. Secondly, the Civil Rights Act of 1964 prohibited discrimination practices with regard to employment, public accommodations and federal funding because of a person's race, religion or national origin. This empowered the Justice Department to act on behalf of protecting civil rights (Jost, 1993). Thirdly, was the institution of Affirmative Action by the federal government and private corporations (Hanson, 1996). "Affirmative Action seeks to narrow the gap between majority and minority group members initiated by an American history that denied opportunities for the advancement of minority populations. This provides members of minority groups with opportunities otherwise historically absent to them" (Hanson, 1996). Next, in 1980, the Gay Rights Move-

ment won passage of anti-discrimination legislation (Jost, 1993), calling attention to the political context of personal victimization (Jenness, 1999). Lastly, Congress enacted the Hate Crime Statistics Act of 1990 requesting that all states record any hate crime statistical data derived from their law enforcement agencies and submit information to the Federal Bureau of Investigation. According to the Uniform Crime Report (1995-1999):

The Act requires the Attorney General to establish guidelines and collect as part of the Uniform Crime Reporting Program, data about crimes that manifest evidence of prejudice based on race, religion, sexual orientation or ethnicity, indulging where appropriate the crimes of murder, non-negligent manslaughter; forcible rape; aggravated assault, simple assault, intimidation; arson; and destruction, damage or vandalism of property (p. 1).

In order for the data collected to be uniform in nature, a federal definition was developed to emphasize what crimes were considered hate crimes:

Bias Crimes are defined as criminal offenses committed against a person or property which is motivated, in whole or in part by the offender's bias against a race, religion, disability, sexual orientation, or ethnicity/national origin; also known as hate crimes (UCR, 1999, p. 2).

THE PRESENT STUDY

While much attention has been given to hate crime legislation in recent years, researchers have done little to measure the post-enactment success rate of hate crime statutes. This study will expand on the many reasons for ineffective hate crime legislation, as well as critique the effectiveness of hate crime legislation over a nine-year period. It is hypothesized that the emergence of hate crime statutes will have an insignificant effect on the number of post-enactment hate crimes incidents.

LITERATURE REVIEW

In a study to gain understanding of the mechanisms of violence that persist against women and sexual minorities, Wilets (1997) found that "violence against the bodily integrity of both groups frequently occurs outside the reach of the legal system" (p. 3). It is believed that the legal system only addresses the acts of violence that are in the public eye, thus failing to provide protection to victims that suffer abuse at home. An example of such action is the traditional stance taken by International Human Rights Law. In the past, the human rights law did not recognize gender-specific forms of abuse like rape, sexual abuse, infanticide, bride burning, domestic violence and forced sterilization (p. 4). Likewise, countries that follow Islamic Law execute individuals who partake in same-sex relationships. In summation, international law is ineffective because "it interacts with gender bias domestic laws and social structures that relegate women and men to separate spheres of existence" (Wilets, 1997, p. 2).

Levin and McDevitt (1993) explain bias-motivated violence as a form of collective scapegoating by national rulers attempting to serve a purpose. It is believed that in times of trouble, national rulers blame "outsiders/foreigners" for societal downturns. This preserves their

positions of power even when data show their policies and programs are responsible for the deplorable events. Sociologist Lewis Coser refers to the phenomenon as a "safety valve". An example of the "safety valve" mentality is the German and American view that newcomers entering a thriving community provide a cheap source of labor, ultimately stripping jobs and dignity from the otherwise well established citizens, leaving only community decay. In response to this prejudice, domestic wars erupt and borders (to Mexico) are closed.

Research reveals hate crime laws vary from state to state (Jacobs & Potters, 1998). Some statutes are misdemeanor offenses, carrying little or no punishment (Braithwaite, 1996); other statutes have criminal or civil provisions or both (see Table 3). According to the Anti-Defamation League (ADL) (1999), approximately twenty states penalize or prosecute individuals that express violent acts of religious and disability bias. Likewise, only eleven states have data collection statutes that include sexual orientation bias. With such distinct levels of variation in the legislation, it is difficult to assume "people are talking about the same thing when they speak of hate crimes" (Jacobs & Potters, 1998, p. 42). In addition, a comparison of jurisdictional data is impossible due to a lack of data uniformity (Jacobs & Potters, 1998).

The U.S. Department of Justice (1992) found reporting procedures to be an obstacle in data comparability. Some states have legislative mandates that require reporting by all police agencies, while other states have voluntary reporting programs. Reporting zero hate crime acts is required in some states that have no hate crime over a given period. It is believed that the zero reporting will provide a more accurate assessment of hate crime statistical data. Levin and McDevitt (1993) take an opposing view and state that if any agency declines to report every year, the numbers of offenses recorded are distorted.

Contrary to research findings previously mentioned, diversity in hate crime legislation appears to be beneficial to victims when alternate sanctions are available. Braithwaite (1996) emphasizes the importance of statutes that have civil remedies in addition to and not precluded by criminal provisions. "Damages through civil actions are vitally important to assure the vindication of victims civil rights" (Goldberg, 1992) in Braithwaite, 1996, p.5). In the event that a statute lacks such ramifications, victims are deterred from reporting hate based acts because satisfaction through the criminal justice system is uncertain; however, acquittal in the criminal case can equal civil liabilities on the same facts. Hence, a signal of deterrence is sent to both past and potential aggressors. According to the *Boston Globe* (1993), "when Klansmen have to pay somebody they despise \$25 a week for the rest of their lives, they lose their home, their pick up, it has an effect on the movement (p. 1)." Some believe that the civil remedies have marked a decline in Klan-inspired violence (Braithwaite, 1996).

Many researchers view hate crime legislation as unconstitutional (Tribe, 1993, in Jost, 1993; Morsch, 1991; Justice, 1993). Jost (1993) states "the laws are impermissibly vague and fail to specify whether increased penalties apply when prejudice is one of several motivations for an offense rather than the sole motivation (p. 5)." Prosecu-

tors have difficulty proving the defendant's *mens rea* and that the accused attacked the victim "because of" or "by reason of" their race, religion, or national origin. The mandated proof of intent undermines prosecutors' authority with regard to bigoted criminal acts, thereby prosecutors are discouraged from charging under the hate crime law (Morsch, 1991). The laws are also believed to be a violation of a person's First Amendment rights due to the punishment of thoughts and expressions otherwise protected by the First Amendment of the United States Constitution. For example, when someone inquires about the defendant's state of mind prior to and at the time of the offense (Jost, 1993) it is problematic to attempt to distinguish the motivation behind the speech from the element of the crime (Justice, 1993). It was the arguments of unconstitutionality that convinced the Wisconsin and Ohio Supreme Courts to rule against state laws modeled after the ADL proposal (Jost, 1993, Justice, 1993, Becker, 1999). Other opponents, however, suggest that "statutes unconstitutionally benefit minorities, because minorities are more likely to be victims of bias crimes, or that the statutes unconstitutionally burden majority members because majority members are more likely to be prosecuted" (Anti-Defamation League, 1999, p. 8). Supporters of hate crime statutes reject this view, stating the "statutes are neutral on the face and that the state has a legitimate interest in punishing hate crimes more severely" (Anti-Defamation League, 1999, p. 8). Hate crime laws are punishing conduct that is already defined as a criminal act while simultaneously targeting specific types of motivation (such as race, disability, religion, sexual orientation etc.) and consequently providing sentencing enhancement in those cases (Jost, 1993).

METHODOLOGY

A qualitative and quantitative content analysis of the data was conducted on ten states using their penal codes and criminal procedures. The quantitative aspect of the study was done through a descriptive presentation of Uniform Crime Report data. The data revealed the incidents of hate crimes via pre and post-enactment statistics. The qualitative method consisted of a comparison of each state's felony and hate crime sentencing guidelines, identifying substantive similarities and differences.

The ten states researched were chosen by alphabetizing fifty states and systematically selecting every fifth one. If any state returned incomplete data for research purposes, it was discarded and replaced by one that met the criteria of the study.

The data from each state were obtained from several legal research online databases. The numbers of hate crime incidents were derived from the Uniform Crime Report (1995-1999) and the Anti-Defamation League online databases. Additionally, traditional hardbound sources such as the Uniform Crime Report and the Criminal Justice Statistical Abstract (1992-1999) were used.

It is important to note that, due to time constraints, this study is preliminary. Three months were allowed to collect, analyze, and organize the data; thus making this study, of necessity, one which is descriptive in nature and which will hopefully sensitize its readers to the many issues involved in hate crime legislation and its emerging trends.

Findings

	Incidents	Offenses	% Increase/Decrease for Offenses
1991	4,558	4,755	N/A
1992	6,623	8,918	87.5%
1993	7,587	8,987	00.7%
1994	5,932	7,262	-19.1%
1995	7,947	9,895	36.2%
1996	8,759	10,706	8.1%
1997	8,049	9,861	-7.8%
1998	7,755	9,235	-6.3%
1999	7,876	9,301	-0.7%

The Anti-Defamation League, Uniform Crime Report and Criminal Justice Statistical Data Source.
 "- " Indicates a decrease in percentage.

Table 1: Total Number of Hate Crime Incidents over a Nine-Year Period

Table 1 indicates an increase in hate crimes since the enactment of the Hate Crime Statistics Act of 1990. Between 1991 and 1996, a 125% increase was noted in hate crime incidents. This drastic increase contributed to legislators realizing more must be done to reduce the number of hate crime offenses. Consequently, the majority of the states enacted stricter laws in an effort to deter offenders. From 1996 to 1999, there was a 13.1% decline in hate crimes. The decline can be partially attributed to the overall decrease in crime. Between 1991 and 1999 an increase of 95.6% was observed due to factors related to additional status provisions and offenses that comprise a hate crime statute, as well as definition and reporting procedures (Martin, 1996). The overall increase in prejudice or bias crime from 1991 to 1999 supports the hypothesis that hate crime legislation had an insignificant effect on the number of bigoted acts.

	1995	1996	1997	1998	1999	% 1991-1999
Alabama	N/A	0	0	N/A	N/A	N/A
California	1751	2052	1831	1749	1949	99.74%
Delaware	45	67	58	19	37	27.5%
Florida	164	187	93	179	267	N/A
Georgia	49	28	45	34	36	56.5%
Iowa	29	43	55	0	31	-65.1%
Missouri	135	150	157	118	83	-38.9%
New Jersey	768	839	694	757	617	-31%
Ohio	267	234	265	172	232	65.5%
South Carolina	26	42	71	94	52	N/A
Texas	326	350	333	300	262	63.7%
Utah	107	59	49	66	59	N/A
Wyoming	19	4	6	6	2	N/A

* The Federal Bureau of Investigation's Uniform Crime Report
 "- " Indicates a decrease in percentage.

Table 2: Number of Hate Crime Incidents by State

Most states' hate crime statutes were enacted prior to 1995; however, due to insufficient prior data this study is able to provide only the percentage increase/decrease from 1991. Table 2 reveals inconclusive results when the number of hate crime incidents by state are analyzed. The findings suggest that the enactment of hate crime statutes has been beneficial in the reduction of hate-based acts in some states such as Iowa (-65.1%), Missouri (-38.9%), and New Jersey (-31%) from 1991 to 1999. Likewise, the decrease is in keeping with the declining trend for overall crime since 1996.

Although the decrease appears hopeful, the increase in five of the thirteen states (California 99.74%, Delaware 27.5%, and Georgia 56.5%, Ohio 65.5%, and Texas 63.7%) is discouraging because, as overall crime declines, hate crimes have remained constant or increased in these states. The increase can be attributed to the fact that some of the states do not have hate crime statutes in place to penalize offenders for ethnic intimidation acts. Also Alabama, Florida, Utah, South Carolina, and Wyoming failed to report any hate crime data to the U. S. Department of Justice, resulting in their assignment of a “not applicable” (unknown) status. Moreover, prosecutors’ experience difficulty obtaining conviction for hate-based acts, while some states lack civil alternatives for victims, which encourages underreporting due to the uncertainty of criminal procedures.

Whether or not the hate crime statutes are accomplishing much in the way of crime reduction, society nonetheless receives a sense of

vindication when “justice” is served. Hate crimes are distinguished from “normal” crimes primarily because of activist, media and legislative attention devoted to the perpetrator’s motivation and the socially recognizable characteristics of the victims (Jenness, 1999, p. 565), which foster an attitude of intolerance towards hate crimes. This newfound attitude provides a justification for punishment, also known as retribution. The retributive belief is that an individual is punished because that is what he deserves (Del Carmen, 2000, p. 29), and the goal is to punish offenders for their misdeeds (Siegel, 2000). The retributive philosophy permits society as a whole to penalize those offenders who deserve punishment and prevent victims from having to resort to personal revenge. Therefore, criminals who have committed the most heinous acts deserve the most severe penalties (Siegel, 2000).

	Alabama	California	Delaware	Florida	Iowa	Missouri	Ohio	New Jersey	Texas	Utah
Capital Offense		OFFENSE SPECIFIC						Civil Action Only		
Felony 1	15 Yrs		FEL1 30Yrs	LIFE 30- life					180 days to Min term	
Felony 2	10 Yrs		FEL.2 4Yrs	FEL.1 -30yrs					FEL.1 5-99yrs	
Felony 3	2 Yrs		FEL 2 2-20Yrs	FEL.2 -15yrs	FEL.2 -25yrs				FEL.2 2-20yrs	
Felony 4			FEL.3 -10Yrs		FEL.3 -10yrs	FEL.3 - 10Yrs				
Felony 5			FEL.4 -8Yrs			N/A				
Felony 6			FEL.5 -5Yrs			N/A				
Felony 7			FEL.6 -3Yrs			N/A				
Misdemeanor 1	3-12 Mths		FEL3 2Yrs	FEL.3 -5Yrs	FEL.4 -5Yrs	FEL.4; Less than 10Yrs	MIS.1 -6mths		Add 180 Days	FEL.3 -5Yrs
Misdemeanor 2			FEL.7 -2Yrs	MIS.1 -1Yr	MIS.1 -2Yrs	FEL.4; Less than 10 Yrs	MIS.2 -90days		MIS.1 -1yr	FEL.3 -5Yrs
Misdemeanor 3			FEL.7 -2Yrs		MIS.2 -1Yr		MIS.3 -60 days		MIS.2 -180days	FEL.3 -5Yrs
Misdemeanor 4							MIS.4 -30days			FEL.3 -5Yrs
Violation			MIS.1 -1yr		MIS.3 -30days					
Civil Action					YES				YES	YES
Legend: (-) represents the words UP TO; States with specific convictions do not have enhancement penalties. Blanks = N/A.										

Table 3: Hate Crime Sentencing Ranges by State

	Alabama	California	Delaware	Florida	Iowa	Missouri	Ohio	New Jersey	Texas	Utah
Capital Offense	N/A	OFFENSE SPECIFIC	N/A	Life or Death	N/A	N/A	N/A	CIVIL ACTION ONLY	Death	Life, Life w/o parole, death
Life Felony	N/A		N/A	30yrs -Life	N/A	N/A	N/A		N/A	N/A
Felony 1	10-99yrs or life		15-life	Up to 30yrs-life	Up to 99yrs	22yrs -Life/ Death	3-10yrs		5-99yrs; Life	5yrs- life
Felony 2	2-20Yrs		2-20yrs	Up to 15yrs	Up to 25yrs	More than 10yrs; Less than 20yrs	2-8yrs		2-20yrs	1 - 15yrs; 2-20yrs (weapon)
Felony 3	1Yr and 1day -10yrs		Up to 10yrs	Up to 5yrs	Up to 10yrs	Up to 10yrs	1-5yrs		2-10yrs	Up to 5yrs; 1-10yrs (weapon)
Felony 4	N/A		Up to 8yrs	N/A	Up to 5yrs	Less than 10yrs	6-18mths		180days -2yrs	N/A
Felony 5	N/A		Up to 5yrs	N/A	N/A	N/A	6-12mths		N/A	N/A
Felony 6	N/A		Up to 3yrs	N/A	N/A	N/A	N/A		N/A	N/A
Felony 7	N/A		Up to 2yrs	N/A	N/A	N/A	N/A		N/A	N/A
Misdemeanor 1	Not more than 1yr		Up to 1yr	Up To 1yr	Up to 2yrs	More than 6mths	Up to 6mths		Up to 1yr	Up to 1yr
Misdemeanor 2	Not more than 6mths		Up to 6mths	Up to 60days	Up to 1yr	10yrs	Up to 90days		Up to 180days	Up to 6mths
Misdemeanor 3	Not more than 3mths		N/A		Up to 30days	Up to 30 days	Up to 60days		Fine	Up to 90 days
Misdemeanor 4	N/A		N/A		N/A	N/A	Up to 30days		N/A	N/a
Violation	Up to 30 days		Up to 30days	Fine/ Civil	N/A	0days	N/a		N/A	0 days

Table 4: Felony and Misdemeanor Sentencing Ranges by States

Table 3 shows the minimum number of years given to a person found guilty of a crime, the commission of which was shown beyond a reasonable doubt to have been motivated by the victim's actual or perceived, race, religion, color, national origin, and physical or mental disability. Table 4 shows the sentencing ranges by states for felony and misdemeanor offenses. According to Tables 3 and 4 eight of the states have a sentencing enhancement statute that accompanies the hate crime statute. Table 4 also shows that two of the states have civil actions as an alternative to criminal procedures and one state (New Jersey) has a civil action only hate-based statute.

Alabama

The Alabama Hate Crime Law was passed in 1995. This legislation covered areas of bias-motivated violence and intimidation, a criminal penalty (Haider-Markel, 2000). According to the Mitchie's Alabama Code (2001), the hate crime statute finds and declares:

- (1) It is the right of every person, regardless of race, color, religion, national origin, ethnicity, or physical or mental disability, to be secure and protected from threats of reasonable fear, intimidation, harassment, and physical harm caused by activities of groups and individuals (p. 1)
- (2) It is not the intent, by enactment of this section, to interfere

with the exercise of rights protected by the Constitution of the State of Alabama or the United States (p. 1).

- (3) The intentional advocacy of unlawful acts by groups or individuals against other persons or groups and bodily injury or death to persons is not constitutionally protected when violence or civil disorder is imminent, and poses a threat to public order and safety, and such conduct should be subjected to criminal sanctions (p. 1).
 - (a) The purpose of this section is to impose additional penalties where it is shown that a perpetrator committing the underlying offense was motivated by the victim's actual or perceived race, color, religion, national origin, ethnicity, or physical or mental disability (p. 1).
 - (b) A person who has been found guilty of a crime, the commission of which was shown beyond a reasonable doubt to have been motivated by the victim's actual or perceived race, color, religion, national origin, ethnicity, or physical or mental disability, shall be punished as follows:

Tables 3 and 4 show an enhanced sentence of five additional years on a conviction of a Class 1 Felony (from ten years to fifteen years). On conviction of a Class 2 Felony, the minimum term is enhanced from two years to ten years. For the

conviction of a Class 3 felony, a defendant will serve a minimum prison term of two years as opposed to the one year and one day. There is a mandatory minimum term of three months for a Class 1 Misdemeanor.

California

California's hate crime statute was passed in 1984. The areas covered were data collection and bias motivated violence, a civil action and criminal penalty (Haider-Markel, 2000).

This state's felony and misdemeanor statutes are offense specific. Deering's California Codes Annotated (2001) states that:

- (1) If a person commits or attempts to commit a felony because of the victim's race, color, religion, nationality, country origin, ancestry, disability, gender or sexual orientation or because he or she perceives that the victim has one or more of those characteristics, shall receive an additional term of one, two, three years in the state prison at the court's discretion (p. 1).
- (2) If a person commits or attempts to commit a felony against the property of a public agency or private institution, including a school, educational facility, library or community center, meeting hall, place of worship, or offices of an advocacy group, or the grounds adjacent to owned, or rented by the public agency or private institution, because the property of the public agency or private institution is identified or associated with a person or group of an identifiable race, color, religion, nationality, country of origin, ancestry, gender, disability, or sexual orientation, shall receive an additional term of one, two, three years in the state prison, at the courts discretion (p. 1)
- (3) If a person commits or attempts to commit a felony because of the victim's race, color, religion, nationality, country origin, ancestry, disability, gender or sexual orientation or because he or she perceives that the victim has one or more of those characteristics, and who voluntarily acted in concert with another person, either personally or by aiding and abetting another person shall receive an additional two, three, or four years in the state prison at the courts discretion (p. 1).
- (4) For the purpose of imposing additional terms, it shall be a factor in aggravation that the defendant personally used a firearm in the commission of the offense (p. 2).
- (5) A person who is punished pursuant to this section also shall receive an additional term of one year in the state prison for each prison felony conviction on charges brought and tried separately in which it was found by the trier of fact or admitted by the defendant that the crime was committed because of the victim's race, color, religion, nationality, country origin, ancestry, disability, gender or sexual orientation or that the crime was committed because the defendant perceived that the victim had one or more of those characteristics (p. 2).

Delaware

The Delaware hate crime statute was passed in 1995. The area covered under this is bias-motivated violence and intimidation, a criminal penalty (Haider-Markel, 2000).

Any person who commits, or attempts to commit, any crime as defined by the laws of this state, and who intentionally:

- (1) Commits said crime for the purpose of interfering with the victim's free exercise or enjoyment of any right, privilege or immunity protected by the First Amendment to the United States Constitution, or commits said crime because the victim has exercised or enjoyed said rights; or (Delaware Code, 2000, p. 1).
- (2) Selects the victim because of the victim's race, religion, color, disability, sexual orientation, national origin or ancestry, shall be guilty of a hate crime. For purposes of the section, the term "sexual orientation" means heterosexuality, bisexuality, or homosexuality (Delaware Code, 2000, p. 1).

According to Tables 3 and 4 if the underlying offense is an unclassified misdemeanor, the sentence enhancement shall become a Class 1 Misdemeanor and up to one year in jail is to be served. A Class 1, 2, or 3 Misdemeanor, shall become a Class 7 Felony putting into place a sentence up to two years (Delaware Code, 2000, p. 2). Likewise, if the offense is a Class 3-7 Felony, then hate crime shall be one grade higher than the underlying offense (Delaware Code, 2000, p. 2). There is not a difference in the grade of a Class 1 or 2 Felony; however, the minimum sentence of imprisonment for the underlying offense is doubled (Delaware Code, 2000, p. 1). By doubling the term of imprisonment, the minimum sentence for a Class 1 Felony is enhanced by fifteen years and a Class 2 Felony is enhanced by two years.

Florida

The state of Florida passed its hate crime statute in 1989. The areas covered were data collection and bias motivated violence, a civil action and criminal penalty (Haider-Markel, 2000).

The Florida Statutes (2000) states "evidence must prove the defendant perceived, knew, or had reasonable grounds to know or perceive that the victim was within the class delineated under the hate crime statute (p. 1)." Likewise, if there is evidence of prejudice based on the race, religion, sexual orientation, national origin, mental or physical disability or advanced age of the victim when committing a crime, all underlying offenses require reclassification.

- (1) A misdemeanor of the second degree is reclassified to a misdemeanor of the first degree; increasing the sentencing range from up to sixty days to up to one year.
- (2) A misdemeanor of the first degree is reclassified to a felony of the third degree; increasing range from up to one year to up to five years.
- (3) A felony of the third degree is reclassified to a felony of the second degree increasing sentencing range from up to five years to up to fifteen years.
- (4) A felony of the second degree is reclassified to a felony of the first degree; increasing sentencing range from up to fifteen years to up to thirty years.
- (5) A felony of the first degree is reclassified to a life felony; increasing sentencing range from up to thirty years to thirty years to life.

Iowa

Iowa passed its hate crime statute in 1990. The statute falls under a violation of an individual's rights chapter of the Iowa Code (2001). This section states "that the people with in the state of Iowa have the right to be free from any violence, or intimidation by threat of violence, committed against their persons or property because of their race, color, religion, ancestry, national origin, political affiliation, sex, sexual orientation, age or disability (p. 1)." This state defines a hate crime as a public offense such as assault, criminal mischief, and trespass committed against a person or a person's property "because of" the person's race, color, religion, ancestry, national origin, political affiliation, sex, sexual orientation, age or disability or the person's association with a person of a certain race, color, religion, ancestry, national origin, political affiliation, sex, sexual orientation, age or disability.

Any person who suffers physical, emotional or financial harm due to the commission of a hate crime is entitled to and may bring an action for injunctive relief, general and special damages, reasonable attorney fees and costs. The action, however, must be brought within two years after the date of the violation. The burden of proof is the same as in other civil cases (Iowa code, 2001, p. 1).

Missouri

Missouri's date of passage for its hate crime statute is unknown. The areas covered by the statute, however, are bias-motivated violence or intimidation, a civil action and criminal penalty (Haider-Markel, 2000) which provides enhanced penalties for motivational factors in certain crimes such as property damage in the first and second degree, unlawful use of a weapon, assault in the third degree, tampering, harassment, trespass, and rioting. For all violations the state believes to be knowingly motivated because of race, color, religion, national origin, sex, sexual orientation or disability of the victim or victims, the state may charge the crime or crimes under this section, and the violation is either a class 3 or 4 felony (Revised Statutes of Missouri, 2001).

According to Tables 3 and 4, an individual convicted under the hate crime law is subject to an enhanced sentence, from thirty days to a six month stay for a misdemeanor 2 violation to a less than ten year stay for a felony 4 violation. For misdemeanor 1 violations the sentence is enhanced from more than six months in jail to less than ten years for felony 4 offenses.

New Jersey

This state's hate crime statute was passed in 1989 (Haider-Markel, 2000); however, it lacks criminal sanctions for offenders who commit bias crime acts. In its place, there is a civil cause of action for bias crime victims (New Jersey Statute, 2000).

- (1) A person, acting with purpose to intimidate an individual or group of individuals because of race, color, religion, gender, handicap, sexual orientation, or ethnicity, who engages in conduct that is an offense commits a civil offense (New Jersey Statute, 2000, p. 1).
- (2) Any person who sustains injury to person or property as a result of a violation of subsection shall have a cause of ac-

tion against the person or persons who committed the civil offense resulting in the injury. In the case of homicide, the estate of the deceased shall have a cause of action. Nothing in this subsection shall be construed to preclude the parent or legal guardian of a person who has sustained injury as a result of a violation of subsection from initiating a civil action on behalf of a minor child or award (New Jersey Statute, 2000, p. 1).

- (3) The Attorney General, as *parens patriae*, may initiate a cause of action against any person who violates a subsection of this section on behalf of any person or persons who have sustained injury to person or property as a result of the commission of the civil offense (New Jersey Statute, 2000, p. 1).
- (4) Upon proof, by preponderance of the evidence, of a defendant's violation of a subsection of this section and of resulting damages, the defendant shall be liable as follows:
 - (a) Attorney's fees and costs of suit incurred.
 - (b) If the Attorney General participated in the case, reasonable attorney's fees and costs of investigation and suit.
 - (c) Injunctive relief ordered by the court to avoid the defendants continued violation of the subsection.
 - (d) Any appropriate equitable relief, including restraints to avoid repeated violation.
- (5) An award entered shall be reduced by the amount of any restitution that has been awarded for the same injury following criminal conviction or juvenile adjudication. Likewise, damages awarded for injuries that have been previously compensated by the Violent Crimes Compensation Board shall be paid to the board for deposit in the Violent Crimes Compensation Board Account.
- (6) All fees and costs assessed for the benefit of the State shall be paid to the board for deposit in the Violent Crimes Compensation Board Account.
- (7) The parent or legal guardian of a juvenile against whom an award has been entered shall be liable for payment only if the parent has been named as a defendant and it has been established, by preponderance of the evidence, that the parent or guardian's conduct was a significant contributing factor in the juvenile commission of the offense.

Ohio

Ohio's hate crime statute's date of passage is also unknown; but it covers areas of bias-motivated violence or intimidation, a civil action and criminal penalty (Haider-Markel, 2000).

- (1) No person shall commit aggravated menacing, menacing, criminal damaging or endangering, or criminal mischief or telecommunication harassment of the Revised Code by reason of the race, color, religion, or national origin of another person or group of persons (Page's Ohio Revised Code Annotated, 2001, p. 1).
- (2) Whoever violates this section is guilty of ethnic intimidation. Ethnic intimidation is an offense of the next higher degree than the offense the commission of which is a necessary element of ethnic intimidation (Page's Ohio Revised Code Annotated, 2001, p. 1).

Tables 3 and 4 show that all offenses specified as a hate crime violation are misdemeanors, not subject to sentence enhancements.

Texas

The original Texas hate crime statute was passed in 1991 and covered the areas of data collection and bias motivated violence and intimidation, which is a criminal penalty (Haider-Markel, 2000). The statute was revised, however, in 2001.

The Texas Legislature Online (2001) states that:

In the trial of a prejudice or bias offense, the judge shall make an affirmative finding of fact and enter the affirmative finding in the judgment of the case, if at the guilt or innocence phase of the trial, the judge or the jury, whichever is the trier of fact, determines beyond a reasonable doubt that the defendant intentionally selected the person against whom the offense was committed or intentionally selected property damaged or affected as a result of the offense because of the defendant's bias or prejudice against a group identified by race, color, disability, religion, national origin or ancestry, age, gender, and/or sexual preference. The sentencing judge may, as a condition of punishment, require attendance in an educational program to further tolerance and acceptance of others. This Act does not create any legal status or right not already existent in statute or common law for a group or a member of a group described by Code of Criminal Procedure, as amended by this Act, Civil Practice and Remedies Code, as added by this Act. This Act shall be used only to protect individuals from being targets of hateful acts of violence simply because those individuals are members of a group described by Code of Criminal Procedure, as amended by this Act, Civil Practice and Remedies Code, as added by this Act (p. 1).

Tables 3 and 4 of the present study shows that the Texas hate crime statute enhances penalties for bias or prejudice offenses. Class 3 misdemeanors are upgraded one level to class 2 misdemeanors, increasing the penalty from a fine to one hundred and eighty days. Class 2 misdemeanors are increased from up to one hundred and eighty days to class 1 misdemeanors of up to one year. An additional one hundred and eighty days is added to the original terms of confinement for a class 1 misdemeanor. Class 3 felonies are increased to class 2 felonies, enhancing the prison term from a range of two to ten years to a range of two to twenty years. Class 2 felonies (two to twenty years) are upgraded to class 1 felonies (five to ninety-nine years). The minimum terms of confinement for class 1 felonies are increased by one hundred and eighty days.

Texas also has civil remedies for victims who suffer damages or losses due to hate crimes.

Utah

Utah's hate crimes statute was passed in 1992 and covers bias-motivated violence and intimidation, a civil action and criminal penalty (Haider-Markel, 2000):

Hate crimes are regarded as civil rights violations under the Utah code, (2000):

A person who commits assault, misdemeanor property destruction, criminal trespass, misdemeanor theft, any offense inter-

fering or intending to interfere with government, colleges and universities activities, telephone abuse, weapons use, and any misdemeanor offenses against public order and decency (e.g. rioting), with the intent to cause fear for physical safety or damages the property of that person or another or with reason to believe that his action would cause a person to fear freely exercising or enjoying any rights secured by the Constitution or laws of the state or by the Constitution or laws of the United States is guilty of a third degree felony and or hate crime (p. 1).

Table 3 and 4 show that the offenses mentioned are misdemeanors, upgraded to level four felonies, punishable by up to five years in prison. Apart from cases when the "trier of fact finds beyond a reasonable doubt that a dangerous weapon was used in the commission or furtherance of the felony, the person shall be convicted of a term not less than one year nor more than ten years." (Utah Code, 2000, p. 1)

South Carolina and Georgia

Both states lack hate crime laws enforcing criminal penalty for bigoted acts. However, these states have data collection statutes (Haider-Markel, 2000).

Wyoming

Wyoming is also deficient in the enactment of bias or prejudice legislation; however, the state does have a breach of peace law, which is "punishable by imprisonment for not more than six months, a fine of not more than seven hundred fifty dollars, or both" (Wyoming Statutes, 2000, p. 1). According to Wyoming Statutes Annotated (2000), a person commits breach of the peace if he disturbs the peace of a community and its inhabitants by unreasonably loud noise or music or by using threatening, abusive or obscene language or violent action with knowledge or probable cause to believe he will disturb the peace (p. 1).

CONCLUSION

Hate crime legislation has gained a tremendous amount of attention in recent years, initiating a vast amount of concern among politicians, activists, and the media. Although this subject is of interest to so many, it is not without flaws.

First, the incidents of hate crime can be ambiguous in nature making motive difficult to prove. For instance, a white male assaults a Jewish male, takes his wallet and calls him a well-known racial slur. Even though the epithet is used, it is not known whether the white male belongs to another religious group or if the motive was robbery (Uniform Crime Report, 1999). One must be able to distinguish the words from the motive. In order for a person to be charged with a hate crime, two elements must be present: *mens rea* (guilty mind) and *actus reus* (criminal act). In other words, a person must intentionally select a victim "because of" his/her race, color, religion, sexual orientation, gender, etc., and commit a criminal act before he is charged under criminal law.

Second, an agency's reporting of hate crimes is voluntary. This variation in reporting from year to year provides an inaccurate number of prejudiced incidents/offenses per state. Mandatory reporting

of such offenses by all states would provide legislators with consistent statistical data with regard to hate crime legislation and their effects on the number of hate-based acts.

Third, a lack of uniformity in its state definitions, status provisions, and offenses makes comparability difficult. Nevertheless, if all states utilized the hate crime definitions provided by the federal government, it might minimize the number of lawsuits challenging the unconstitutionality of their statutes.

Fourth, states differ in severity of penalties. Some states consider hate crime a felony as well as a misdemeanor and enforce the sentence enhancement statutes in the sentencing phase of trial, whereas, others consider hate crimes misdemeanors and lack any form of enhancement.

Lastly, civil actions, restitution and fines are lacking as an alternative to the criminal justice process. The standard of proof in criminal cases is higher than in civil cases. Beyond a reasonable doubt (the criterion in criminal cases) is a difficult standard to reach as opposed to preponderance of the evidence (as in civil cases), thus making a criminal conviction a difficult task.

The findings in this study were inconclusive and failed to show whether hate crime legislation had an effect on hate-based incidents. Several factors (overall crime rate, immigration, economics, etc.) may be responsible for the fluctuation in bias acts from state to state. Therefore, this subject warrants further research. One must be aware that the study was a content analysis of official data and not a statistical interpretation of the hypothesis, thereby removing much mathematical reliability due to the inability to control for confounding variables. It is believed that the inconclusive results raise more questions than answers. For example, what are the contributing factors responsible for the inconsistent hate crime data? Why has hate crime remained constant in some states and decreased in others? Does the initial investigation have a significant bearing on what is considered a hate crime, even when data collection laws are in place? These questions can be answered as more states develop and refine their hate-based statutes, and as more longitudinal data become available over time.

GLOSSARY

Terms Used in Research

Disability Bias—A preformed negative opinion or attitude toward a group of persons based on their physical or mental impairment /challenges, whether such disability is temporary or permanent, congenital or acquired by heredity, accident, injury, advanced age or illness (Uniform Crime Report, 1999, p. 2).

Racial Bias—A preformed negative opinion or attitude toward a group of persons who possess common physical characteristics, e.g., color of skin, eyes, and/or hair; facial features; etc., genetically transmitted by descent and heredity which distinguishes them as a distinct division of humankind, e.g., Asians, blacks, whites (Uniform Crime Report, 1999, p. 3).

Religious Bias—A preformed negative opinion or attitude toward a group of persons who share the same religious beliefs regarding the origin and purpose of the universe and the existence or non-existence of a supreme being, e.g., Catholics, Jews, Protestants, atheists (Uniform Crime Report, 1999, p. 3).

Sexual Orientation Bias—A preformed negative opinion or attitude toward a group of persons based on their sexual attraction toward, and responsiveness to, members of their own sex or members of the opposite sex, e.g., gays, lesbians, heterosexuals (Uniform Crime Report, 1999, p. 3).

Hate Group—An organization whose primary purpose is to promote animosity, hostility, and malice against persons belonging to a race, religion, disability, sexual orientation, or ethnicity/national origin which differs from that of the members of the organization, e.g., the Klu Klux Klan, American Nazi Party (Uniform Crime Report, 1999, p. 3).

"Because of"—Means that the bias motivation must be a cause in fact of the offense, whether or not other causes exist. When multiple concurrent motives exist, the prohibited bias must be a substantial factor in bringing about the particular result (California Code, 2001, p. 2).

Offenses—A violation of the criminal law or, in some jurisdiction a minor crime such as trespassing (Schmallegger, 1999, p. 745). Offenses known to police are reported occurrences of offenses, which have been verified at the police level.

Incidents (based reporting)—A less restrictive and more expansive method of collecting crime data (as opposed to summary reporting) in which all the analytical elements associated with an offense or arrest are compiled by a central collection agency on an incident by incident basis (Schmallegger, 1999, p. 740).

Mens rea—The state of mind that accompanies a criminal act. The term literally means "guilty mind" (Schmallegger, 1999, p. 744).

Actus reus—An act in violation of the law; a guilty act (Schmallegger, 1999, p. 727).

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**“Hasta No Verte Dios Mío”:
Soldadas y Soldaderas en la Revolución Mexicana¹**

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ABSTRACT

For many years historians have sought to classify the different types of women who were involved in the Mexican Revolution. Traditionally historians have erroneously categorized them under one classification or gender status: “soldaderas”. Recently other historians have gone a bit farther and divided them into two factions: “soldadas” or “battleground female soldiers” and “soldaderas” or “camp followers.” This more recent notion indicates that the forces of the Mexican Revolution were accompanied by two different kinds of female support. The purpose of this paper is to reinterpret the traditional portrayal of the “soldadera” as being a fearless gun-wielding Amazon in search of avenging the death of the dear “Juan” and to show how crucial the involvement of these women was in the deployment of this struggle. It will also identify which of the revolutionary leaders incorporated women into their armies and if the incorporation was done willingly or not.

Las soldaderas ya se cansaron de andar con su Juan. El Juan ya no tiene fuerzas para seguir adelante... simplemente le quiero informar mi general que toda la revolución ya se cansó y muy probablemente también ya se murió. Usted sabrá qué hace.² David Alberto Muñoz

INTRODUCTION

No other event in the history of Mexico has had a more profound effect on its people than the Mexican Revolution of 1910. This tumultuous conflict brought death to over one million Mexican men, women, and children, and displaced an additional one million from their native lands to the United States. Nevertheless, it was this revolution that gave women the opportunity to assume new roles within Mexican society.

The participation of women in the Mexican revolution encompassed all of the social classes in Mexico. Those of the higher social echelon aided in running the newspapers and magazines, forming anti-oppressive government groups, teaching, and organizing health auxiliaries. The backbone of the revolutionary armies consisted of the working camp women (*soldaderas*). It was these women of the lower socio-economic class (poor urban or peasant) that kept the revolution moving in the field. In the field they served more as a commissariat searching for food and establishing a camp; they also provided encouragement and companionship to the men of these armies.³ Regardless of their significant contributions to Mexico's struggle, these women remained virtually unrecognized during the post-war period. Some women were awarded small pensions, others were commissioned as officers, but like most women of this period, they lived out their remaining years in obscurity and died poor. Widespread disappointment set in when the women of Mexico realized that they were not

going to receive any of the benefits brought by the revolution. It was not until 1958, in fact, that they were allowed to vote in a presidential election.⁴

The traditional image of the heroic *soldadera* showing a Mauser or Winchester⁵-wielding Amazon armed to the teeth is a far cry from the actual role that the camp follower or *soldadera* played in the Mexican Revolution. Recent historians have sought to reinterpret women in the Mexican military, but only a few have actually made a clear distinction between *soldaderas* (camp followers) and women soldiers (field fighters or *soldadas*). Andres Resendez Fuentes classifies them accordingly in his excellent essay “*Battleground Women: Soldaderas and Female Soldiers in the Mexican Revolution*.” As he mentions, it is erroneous to amalgamate all of the women involved in the revolution in one classification and to see them as either loyal camp followers, following their Juan, or as vicious freedom fighters who often dressed like men in order to participate in battle.⁶ By adhering to this stereotype we see the image of the *soldadera* as consistent with the traditional archetypes of abnegation. Thus, we continue to see an Amazon Warrior with a touch of sweet sexuality to break that stiff doll image, adding a sense of warmth and complexity that should be found in all social participants within this complex scenario.⁷ Following this too general characterization of *soldaderas* makes it hard to distinguish why these women joined and fought in this torrential struggle.

¹ “Until I see my God”: *Soldadas and Soldaderas in the Mexican Revolution*.

² The soldaderas have grown tired of following their Juan, and Juan no longer has the strength to continue fighting. My general I just wish to let you know that all of the revolution has grown tired of fighting and the revolution may very well be dead. So the choice of what to do is now up to you.

³ Fredrick C. Turner. *The Dynamic of Mexican Nationalism* (Chapel Hill: The University of North Carolina Press, 1968), 183-184.

⁴ Ibid. 186.

⁵ Federal forces usually carried Mauser model 1895 or 1902 rifles in 7x57 caliber. Rebel forces under Villa and Carranza sported Winchester model 1894 lever action rifles, in 30-30 caliber. The Winchesters at first, because of their limited range were mistakenly dubbed inferior by the Huertista contingent.

⁶ Andres Fuentes Resendez. “*Battleground Women: Soldaderas and Female Soldiers in the Mexican Revolution*.” *The Americas* 51,4: 526, (April 1995).

⁷ Julia Tunon Pablos. *Women in Mexico: Past Unveiled*. (Austin: University of Texas Press 1999), 85-86.

SOLDADAS Y SOLDADERAS

"Perro Con Hueso No Ladra ó Muerte"⁸

The decade 1910–1920 is one the most turbulent in the history of Mexico. Those sectors of Mexican society that were no longer able to live under the dictatorship of the *Porfiriato* sought to pursue a struggle that eventually triggered a violent exchange of power that shook the entire country. The period of the *Porfiriato* (1876–1910) was one of economic growth and prosperity. Fueled by the Darwinist Positivism of the *científicos* (Mexicans educated in Europe), Díaz (a *mestizo* from Oaxaca) promoted an incredible surge of industrial growth and modernization that included railroads, factories, telecommunication systems, mines, ports, and telegraphs. This prosperity, however, was limited to the upper realm of society; meanwhile, the majority of Mexico's population – the indigenous, the *obreros* (laborers), and *campesinos* (field workers) – remained impoverished and continued to sink deeper into poverty, ignorance, and hunger.⁹ This upsurge in prosperity did allow some women to gain upward mobility within Mexican society, but it was only the upper middle class that could take advantage of this situation. Many of these upper middle class women were allowed to go to school and study the sciences and law. Díaz, because of his wife and the Juárez Declaration, built new schools and made genuine efforts to eliminate illiteracy in Mexico, to the extent that it fell twenty percent during his administration. To further implement his educational goals Díaz enhanced funding to Mexico's National School for Girls, allowing more middle class young women to enroll in the areas of fine arts and science.¹⁰ Education expanded so greatly during this period that by 1889 Mexico had graduated at least one female lawyer, dentist, and medical doctor, but the majority of the female Mexican population – the poor and illiterate – continued to be left out of Díaz's educational loop. This could largely be attributed to the fact that anti-feminists were still beating their Darwinist rhetoric like a Chinese gong. The only logical thing women could do was to counter this point by arguing that they were just as capable of performing manly duties, if given the opportunity.¹¹

Curricular reform did undergo some structural change by the end of the *Porfiriato* under interim president Francisco de la Barra.¹² De la Barra's Education Minister, Justo Sierra, having become disenchanted by the Positivist view of the *científicos*, moved to restore some semblance of equality in Mexico's educational system by creating the School for Advanced Humanities, and hired female teachers as well.¹³ Other issues that came into the picture during the *Porfiriato* were those of divorce and suffrage. *Las Amigas del Pueblo* (Lady Friends of the State) petitioned the interim De La Barra government to pass divorce legislation (which would later be included in the 1917 Constitution). The interim government immediately quashed this unthinkable issue because it violated the canons of the Catholic Church, and because it morally threatened the stability of the Mexican family. Allowing legal divorce would weaken the preeminence of family unity within the Catholic social structure. While the divorce issue would affect middle class women more than those of lower status, eventually it would be those middle and upper class women who would disseminate this progressive social reform, thereby informing uneducated women of their underprivileged status and allowing them to become more politically active in the upcoming *Maderista* (followers of Francisco I. Madero) government.¹⁴ Those who shared in this progressive consensus in 1911 saw that the only way to modernize Mexico was to adopt the Western view of liberal social reform. This type of moral redemption fueled the thoughts of many civilian *Maderistas* who shared the same liberal views of those liberal forbears of the 1860's. Some *Porfirista* reformers, along with *Maderistas*, knew that the only way Mexico was to become a liberal, modern, and mature nation was to uplift women's status, especially that of lower class women.¹⁵

By the end of the *Porfiriato* some women did gain limited legal status within the Mexican political realm and social community. By the early 1900's women were organizing under the *Partido Liberal Mexicano* (PLM) under the disputed leadership of Ricardo Flores Magón¹⁶, who sought to overthrow the Díaz government.¹⁷ One

⁸ What Porfirio Díaz said of the people of Mexico during the *Porfiriato* "a dog with a bone neither barks nor bites."

⁹ Ibid. 7-8.

¹⁰ Soto, *Emergence of the Modern Mexican Woman*. 11-12. Angeles Mendieta Alatorre. *La Mujer en la Revolución Mexicana* (Mexico City: Talleres Graficos de la Nación, 1961), 56. Up to the mid 1980's, Angeles Mendieta Alatorre was one of the first female historians to write exclusively on the subject of *soldaderas*. Her book *La Mujer en la Revolución Mexicana* is the basic foundation of all scholarly research on this subject. It lists all of the *soldaderas* that were ever pensioned or given rank by any of the revolutionary armies during the Mexican Revolution.

¹¹ Soto, *Emergence of the Modern Mexican Woman: Her Participation in the Revolution and Struggle for Equality 1910-1940*, 12-13.

¹² Francisco Leon de la Barra, interim president of Mexico in 1911, had been the Mexican Ambassador to the United States. He later transferred power to Francisco I. Madero, on November 6th, 1911.

¹³ Peter V.N. Henderson. *In the Absence of Don Porfirio: Francisco de la Barra and the Mexican Revolution*. (Wilmington: S.R. Books, 2000), 169-170.

¹⁴ Anna Macias. *Against All Odds: The Feminist Movement in Mexico to 1940*. (Westport: Greenwood Press, 1982), 120. Henderson, *In the Absence of Don Porfirio*. p., 172-173.

¹⁵ Ibid. 173.

¹⁶ Ricardo Flores Magón and his brothers Jesus and Enrique began the publication *REGENERACION*, a Mexico City weekly newspaper that attacked President Díaz. In 1901 they were arrested and sent to Belén prison which further cemented opposition groups against Díaz. Growing tired of continued arrests they eventually moved their operation to the United States, eventually settling in St Louis after a failed assassination attempt against them in San Antonio by agents of President Díaz. Ricardo F. Magón was jailed by the U.S. and died on November 21, 1922 at USP Leavenworth.

¹⁷ James A. Sandos. *Rebellion in the Borderlands: Anarchism and the Plan de San Diego, 1904-1923*. (Norman: University of Oklahoma Press, 1992), 3-5.

woman who worked closely with the Magón brothers, and later with Francisco I. Madero, was Señora Flores De Andrade. Born in Chihuahua she fled to El Paso and aided Madero by communicating and transporting money to Mexico. During one of these trips she was apprehended by the *Rurales* (Rural Police) and was summoned for treason against the Díaz government. At the time of her execution, she managed to wrest a rifle from a colonel, proceeded to menace him with it, then had him order his men to place their weapons at her feet before she fled to El Paso. There she was apprehended by U.S. soldiers and taken to Fort Bliss. The next day President Taft learned of the feat and had her released accompanied by a Negro military band. After Madero's death, she became disenchanted with the revolution and remained neutral, realizing that while it promised much for the people of Mexico, it accomplished little.¹⁸

The PLM, along with other organizations, enhanced women's involvement in newspapers, magazines, and anti-Díaz demonstrations. But under no circumstances was the significant progress ushered in during the *Porfiriato* enough to satisfy the Mexican feminist urge for equality. Women in Mexico, rich and poor, literate and illiterate, still faced rampant discrimination throughout Mexico and were constantly reminded that they were not under any circumstances going to enjoy the same political rights as men.

"El Chaparito y su Sarape"¹⁹

While Madero's forces did not use *soldaderas* to the extent the others armies did, they still utilized their services. In Madero's case, upper class women became more involved in his struggle to overthrow Porfirio Díaz. Here Madero's wife, Sara P. de Madero, and other wives of ardent *Maderistas*, became models for political activism. In 1909 the *Club Femenil Amigas del Pueblo* (Friends of the State - Feminine Club) was established by Dolores Muro and Juana Belen Gutiérrez de Mendoza. They, along with Madero, wished to end the *Porfirian* dictatorship and demanded moral, political, intellectual, physical, and economic equality.²⁰ Another upperclass supporter of Madero was Maria Arias Bernal, who even after Madero's murder continued to support the cause and adopted the slogan "*Siempre Fiel*" (Always Faithful). Bernal also published an under-

ground newspaper that criticized the regime of Victoriano Huerta, who was responsible for Madero's execution. Eventually when Huerta was ousted, she was recognized for her courage and dedication. In 1914 General Alvaro Obregón presented her with his personal pistol, thus giving her the name "*Maria Pistolas*". It is said that after Madero's death, she placed flowers on his tomb every Sunday.²¹ One other prominent woman involved in the *Maderista* struggle was Aquiles Serdán's²² sister, Carmen Serdán. During Madero's exile in San Antonio, Texas, Serdán headed revolutionary preparations in Puebla. She acted as a courier between Mexico City and San Antonio, carrying instructions from Madero on how to organize the rebellion to overthrow Díaz (scheduled for November 18, 1910). The *Maderista* plan failed, and Aquiles Serdán was killed in the struggle to defeat Díaz's *Rurales*. Regardless of its failure, this event made Carmen Serdán one of the first women in Mexico to fire shots against the oppressive forces of the *Porfiriato*.

Madero lacked women soldiers not because he did not want any but because Madero commanded a cavalry unit. The rather slow moving caravans of women would impede the invaluable swiftness that Madero's cavalry so much relied on. Another reason was that Madero's forces usually fought in proximity to their homes and they could always return if the need arose. While Madero did not depend on them to a great extent, he still used *soldaderas*, and it was in the first two years of the revolution that fighting women, dressed like men in cavalry units, captured the imagination of the Mexican and American newspaper readers. A veteran of the first Battle of Juárez, "La Coronela" Carmen Parra, became one of the most famous revolutionary *soldadas* in the history of the Mexican Revolution.²³

The fall of Francisco Madero ushered in the era of huge constitutionalist armies. This massive mobilization of men could not have been possible without the help of camp women or *soldaderas*, as they are more commonly known. *The New York Times* reported in 1911 that "women were playing a significant role in the mobilization of those forces involved in the conflict".²⁴ The murder of Madero ushered in a decade of violence Mexico had not seen since its struggle for independence from Spain. Don Porfirio Díaz feared that an incident

¹⁸ Manuel Gamio. *The Mexican Immigrant: His Life Story*. (Chicago: University of Chicago Press, 1931), 29-34. Oscar J. Martinez. *Fragments of the Mexican Revolution: Personal Accounts From The Border*. (Albuquerque: University of New Mexico Press, 1983), 15-20. In *Fragments of the Revolution*, Oscar Martinez does an excellent job of compiling oral interviews of some of the participants of the Mexican Revolution. Many of these oral interviews can be found in the Institute of Oral History at the University of Texas at El Paso.

¹⁹ Nickname given to Madero and his wife, translates to "shorty and his shawl." Madero's wife's name was Sara P. de Madero, so when Sara P. is said quickly it sounds like sarape, or shawl.

²⁰ Pablos. *Women in Mexico: Past Unveiled*. 91.

²¹ Ibid. 91-92.

²² Aquiles Serdán joined the *Maderista* movement in 1909, and he became an indefatigable propagandist for Madero's cause. Equally dedicated to *Maderismo* was Serdán's sister Carmen. Carmen used the male pseudonym of Marcos Serrato while distributing anti-government pamphlets. On November 18, Puebla police led a raid on Serdán's home. The defenders numbered six: Serdán, his wife, his mother, his sister Carmen, his brother Máximo and a family friend, a young student named Jesús Nieto. Despite daunting odds, the occupants of the house refused to surrender. In the course of the shootout, Carmen was wounded when she went up to a balcony to harangue the crowds who were watching the unequal contest. When it was over, Aquiles, Máximo and Jesús Nieto were killed, while the three women were taken prisoner.

²³ Resendez. "Battleground Women: Soldaderas and Female Soldiers in the Mexican Revolution." 528.

²⁴ New York Times, May 10, 1911, 2.

such as this would unleash Mexico's violent tendencies. He said of this situation, "We must not awaken the tiger." Social revolt had broken out before in 1810, when the people of Mexico developed and advanced knowing that Madero had died a martyred man.²⁵

"La Calavera de Huerta"²⁶

In 1913 Victoriano Huerta's self-installed government ushered in a period of turbulent unrest. Huerta inherited from Madero a military establishment of 45,000 to 50,000 troops but, because of his unpopularity, he expanded the size of the army to 200,000 by the spring of 1914. Huerta's problem was that most of the soldiers who were forced to bear arms in support of the government did not support it.²⁷ This problem prompted Huerta to use antiquated methods to bring manpower into the army. When the governor's imposed *jefaturas* (conscription quotas) did not fill Huerta's quotas, Huerta indiscriminately approved the use of the *leva* (unlawful conscription method similar to dragooning); thus, by May of 1913 the *leva* was being used in major cities throughout Mexico. Vagrants, peons, prisoners, petty criminals, political detainees, and even innocent citizens became victims of the *leva*. In cities such as Puebla and Veracruz, the *leva* became so severe that it was no longer safe for lower and middle class men to attend the cinema or cantinas for late night entertainment.²⁸ Edith O' Shaughnessy notes in her book *A Diplomat's Wife in Mexico*: "A look of despair and impressment on the faces of Mexican conscripts and that the women of these men followed their troops acting as cooks and camp helpers. Later many of these women were kidnapped and sent to the powder mills."²⁹ By the end of 1914, the need for auxiliaries became so great that Huerta literally ordered women to abandon their homes and join the federal army to serve as cooks, foragers, smugglers, and spies. It is evident that while women willingly served in Madero's army, this was not the case in the Huertista faction. Because of Huerta's ruthless conscription techniques, females were forced either to join their loved ones on this fruitless crusade, stay behind and starve, or be forced into prostitution.³⁰ While most of the women conscripted into Huerta's force were from the lower echelon of society, those middle and upper class women who had supported Madero continued to harass the Huertista regime for the injustices that were being committed on Mexico's lower class citizens, yet the real importance of Huerta's unethical conscription of women

into the federal army became evident by late 1914, when Huerta, Villa, Carranza and other Mexican revolutionary leaders saw the advantage of incorporating women into their armies.

"La Cucaracha"³¹

The reasons why women became *soldaderas* vary. Some historians argue that because some of these women were the wives of soldiers, they unconditionally followed them into battle to cook, care, and provide much-needed companionship.³² However, the reasons for joining the revolutionary armies were diverse. Many joined the armies to escape the daily monotony associated with village life; others may have been searching for equality in a man's world. What better place to earn such status than on the battlefield? There were also women who followed these armies because the military provided the most reliable source of income Mexico had to offer at the time. Finally, there were those who did go in order to follow and aid their men in the field of combat.³³

Josefa (Chepa) Moreno (a Yaqui who had been conscripted to work in the henequen fields of the Yucatán) quickly realized that after living in poverty, cooking for General Alfredo Martínez opened an avenue for much needed income. General Martínez became extremely fond of Chepa's cooking, and because of the general's high regard for her cooking, her services were sought by other soldiers as well. The soldiers would give Chepa (a *soldada*) a portion of their salary and she would in turn purchase food, cook, launder, and mend their clothes. Chepa, unlike other women, did not have to resort to prostitution to make ends meet. During her revolutionary years Chepa at one time or another got to see all of Mexico's major revolutionary leaders with the exception of Madero.³⁴ Chepa is the epitome of a *soldadera* providing a service or services for a *soldada's* fee.

Under no circumstances must we romanticize this meager form of existence. For example, the hazards of such an occupation can be read about in her memoirs. Chepa informs oral historian Jane H. Kelly of how, during the Battle of Celaya, the *Carrancista* (follower of Venustiano Carranza) lines moved in the direction of the *soldadera* encampment, resulting in many casualties. Moreno also recounts the horrible heat and treacherous terrain encountered when the *Carrancista* forces she accompanied invaded the state of Guerrero in search of Zapata's contingency. Eventually, after the revolution, Chepa

²⁵ Enrique Krauze. *Mexico Biography of Power: A History of Modern Mexico 1810-1996*. (New York: Harper Collins Publishers, 1998), 273.

²⁶ A nickname given to Huerta. Literally translates to Huerta's skull, but means that Huerta represented death, because of the murders that occurred during his regime.

²⁷ Resendez. "Battleground Women: Soldaderas and Female Soldiers in the Mexican Revolution." 532. Alan Knight. *The Mexican Revolution*, 2 vols. (Cambridge: Cambridge University Press, 1986), 2: 78.

²⁸ Knight. *The Mexican Revolution*, 2 vols. 2: 79.

²⁹ Edith O' Shaughnessy. *A Diplomat's Wife in Mexico*. (New York: Arno Press and *The New York Times*, reprint 1970), 58.

³⁰ Resendez. "Battleground Women: Soldaderas and Female Soldiers in the Mexican Revolution." 533.

³¹ The name of a song "The Cockroach," written about soldaderas and the revolution.

³² Elizabeth Salas. *Soldaderas In The Mexican Military: Myth and History*. (Austin: University of Texas Press, 1990), 71.

³³ Ibid. 75.

³⁴ Jane Holden Kelly. *Yaqui Women*. (Lincoln: University of Nebraska Press, 1978), 143-144.

continued to launder clothes until her arthritis prohibited her from performing the task. She then lived the rest of her years on handouts, without a pension or any type of governmental aid, eventually dying (in poverty and obscurity, unrecognized for her services to the revolution) on December 20, 1970.³⁵

"Las Zapatistas"

In her book *Tempest Over Mexico*, Rosa King describes the *soldaderas*: "The women cooled and reloaded the guns, scoured the country for food and endured the hardships of their lot without complaint; the *Zapatistas* (followers of Zapata) were not an army of men, they were people in arms".³⁶ The marching women of Mexico became the most patient and brave in the world as they combed the towns for food and stole when none could be bought or bartered. In battle, they tied their *rebozos* (shawls) to an ammunition cart and pulled it to the battlefield. These women of the lowest class in Mexico, who were loathed by their wealthy counterparts, were doing their part in laying the foundation of the populist government that exists in Mexico today.³⁷

Zapatista Professora Dolores Jimenez y Muro eventually rose to the rank of colonel. She began her revolutionary trek with Ricardo Flores Magón and the PLM. She presided over the organization *Hijas de Cuauhtémoc* (auxiliary group named Daughters of Cuauhtémoc); she later became the primary organizer of the anarchist newspaper *Regeneración y Concordia*. Later, after Flores Magón fled to the United States and Madero's death, she joined the *Zapatista* army and wrote the introduction for the Plan De Ayala in 1911, where she clearly informs Huerta that the *Zapatistas* were fighting for the land that was stolen from them and that it should be returned.³⁸ Jimenez was involved in mostly political issues and placed herself in the line of fire as she executed missions behind enemy lines and acted as a courier for Zapata and Obregón. One remarkable attribute was that when she was in her sixties, the Huerta administration jailed her for thirteen months. Jimenez, as Chepa Moreno, retired and faded into obscurity until 1925 when the Secretary of Education, José Vasconcelos, granted her a scant pension. Unfortunately, this occurred too late because Jimenez died a few months later.³⁹

Zapatista soldadera Margarita Neri commanded seven hundred indigenous troops. Neri's claim to fame was that she and an unnamed eighteen-year-old girl (who was wounded in battle) successfully defeated a superior federal force with an army of three hundred Indians.⁴⁰ So well respected was Neri that Guerrero's governor, upon learning of her advance on his state, packed himself in a wooden box and shipped himself to another state.⁴¹

Zapatista women were by far the most active within their geographical area, but did not join the *Zapatistas* on their long campaigns. Zapata did not use *soldaderas* during his brief occupation of Mexico City in 1914.⁴² In 1913 when a group of *Zapatistas* attacked a detail of workers in their region, it was said that women made up a good number of the attackers. More women also accompanied the *Zapatistas* because, unlike the forces of Villa and Carranza, the *Zapatistas* were not a mounted army but a mass of foot soldiers sweeping over the countryside, using hit and run guerrilla tactics.⁴³

While they may have accepted *soldaderas* and their aid more than the other revolutionary regimes, *Zapatistas* did not view or treat women favorably. Among all the revolutionary groups, the *Zapatistas* treated women in the worst ways imaginable. They did all they possibly could to procure sexual gratification; it can be said that most of the *Zapatista* troops that participated in the revolution raped women at one time or another. In one case, an entire population of women (forty) were carried away one night by the *Zapatistas*.⁴⁴ Regardless of the male *Zapatistas* sexual tendencies, village women continued to aid the rebel army. Later when Carranza's forces moved into Guerrero, they specifically targeted the women of the villages because they so willingly provided foodstuffs to the *Zapatistas*. By eliminating the women they were cutting the supply line to the rebels. When this method no longer worked, *Carrancista* contingencies simply burned the villages and relocated the women and children.⁴⁵

"Las Mujeres Consitutionalistas"⁴⁶

The fall of Victoriano Huerta ushered in the era of the huge continental armies of Villa, Carranza, and Obregón. *The Sun* headline on November 16, 1913, announced "that there was a sprinkling of women in the northern Constitutionalist armies who were dili-

³⁵ Ibid. 149, 153.

³⁶ Rosa King. *Tempest Over Mexico* (Boston: Little, Brown, and Company, 1935), 94. Soto, *Emergence of the Modern Mexican Woman: Her Participation Revolution and Struggle for Equality 1910-1940*. 47.

³⁷ King. *Tempest Over Mexico*. 183.

³⁸ Soto, *Emergence of the Modern Mexican Woman: Her Participation Revolution and Struggle for Equality 1910-1940*. 47. Macias. *Against All Odds: The Feminist Movement in Mexico to 1940*. 32.

³⁹ Rodriguez Cabo, Matilde. *La Mujer y la Revolución Mexicana*: n.p., 1937. 18-19. Soto, *Emergence of the Modern Mexican Woman*.. 47

⁴⁰ Turner. *The Dynamic of Mexican Nationalism*. 197.

⁴¹ Soto, *Emergence of the Modern Mexican Woman*. 45.

⁴² Resendez. "Battleground Women: Soldaderas and Female Soldiers in the Mexican Revolution." 536.

⁴³ Soto, *Emergence of the Modern Mexican Woman*. 46.

⁴⁴ Resendez. "Battleground Women: Soldaderas and Female Soldiers in the Mexican Revolution." 535.

⁴⁵ John Womack. *The Mexican Revolution, 1910-1920*. in *Cambridge: History of Latin America*, ed. Leslie Bethell, 7 vols. (Cambridge: Cambridge University Press, 1986), 5, 98. Resendez. "Battleground Women: Soldaderas and Female Soldiers in the Mexican Revolution." 535.

⁴⁶ The constitutionalist women who followed Villa, Carranza, and Obregón in the second phase of the revolution.

gently fighting to rid their country of Victoriano Huerta".⁴⁷ This violent overthrow of Huerta in 1913 signaled the second phase of the Mexican Revolution. All of the leading rebel groups sought to further incorporate *soldaderas* into their armies, as by then they knew their value in the field and in combat was priceless. This effort to use *soldaderas* in Constitutionalist armies can be attributed to the large geographical space that they encompassed. The armies utilized by the federals, *Villistas*, and *Carrancistas* were nothing like the ones General Orozco⁴⁸ and Francisco I. Madero used in their struggle, which were confined to specific regions. The only way these large Constitutionlists were going to be mobile and self-sufficient was to take advantage of the services of the *soldaderas*. The question that continues to arise is whether or not women joined these armies willingly, or if they went out of sheer necessity. One can speculate that women would rather be in the company of favorable men rather than be left at home, vulnerable to the ills of the ongoing conflict.⁴⁹

"Viva Mi General Francisco Villa"

The men and women who made up the Division of the North under General Francisco Villa had to travel great distances to wage war, so Villa gave money to those men who joined his army. This proved to be an extremely successful move when he was recruiting reluctant peasants who would be fighting far from their native land. By allowing them to bring their girlfriends, wives, mistresses, and even children, Villa was able to form a more cohesive army. Villa's army, one may say, was an enormous extended family.⁵⁰ An American correspondent reported that the *Villista* contingency was a big fiesta for both *soldados* and *soldaderas*.⁵¹ Men like John Reed saw them simply as ragtag women, but for Villa this was a massive band of foragers, camp aids, and nurses. More importantly, the feminine effort to locate food supplies kept his men well fed and ready to fight.⁵²

One reason Villa was so successful in utilizing the feminine population of northern Mexico was because he heavily utilized the railroad for transportation. He was thus able to incorporate women into his army while cheaply and effectively transporting them to remote campaign areas.⁵³ Dr. Francisco Ruiz Moreno, a doctor serving under Villa's command, recounts that women would make the boxcars

their homes, riding underneath and on top of them, sometimes meeting their death at a sharp turn or when a train struck an explosive device.⁵⁴ The women brought along chickens, goats, pigs, and everything else they could carry. Surprisingly enough, such items were more important to these women than the implements used in waging war.

While Villa's army was one of the principal "employers" of *soldaderas*, Villa did not always approve it. Villa felt that men should not allow women to be threatened by the dangers of battle, and that men should protect the women that they loved because women did not know the difference between right and wrong. U.S. correspondent John Reed asked Villa if he felt that women should not be allowed to vote in the "New Republic." Villa sprung up from his bed and looked at Reed in amusement and replied "you mean elect a government, well no, but if it is allowed in your country then okay." Villa's argument was that women were too full of pity and could not carry out orders because they were too emotional. To prove his point, Villa asked the wife of one of his soldiers what to do with three federal traitors that were caught trying to cut communication lines, and was surprised when she agreed that he should shoot them.⁵⁵ One way that Villa kept the women separated from the men was that the *soldaderas* were not allowed to ride in the same cars their soldiers occupied. However, as soon as the troops would vacate the cars, many women would occupy them and others would immediately take to the field in search of food and suitable campsites.⁵⁶ Villa's crack force the *Dorados* (Golden Ones) were not allowed to take women with them on campaigns, and if they were caught doing so, would be shot. In one occasion Villa shot a soldier who disobeyed his orders and took his woman to the battle front. On many occasions, Villa delayed attacks until women were at a safe distance; the women, however, rejoined the ranks once the battle began.⁵⁷ One reason that Villa tolerated women among the ranks may have been that they were indispensable as nurses, as their efforts to tend to his wounded went above and beyond the normal. *Soldaderas* after a battle would scour the battlefield for the wounded, transporting them by ox cart to the nearest hospital or hospital train. Even in the heat of

⁴⁷ *The Sun*, November 16, 1913, BP. Resendez. "Battleground Women: Soldaderas and Female Soldiers in the Mexican Revolution." 535.

⁴⁸ Pascual Orozco was born January 28, 1882 near Guerrero, Chihuahua. When Madero was assassinated, Orozco joined forces with general Victoriano Huerta, and his troops - known as the "colorados", for their red flag eventually they went after the Villa and other Constitutionalist generals. Villa's forces and the other constitutionalist armies under Alvaro Obregón in the West and Pablo Gonzales in the east, defeated Huerta, and he and Orozco fled together to the United States. They were both arrested, and Orozco escaped, but was killed just north of Ojinaga by Texas ranchers in an attempt at stealing horses.

⁴⁹ Thord Gray. *Gringo Rebel*, 212. Resendez. "Battleground Women: Soldaderas and Female Soldiers in the Mexican Revolution." 539-540.

⁵⁰ Fredrich Katz. *The Life and Times of Pancho Villa*. (Stanford: Stanford University Press, 1998), 290.

⁵¹ Herman Whitaker, "Villa and his People," *Sunset: The Monthly of the Pacific* 33:2 (1914), 255. Resendez. "Battleground Women: Soldaderas and Female Soldiers in the Mexican Revolution." 540.

⁵² John Reed. *Insurgent Mexico*. (New York: International Publishers, 1914), 188-189.

⁵³ Katz. *The Life and Times of Pancho Villa*. 292.

⁵⁴ Salas. *Soldaderas In The Mexican Military: Myth and History*. 43.

⁵⁵ Reed. *Insurgent Mexico*. 134.

⁵⁶ Thord Gray. *Gringo Rebel*, 12.

⁵⁷ Katz. *The Life and Times of Pancho Villa*. 292. Salas. *Soldaderas In The Mexican Military*. 45.

battle *soldaderas* could be seen cleaning wounds and tearing off pieces of their dresses to use as bandages.⁵⁸

Villa's *soldadera* units were from the poor ranks of society, mostly northern indigenous groups and *mestizo* women. Consequently, in Villa's army one does not see the same number of literate women found in the armies of Madero and Carranza. Soldier of fortune Thord Gray mentions that the majority of the women in the *Villista* contingency were peons and Apaches, *Tarahumaras*, and *Tepehuanes*. Because Carranza and Obregón were in control of the Pacific coast, they were aided by *Yaquis* and *Mayos*.⁵⁹ Regardless of their socioeconomic background, it was lower class, illiterate women who made a real difference in Villa's rebellion.

By the fall of 1914, Villa began to lose power in northern Mexico. Villa's underestimation of Obregón at Celaya cost him two disastrous defeats that greatly demoralized his men. Later defeats in central Mexico made the troops so demoralized that his Division del Norte shrank from 50,000 to 12,000 troops. In the wake of these disasters his *soldadera* contingency suffered when he retreated to northern Mexico. One theory behind the diminishing support of *soldaderas* within Villa's army is that the large haciendas in northern Mexico had been depleted of their foodstuffs and many of the men, women, and children of the Division del Norte fled to Mexico City or the United States to find reliable sources of income and sustenance. By this time, Villa's soldiers were walking and not riding the railroads, since Sonora and Chihuahua did not have an extensive railway system. The situation became so dismal in 1914, that en route to Casas Grandes, Villa ordered all the *soldaderas* to remain behind as the terrain was arduous, with little water and no consistent means of reliable food supply. This move further demoralized Villa's troops and desertion rates skyrocketed.⁶⁰

Villa's desperation could be seen in an incident that took place at Namiquipa. Here Villa had ninety *Carrancista soldaderas* executed because one woman in the group attempted to assassinate him. When Villa asked them who wanted to kill him, one older lady answered, "We all want to kill you". Villa's response was that all had to die unless they identified the guilty one. According to Villa's personal secretary, Juan Maria Jaurrieta, the massacre reminded him of a painting of Dante's *Inferno*, and that the horror remained with him forever. Mexican journalist Elena Poniatowska mentions that once the women were executed, they were burned. From the burning pyre a woman in flames screamed to Villa "*perro, hijo de perra, habras de morir como pero*" (dog, son of a bitch, like a dog you will die). In this same incident, a *Dorado* asked Villa what to do with a child of one of the *Carrancista soldaderas*, Villa's response was "Are you going to care

for him?" When the *Dorado* failed to answer, Villa ordered that the child be killed. Jaurrieta, in justification of the action, claims that Villa shot the women in self-defense after they tried to kill him.

The rape and murder of these women is by far the worst atrocity committed by Villa and his men against the civilian population during the revolution. This event can be attributed to his decline in popularity and his desperation at losing control of his campaign. Prior to this incident, Villa was apt to protect the civilian population of Mexico, especially the peasants and other member of the lower classes.⁶¹

Elizabeth Salas calls Villa the most vehement hater of women because he wanted to modernize the army and increase its efficiency and mobility. Furthermore, Villa wanted an army composed only of men.⁶² However, the fact that Villa wanted to modernize his army does not make him a woman hater. Villa did not want women on the battlefield, but he understood their importance in the mobilization of the army, and for that reason he was tolerant of them. Another reason for his dislike could be the "*machismo*" attitude of the male in Mexican culture. Villa may have approved of women being there, but would it would not help his image to acknowledge it publicly. His stance on women participating at the battlefield is understandable. For example, the United States has not allowed women to serve as combat troops, but they have been a crucial element in the support network (providing supplies, air reconnaissance, communications) and as nurses. If this is the case in the United States Armed Forces of today, why should Villa be seen in a different light at the turn of the century? Or does this indicate that the men and women of the revolution were ahead of their time or just striving to survive? What made the involvement of women in the Mexican revolution so spectacular and controversial was that up to that time, it had not happened on such a large scale.

Unlike other revolutionary leaders, Villa did not use women as political instruments or promise women anything he was not going to grant them if his cause prevailed. He promised them nothing, but his dream of a Mexican utopia included men, women, and children. The dream that fueled this uneducated fighter "not educated enough to be the president of Mexico" was to abolish the army, as a standing army supported tyranny. He hoped to put the army back to work by creating a standing militia from veterans of the revolution, working three days a week in their fields and three days a week mustering for military instruction. This way *La Patria* could be defended at a moment's notice. Villa's dream was to live in a community, to "raise a little cattle and plant a bit of corn, I think this would make Mexico a happy place."⁶³

⁵⁸ Mendieta Alatorre. *La Mujer en la Revolucion Mexicana*, 83. Macias. *Against All Odds*. 38-39.

⁵⁹ Gray. *Gringo Rebel*. 210-212. Resendez. "Battleground Women: *Soldaderas* and Female Soldiers in the Mexican Revolution." 539.

⁶⁰ Katz. *The Life and Times of Pancho Villa*. 497, 523-527.

⁶¹ Elena Poniatowska. *Las Soldaderas*. (Mexico: Instituto Nacional de Antropologia e Historia. 1999), 10.

⁶² Salas. *Soldaderas In The Mexican Military: Myth and History*. 47.

⁶³ Reed. *Insurgent Mexico*. 144-145.

Unfortunately or fortunately, by late 1915, Villa was reduced to a guerrilla fighter using hit-and-run tactics on the *Carrancistas*. With the Division del Norte officially dissolved, Villa chose to lead five long years of guerrilla warfare in Mexico (and occasionally the United States). Villa could have lived very well in Cuba or the United States with the money he accumulated during the revolution, but instead he used the money to pay his soldiers and buy weapons on the black market to wage war in Mexico.⁶⁴ In 1916 he raided Columbus, New Mexico, and continued to fight until 1920, when he surrendered his troops to Adolfo de la Huerta. He was offered a deal to retire, and he returned to his hacienda in Canutillo. Like the *Carrancista soldadera* wished, Villa was ambushed and killed on July 23, 1923, in Parral, Chihuahua. New hollow point expanding bullets left little to recognize of the "Centaur of the North."⁶⁵

Carranza y Obregón

Unlike Villa and Zapata, "*El Primer Jefe*" Venustiano Carranza understood the power that women held in procuring and exercising power in Mexico. In order to gain the support of the masses, he was going to have to not only incorporate the poor but also women into his regime. Carranza was the first of all the Mexican revolutionary leaders to willingly allow women to become involved in Mexican governmental affairs. Madero was unable to accomplish anything in the way of women's rights because of the brevity and instability of his term. Able to understand this, Carranza's interest to incorporate men and women of all socioeconomic backgrounds into his movement gave him the much-needed support to launch his Constitutionalist Party into the class of leaders in Mexico. While his female support was primarily from lower class women, it was the participation of the middle and upper class women that set Carranza apart from Villa and Zapata.⁶⁶ It is in Carranza's army that women served in the greatest numbers and that we see the stereotypical "*Adelita*" continuing the ongoing battle after her lover or husband has fallen.⁶⁷

Carranza's personal secretary, Hermelinda Galindo, eventually became one of the first champions of women's rights in Mexico. Galindo was one of the first women to directly accuse the Catholic Church as the principal subjugator of women in Mexico: because the Mexican Catholic church was allegedly impervious to change in the late nineteenth and early twentieth centuries, women's political goals would not be accomplished.⁶⁸ It was women like Galindo who provided the cohesive substance that firmly bonded feminist support to the *Carrancista* movement.

In 1914 Galindo caught Carranza's ear when she was asked to give a speech welcoming Carranza to Mexico City. Carranza was so impressed that he asked Galindo to be his personal secretary. Thus Galindo was with him during the troublesome years, 1914 – 1915, when his government was moved from Mexico City to Veracruz and until General Alvaro Obregón defeated Villa, thereby clearing the way for Carranza to become the president of Mexico. It was during this time that Galindo traveled with Carranza and that he allowed her to actively campaign for the Constitutionalist cause. So successful was Galindo in disseminating Carranza's message that he encouraged her to explain his doctrine to other countries.⁶⁹ By 1915 Galindo had acquired a strong position on woman's rights in Mexico. Along with Artemisia Sáenz Royo, she founded Mexico's feminist magazine *La Mujer Moderna* (The Modern Woman), and continued as editor until it was dissolved in 1919. Galindo eventually published various texts pertaining to Carranza's ideology such as *La doctrina de Carranza y el acercamiento indolatino* (Carranza's Doctrine and the Indo-Latin Approach). In 1920 Carranza was assassinated by Obregón's men for not having allowed Obregón to be his successor, and Galindo, as well as many former party aides, fled to the United States where she married and raised a family. In her later years she returned to Mexico and continued to insist that the Catholic Church was the primary obstacle in the promotion of women's rights. Galindo died in 1954 unrecognized for her feminist efforts in Mexico.⁷⁰

One woman who stands apart in the *soldadera* contingency is Petra Ruiz. Petra Ruiz served in Carranza's army as a *soldada* and not a *soldadera*. Ruiz was a "real fighter" in the revolution. While many *soldaderas* would often pick up the weapons of their fallen loved ones, Ruiz deliberately disguised herself as a man and fought alongside *Carrancista* soldiers. So successful and agile was Petra that she received the pseudonym "*Echa Ballas*" (bullet dispenser). A dauntless fighter with a bad temper, Ruiz was respected by both friend and foe alike. In one incident, two soldiers attempted to rape a young girl. Ruiz, a passerby, unbuttoned her blouse and asked them if she was not like the young girl, and why they did not take advantage of her as well. The soldiers, knowing of her skill with weapons, released the girl to Ruiz. After being part of the forces that took Mexico in 1914, Ruiz told Carranza during a review "I want you to know that a woman has served you as a soldier."⁷¹

Another remarkable *soldada* was Petra Herrera, who dubbed herself Pedro. She like Ruiz, was an active combatant in Carranza's army,

⁶⁴ Katz. *The Life and Times of Pancho Villa*. 537.

⁶⁵ Ibid. 540.

⁶⁶ Ward M. Morton. *Woman Suffrage in Mexico*. (Orlando: University of Florida Press, 1962), 2-3.

⁶⁷ Douglass Richmond. *Venustiano Carranza's Nationalistic Struggle, 1893-1920*. (Lincoln: University of Nebraska Press, 1983) 157-158.

⁶⁸ Macias. *Against All Odds: The Feminist Movement in Mexico to 1940*. 34-35.

⁶⁹ Alatorre. *La Mujer en la Revolución Mexicana*, 80-81.

⁷⁰ Soto, *Emergence of the Modern Mexican Woman*. 52.

⁷¹ Mendieta Alatorre. *La Mujer en la Revolución Mexicana*, 90-91. Poniatowska. *Las Soldaderas*. 16. Salas. *Soldaderas In The Mexican Military: Myth and History*. 47-48. El Nacional., November 8, 1959.

who disguised herself as a man, blew up bridges, and proved her fighting skills. Once she gained the respect of the soldiers in her regiment, she professed to them that she was a woman. She then became the braided gun-bearing *soldada* who eventually became known as "La Generala." Herrera eventually led a group of four hundred women in the second battle of Torreón on May 30, 1914, when Villa and Carranza were still allies. While serving under Carranza she would not allow men to frequent the women's camp at night and willingly shot those who disobeyed her orders. Herrera, unlike many veteran *soldadas*, did not die in poverty. She unfortunately met her death at the hands of a group of drunks in a Chihuahua cantina, while serving as a Carranza spy. So feared was Herrera that, when the men who had shot her learned that she might live, they returned to try and shoot her again.⁷²

Carranza's efforts to grant *soldaderas* pensions and other political benefits attracted women from all walks of life. But women could only receive a pension if their husbands had died while serving in his army, not if they had been *soldaderas* or occasionally engaged in combat. Carranza had no intentions to exclude women from voting at the congressional level. He allowed women to participate in the elections of deputies and members of the Constitutional Congress that were held in Querétaro.⁷³ The Decree of September 19 did restrict candidacy to those who had been eligible to run for deputy under the Constitution of 1857. This would limit voting to males who were residents of their respective states. Unfortunately, under these circumstances, the congress did not give women any consideration in the congressional election of 1917, and because the congress consisted exclusively of men, it gave no serious consideration to the political rights of women. It did, however, write Article 123 of the new charter which entitled "working women" to childbirth benefits, protection against night work, and heavy or dangerous labor. Señora Hermelinda Galindo reminded congress of the women who were actively involved in the revolution and asked them to grant (and not simply consider) political rights to them.⁷⁴

The nation and the world is dependent of your labors, gentlemen Deputies, and I have great hopes for this new code in which they will be reflected. Your patriotism and sense of justice as popular representatives, forming yourselves into political parties with legitimate aspirations but without personal selfishness in order that the woman who has not been

excluded from the revolution will not be excluded from the political part and consequently, will achieve from the new situation, rights, which even through incipient, will put her on the path toward her own advancement, from which will flow the advancement of the fatherland.⁷⁵

Galindo's speech, however moving, did not sway the deputies to grant women any significant political power. At the same time, congress did not change Article 34, which outlined voting rights procedures on filling offices by popular election and participating in political activities.⁷⁶ Congress also upheld Carranza's Divorce Decree of January 29, 1915, which according to Galindo had a "moralizing effect" in Mexico as it liberated many unhappy women.⁷⁷

Like Zapata and Villa, Carranza committed mistakes with the *soldaderas* once he was in power. A famous widowed *soldada*, Josefina Bórquez (aka Jesusa Palancares) confronted Carranza in order to collect the pension she was entitled to. Because of her youth, *El Primer Jefe* had changed his mind and replied to her that if she were older she would receive her pension, but since she was young she could marry at any time and her dead husband should not support her new one. Bórquez in anger tore up her pension papers and hurled insults at Carranza, calling him "*Barbas de Chivo*" or beard of goat, clearly meant to mean billy goat. Carranza proceeded to reprimand her rude behavior, but her response was that his behavior was worse because he stole from the dead.⁷⁸ Carranza's primary field commander, General Alvaro Obregón, is also said to have put *soldaderas* in the front line to lessen his casualty rate.⁷⁹ In an incident reported by Thord Gray, in late 1913 Venustiano Carranza purchased in two bi-planes from the United States. Later in the winter of 1914 the planes were used in what was probably the first bombing raid in North America. Gray reported that the pilots dropped crude homemade bombs on federal troops, killing a *soldadera* and two children, thus the first casualties in an airborne assault occurred in Mexico and not in Europe.⁸⁰ As the winds of war died down, so did the need for *soldaderas* in the Carrancista faction. Political bigwigs in Carranza and Obregón's government no longer saw the need to keep *soldaderas* in the army. General Miguel Ruelas remarked, "There should be an organized military unit to eliminate *soldaderas* and camp followers from the army, who in addition to their disadvantages and lamentable backwardness, make us the butt of all writers on this subject."⁸¹ General Joaquín Amaro blamed all illness, crime, vice and disorder on the

⁷² Salas. *Soldaderas In The Mexican Military: Myth and History*. 48

⁷³ Ward M. Morton. "The Mexican Constitutional Congress of 1916-1917," *Southwestern Social Science Quarterly*, XXXIII, i (June 1953), 5-26.

⁷⁴ Ward M. Morton. "The Mexican Constitutional Congress of 1916-1917," 22. Morton. *Woman Suffrage in Mexico*. 5-6.

⁷⁵ Artemisa Saenz Royo. *Historia politico-social cultural del movimiento femenino en Mexico, 1914-1950*. (Mexico D.F., 1954), 51-53. Morton. *Woman Suffrage in Mexico*. 5.

⁷⁶ Felix F. Palavicini. *Historia de la Constitución de 1917, I* (Mexico, D.F., 1939), 172-173.

⁷⁷ Macias. *Against All Odds: The Feminist Movement in Mexico to 1940*. 35.

⁷⁸ Poniatowska. *Las Soldaderas*. 13.

⁷⁹ Ibid 15.

⁸⁰ Gray. *Gingo Rebel*. 200.

⁸¹ Salas. *Soldaderas In The Mexican Military: Myth and History*. 49.

soldaderas. This change in attitude towards *soldaderas* was the effect of the Mexican military administration's attempt to reorganize and emulate methods used by Western armies. Once it became evident that the *soldaderas* were really a burden, it did not matter to Carranza, Obregón, Villa, or any military administrator that thousands of *soldaderas* had died during the revolution. The prerogative now was to purge them from the Mexican army.⁸²

"The Childhood Revolution or Child of the Revolution"

Children, like women, became part of the plethora of unrecognized casualties of Mexico's civil struggle. Many were left without parents, many were products of rape and illegitimacy. One child who stands out among them is Nellie Campobello. After the revolution, Nellie Campobello became a ballerina, choreographer, and a teacher of ballet and Pre-Hispanic dance, some say the finest Mexico has ever had. She eventually became the Director of *La Escuela Nacional de Baile* in 1937.⁸³

In 1931 she recorded her childhood memories in a book titled *Cartucho*. In her book Nellie recalls, "I was quite a happy child," Poniatowski explains that "in her childhood her mother knew how to create another world: a charmed world that mitigated the immediate reality of the harshness of revolution."⁸⁴ Nellie did not make up things; she only told of the things and events she witnessed like General Felipe Angeles's trial.⁸⁵ She did not hide the episodes of gruesome violence that occurred during the upheaval. From her window she witnessed an execution squad mercilessly shoot a wounded young *Villista* who, badly injured and on his knees, humbly outstretched his arms and pleaded for his life. Nellie pays attention to the way the body violently thrashed and how blood spewed from the multitude of bullet wounds. The corpse lay in the place it fell for three days. Nellie then angrily complained when they took it away "That dead body really belonged to me."⁸⁶

There were no fairy tales or childhood friends in her life. Her playmates were Villa's *Dorados* who would hold Nellie on their knees and give her candies to enjoy. She would marry her dolls to the nice young *Villista* commanders, like José Rodríguez, who was a good man of virtue. Nellie watched as the *Carrancistas* killed José and imagined José, lying dead in the sun laughing and saying "hey fellows, do not

take me away just yet; let me lie here in the sun a bit, in front of the people."⁸⁷

Nellie and her mother escaped the revolution without any physical harm, but it was the emotional damage that compelled Nellie to write *Cartucho* and to publish her mother's work as well. In the end Nellie remained loyal to Villa, seeing him as the protector of the poor and a seeker of justice, and not the cold-blooded murderer that others saw. Then again, Nellie could only remember the Villa that was present in her childhood.

There is no accurate record of how many children and teenagers became *Villistas*, *Carrancistas*, or *Ozorquistas* (followers of General Pascual Orozco) who died not knowing what they were fighting for. It does not take much to get a child/teenager roused up and willing to give his life for his "Patria;" just give him a rifle, ammunition and a fiery speech.

Pedro González was a fourteen-year-old orphan who decided to join the federal troops who were on their way to Torreón to engage Villa. Once in the company of the federal troops, he ran errands and shined shoes. They paid, fed, and treated Pedro well.⁸⁸ In winter of 1912, Pedro was in the town of Pedricena, Mexico, when his battalion of federal troops was attacked and overrun by *Maderistas*. Seeing that there was no hope for the federal army, Pedro chose to join the *Maderistas* under General Calixto Contreras. Under Contreras, he was given a 30-30 rifle; according to Pedro this offered him more excitement and food than the federal army did. At this point Pedro's life began to change as he worked his way up the ranks of the revolutionaries and earned the respect of General Contreras. In mid 1913 Contreras joined Villa, and at a meeting of generals Pedro was confronted by Villa. Villa looked down at him and said "listen, boy, will you come with me?"⁸⁹

Pedro became a *Villista* when Villa's force numbered 200 - 300 men, and Villa eventually cared for him like a son and used him to relay correspondence between Villa and his wife, Luz Corral. In November 1913, during the Battle of Juárez, Pedro was wounded and Villa made sure that he was given the best care, providing money, good food and recreation for him. After only six months of rest was he allowed to return to the ranks. Pedro remained in Villa's army

⁸² Knight. *The Mexican Revolution*, 2 vols. 333,338. Mendieta Alatorre. *La Mujer en la Revolución Mexicana*, 90. Kelly. *Yaqui Women*. 143. Resendez. "Battle-ground Women: Soldaderas and Female Soldiers in the Mexican Revolution." 550. Poniatowska. *Las Soldaderas*. 17.

⁸³ Poniatowska. *Las Soldaderas*. 19.

⁸⁴ Ibid. vii,viii, 35,42.

⁸⁵ Felipe Angeles was a professional trained soldier in the federal army. His abilities in commanding, artillery and strategy were exceptional. Well educated, he joined Villa against Carranza in hopes of improving Villa's peasant force into a respectable force. Angeles was captured and tried on November 24-25 1919 in Parral, Chihuahua. He was found guilty of treason and executed on November 26, 1919. The night before his execution, Pepita Chacón, Nellie's mother's friend met with Angeles. As she was about to leave Angeles asked, "Listen, Pepita, how is that lady you introduced me at your house?" "She died, general, and went to heaven. Please say hello to her for me there." Pepita informed Nellie's mother that the general, with a "gentlemanly smile," answered, "Yes I'll be most pleased to say hello to her."

⁸⁶ Campobello. *Cartucho and My Mothers Hands*.

⁸⁷ Nellie Campobello. *Cartucho and My Mothers Hands*. (Austin: University of Texas Press 1988), 47.

⁸⁸ Martinez. *Fragments of the Mexican Revolution: Personal Accounts From The Border*. 21-22

⁸⁹ Ibid. 22-24.

until the Division of the North retreated northward towards Sonora; along the way he fought in Zacatecas, Saltillo, Ojinaga, Chihuahua, and Monterrey.⁹⁰ In Zacatecas he recalls tramping over dead men and horses in order to advance, but claimed these were some of the best days of his life because of the fighting and the camaraderie he experienced. Later he was present when Villa dismissed the *soldaderas* as they were about to cross the snow-laden mountains on their way to Casas Grandes in the winter of 1914 - 1915. By this time Villa's massive Division del Norte had been reduced to a few thousand men as the *Carrancistas* had forced them to guerrilla tactics. Unfortunately, Pedro became a prisoner, and his situation took a turn for the worse. He endured sword thrashings, beatings, and even survived an execution. Luckily Pedro escaped and ended up in El Paso where he worked for the YMCA, eventually becoming part of the Mexican American community there.⁹¹

While Pedro's and Nellie's stories end happily, the story of many of the children caught up in the revolution do not. The destiny of many others was not as kind. Those that did not perish and did not have parents became street children. Others went on to live a life of servitude, overworked and inappropriately paid. Whatever the end result may have been, children - like women - did not receive the recognition and justice they so rightly deserved.

"The Wind That Swept Mexico"⁹²

From 1910 - 1920 a wind so fierce swept through Mexico that it consumed all that crossed its path and transformed the country into a massive battlefield. Regardless of how they served, fought, and died, thousands died many without understanding the disposition of their strife within the Mexican revolution. At the onset of the Mexican Revolution, the majority of the Mexican population lived in abject poverty and women, who were at the bottom of the social ladder, felt the burden more than the poorest men in Mexico. For many female participants it was a way to break the chains of subjugation, to see new places, or a way to find means to get ahead economically. As the revolution progressed the *soldaderas* evolved with the armies. While involvement was restricted to middle and upper class women during the Madero years, 1910 - 1912, one sees the emergence of the stereotypical *soldadera* who cooked, foraged, and cared for their wounded lovers, and comrades. The second phase, 1913 - 1915, ushered in the age of the massive constitutional armies. Here we see the advent of the *Adelita* following her Juan, picking up his rifle after being struck down by an enemy bullet. Here the *soldadera* becomes the Mauser-carrying *soldada*, fighting for justice and not the mythical Amazon who was ever submissive to her "*macho*" revolutionary.

As the most vicious segment of Mexico's civil war came to an end, Mexican women found themselves in a somewhat better situation than before the *Porfiriato*. Under Carranza, they had gained some constitutional protection in the labor area. They had also gained valuable political and economic experience, and with that they assumed new roles in the Mexican state. The deep wounds caused by the revolution did not heal quickly. Former *soldaderas* had to deal with the ill effects of losing loved ones, the pillaging of their residences, and being seen as social outcasts or "damaged goods" because many of the *soldaderas* had been kidnapped and raped. Many people in Mexico blamed the *soldaderas* for this and not the men. As a result of this, many of them formed groups to combat future sexist injustices and at the same time to acquire additional political rights. Despite the horrors and oppression of this tumultuous struggle, the women of Mexico reached deep into their souls, making the most of a dire situation and acquiring enough strength to see another day.

Pero yo, mi general, yo me voy para el otro lado, total, ahí lo discriminan a uno, pero por lo menos ahí se puede ganar dinero y podemos vivir mejor. Y al fin mi general, no es que sea grosero, yo quisiera saber de que ha servido tanta sangre derramada, de que ha servido tantos sacrificios hechos. Tengo deseo de descansar y decirle a usted que se vaya mucho a chingar con su revolución.⁹³ David Alberto Muñoz

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⁹⁰ Ibid. 29.

⁹¹ Ibid. 36.

⁹² Anita Brenner. *The Wind That Swept Mexico: The History of the Mexican Revolution 1910-1942* (New York: Harper & Brothers Publishers, 1943).

⁹³ My general as for me I will go to the United States. There they discriminate against us but we can earn money and make a living. It is not that I wish to be rude, but what good has all this bloodletting done so much death, carnage, and sacrifices, for what? I have a great desire to rest and to tell you and your revolution to go to hell.

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Seeking Access: Issues of Well Elderly Women Associated with Healthcare

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ABSTRACT

This study specifically focuses on well elderly women and the problems they face in obtaining healthcare. Qualitative data was collected through face-to-face interviews with the participants. Participants were asked a sequence of questions regarding their personal experience with the current healthcare system. Results revealed that well elderly women do not access healthcare due to the numerous problems attached to it, such as cost, paperwork, complexity, and other inconveniences.

INTRODUCTION

The elderly population has faced many obstacles in its quest to access and receive healthcare. Previous research has shown that elderly women have difficulty with transportation issues, understanding the process of obtaining an office visit, and comprehending the medical jargon that they often face in regard to their particular illness (Wallace & Hirst, 1996). The elderly population is growing at a fast rate. Moreover, women are outliving men by seven years (Ruffing-Rahal, 1994). It is our responsibility to be able to provide needed services to them. Obviously, a better understanding of the issues well elderly women face in accessing healthcare is important. Therefore, in this pilot study the purpose is to explore the issues well elderly women face in obtaining healthcare services. The findings will provide a foundation for future studies aimed at improving access to healthcare services, specifically for well elderly women.

BACKGROUND

Ebersole and Hess (1998) define wellness in the older adult as "a balance between one's environment, internal and external, and one's emotional, spiritual, social, cultural and physical processes" (p. 64). There have been various studies completed regarding healthcare and the aging population. The majority of the studies focus on the aging as related to illness and how the healthcare system affects them. Utilization of the system by the elderly has also been widely studied. Some studies suggest that increased use of healthcare services strengthens one's belief in the healthcare system (Strain, 1991). Educational level also plays a major role in whether an elderly person seeks healthcare. The higher the person's educational attainment, the greater the number of doctor visits (Wolinsky, 1991). Environmental and cultural influences can cause an individual to divert from "Western" medicine or reject it completely. Another research team found that people over the age of 75 view the healthcare system as positive (Ferraro, 1996). However, there has been no reported research that explores access issues from the perspective of well elderly women.

METHODS

Design

A qualitative descriptive design was used to explore healthcare access issues in well elderly women. As other researchers have noted, "this emic approach involves studying behaviors from within the culture" (Burns & Grove, 1999, p. 348).

Sampling and Setting

The study consists of a purposive sample of two women who

are currently participating in research conducted by Dr. Wendy Duggleby (The Aging Experience of Well Elderly Women). Criteria for participation are: (a) female, (b) Caucasian, (c) age 65 or older, (d) community living, (e) active in local senior center on a regular basis, and (f) consent to participate.

DATA COLLECTION

Procedure

Informed consents were signed by and obtained from the participants. The study was approved by The University of Texas at Arlington Institutional Review Board. Face-to-face in-depth individual interviews were conducted. Each interview was tape recorded, then transcribed for data analysis. An interview guide of open-ended questions was used to assist the women regarding their individual experiences with their quest to access healthcare. The nature of the questions were as follows (see appendix for actual interview questions):

- What is it like when you want to see your doctor?
- What is it like when you see your doctor?
- What is your insurance plan?

Although the interviews followed the interview guide, the participants were encouraged to speak freely about their experiences. Interviews took place at the Arlington Senior Health Center. Each interview lasted approximately one hour.

A confirmation interview with one of the participants was conducted to verify that the information collected and analyzed was accurate. Due to the health problems of the other participant, a follow-up interview was not possible.

DATA ANALYSIS

Thematic analysis was used to analyze the data. Contextual thematic analysis allows the researcher to develop themes that express individuals' true thoughts and feelings about a particular event in their lives. The researcher is able to interpret a person's oral responses and categorize them to enable readers to understand what the individual is trying to state (Luborsky, 1997). Luborsky beautifully explains the true idea of thematic analysis:

Although thematic analysis is applied to a wide range of materials and topics, the focus here is primarily on the analysis of themes in face-to-face conversations, texts, or transcripts. Such data are commonly elicited during in-depth interviews, focus groups, and semi structured interviews (p.189-90).

A theme would be described as a unifying or dominant idea.

Several steps were taken to analyze the data: (a) Recorded interviews were transcribed verbatim; (b) Transcribed information was then examined line by line for emerging patterns; (c) Transcribed data was viewed as taped interviews played; (d) Themes were then developed; (e) Transcribed and analyzed information was also reviewed by Dr. Duggleby who has experience with thematic analysis; (f) Confirmation interview conducted to verify interpretation of information.

LIMITATIONS

Although the study was very informative and provided enough information to understand the issues that well elderly women face when trying to access healthcare, there were some limitations. For example, the participants were limited to of Caucasian women in an urban north Texas setting. Geography and ethnicity may also have influenced the findings. Saturation, which determines the appropriateness of the sample size in qualitative research, was not reached. Saturation occurs only when no new ideas or patterns occur.

FINDINGS

Several aspects of the healthcare system were identified as perplexing and unfriendly. As the women pursued their quest to take an active stance regarding their health, they encountered many difficulties. The participants expressed their concerns or their dislikes as "problems." As one problem was resolved, another one appeared to take its place. For example, when a participant finally found a doctor that would accept her insurance, her doctor transferred to a new location that was inconvenient. She was then faced with finding another doctor. The "problem" was the major theme in the data analysis. There were also sub-themes that developed from the main "problem."

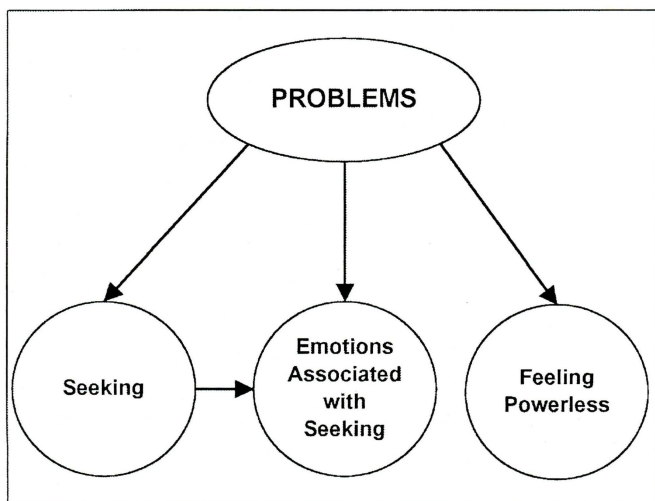


Figure 1: Subthemes of Problems Encountered

"Seeking", mainly, seeking of the proper healthcare for their particular needs, was a sub-theme of great importance to the participants. Emotions that developed out of the seeking mode rendered great details in regard to the participants' frustrating experiences. A feeling of powerlessness also emerged from the data as a sub-theme.

PROBLEMS

The issues the women described as baffling were summed-up in one word – "problems." A number of problems developed as potential reasons why they [women] would not access healthcare. Most of the information given revolved around medical insurance: cost, slow payment, reimbursement amount, and the complicated paperwork involved. Medicare is the primary insurance for senior citizens; 36 million people are covered by this policy (Perot, 1995). Medicare is not the "problem" nor is it the focus of this research. It, however, is a complicated plan to understand, consisting of Part A and Part B coverage, each of which has its own regulations. Financing is separate: in 1995 Part A cost \$261 a month and Part B \$46.10 (Perot, 1995). As one can see cost can become a big factor in obtaining health services. A participant verbalizes this problem:

When I had Aetna with my Medicare, Medicare was my primary carrier and they had to pay first. They were so slow with paying, I had three TIA's. I got so mixed-up on all that paperwork. They were going to turn me over to a collection agency and all that stuff.

This quote indicates the emotional aspect of access to healthcare because this participant felt strongly about how the insurance company interfered with her ability to obtain services.

Doctors that no longer participate in their medical plan were also viewed as interfering with the women's ability to access healthcare. Doctors' attitudes toward them [women] were regarded as negative and unpleasant.

Seeking

The participants embarked upon a continuing journey of "seeking." They were always exploring new avenues to improve their personal healthcare services. Although information booklets are provided with their insurance information, they are too difficult to understand and do not provide the participants with the information that they feel is pertinent to their immediate needs. Networking with friends was the primary practice for gaining insight regarding current procedures. Patients discussed medical information with their friends before even asking the doctor's opinion. One participant suffered with double vision for almost two years due to a mini-stroke. After numerous visits to the ophthalmologist without improvement, her friend informed her of prisms that could be placed in her glasses to correct the problem. Her friend found the information on the Internet and shared it with her. The participant in turn informed her physician, and was then referred to the appropriate doctor. It was discovered that doctors did not consistently refer patients to a physician who could better suit their needs. The participant wanted to know why she was not directed to the doctor sooner. Participant stated, "I don't know if this ophthalmologist just didn't know about it or why he just didn't send me on to Dr. _____ quicker, I don't know."

Seeking to find and keep a doctor also proved to be an issue that concerned the women. The following quotation describes an experience one of the participants had in regard to obtaining a doctor:

My doctor passed away. That left my getting a new doctor. I called. I went down the list, the phonebook everything. I

couldn't find anybody to take me on Medicare at all. I was put on a waiting list. Nobody encouraged me because it takes several month..... I wanted a lady doctor, so I got one. She was there three or four months, then she transferred out of state. So she assigned me one of her other doctors that's in the same office, I've been with him ever since.

Emotions

Participants experienced an array of emotions associated with their adventure with the existing healthcare system. A participant described an incident with her doctor regarding her episode with double vision, "I went to a play and there was instead of two people, there were four and I had put up with that for three years when it was such a simple solution. And that really irritated me." She was frustrated because she could not understand why she had to continue for many years with double vision. However, she did express her gratitude after she was prescribed the correct eyewear. "When I went in there [eye specialist] he just immediately put prisms or a prescription to put in both my lens.... It's wonderful." This same participant expressed her dislike of waiting for extended periods of time in the doctor's office. "Yes the wait. Boy I hate that. But I think that's mainly because he takes too many patients." Another participant shared her emotional reaction to her medical insurance, "I got so mixed up on that paperwork. They were going to turn it over to a collection agency and all this stuff. I couldn't keep up with it, it was too much."

Feeling Powerless

Between coping with being shuffled among different doctors and the resulting emotional roller coaster, individuals are left to feel powerless about the care that they receive. If the medical staff does not effectively communicate with the patients concerning their health, the patients feel a lack of control of their own destiny. This type of behavior could have a negative effect on the patient's health. As I interviewed the participants there was a feeling of not knowing what to expect next or doubting if the doctor was really participating actively in their care; "I think he's listening. I don't think he hears. He said, well some people are just like that." She was told, "some people are just like that" numerous times on one occasion. As stated by the participant, she had no sense of the doctor's commitment to her or that he understood what she was trying to relay to him. Another individual describes her experience:

The orthopedic surgeon I was going to, I called in and told him I was in quite severe pain and he wouldn't give me anything for the pain. I didn't talk to him.... You never talk to the doctor. The doctor called back late that evening. I was in severe pain and no medication for it.

The patients perceive through the actions and words of the doctor that they are not important. Interaction between patient and medical staff does not always guarantee that the individual will be put first. "Conflict and dispute are inevitable parts of dealing with groups, particularly when emotions run high," (Mohr, 2000) as is the case when caring for or treating the elderly. They usually have family members that get involved and intervene, which could cause escalation of emotions if one believes that proper care is not being

administered. Feeling powerless can lead to total neglect of seeking care.

CONCLUSION

Aging can be a rewarding and enjoyable time in an individual's life. The population of elderly women of the twenty-first century is growing faster than ever. It is important to know that what elderly women believe often stands in the way of their access to healthcare services. Participants in this study disclosed their personal experiences in accessing healthcare. The women felt that a number of events prevented them from, or made it difficult to, access healthcare. The problems – seeking access, emotional stress, and feeling powerless – are the themes that were identified during the research. These findings were similar to other research results concerning healthcare services for the elderly, but no previous research was found to focus exclusively on well elderly women.

Two limitations of the study were the lack of ethnic diversity and failure to meet saturation. Further research needs to be done that involves a wide range of ethnic groups in different settings, rural and urban, to determine whether an individual's location influences her access to healthcare. Saturation of information should also be a main goal of future research.

ACKNOWLEDGEMENTS

I give special thanks to GOD for giving me the love and support of my family. This research would have been more difficult without them. Thank you and I love you all. Dr. Duggleby, thank you so much for sacrificing your summer and your time that you have given to me. Last but not least, thanks to the McNair Scholars Program for giving me an appreciation of research.

APPENDIX

Interview Guide

1. What is it like when you want to see your doctor?
 - a. Do you have any trouble making an appointment?
 - b. Do you have any trouble driving to see your doctor?
 - c. What is it like when you see your doctor?
2. Are you on any pills?
Prompt: Do you have any trouble getting your pills?
3. Do you see a physical therapist, dietician, or any other healthcare professional?
4. What is your insurance plan?
Prompt: Have you had any trouble with your plan?
5. What would make it easier for you to get healthcare (see your doctor, hospital, pills, Physical Therapy)?

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Primary Health Care in Ghana and The Gambia: The Most Successful Programs Currently in Practice

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ABSTRACT

According to the World Health Organization (WHO) the leading killers in Africa are HIV/AIDS, respiratory infections, malaria, diarrheal disease, perinatal conditions, and measles – all of which are preventable or at least treatable. This study, derived through observation of health care services in Ghana and The Gambia, and from interviews with indigenous health care workers, has identified health care programs that have proven successful. From this information several proposals have been made for matching resources with programs that have the greatest potential for success.

INTRODUCTION

I went to Africa looking for statistics, diseases, poverty, and programs. I came home from Africa with knowledge of a beautiful people whose lives are filled with richness that cannot be bought and whose history and traditions give them hearts of gold. I found trained professionals who are hungry for opportunities to implement plans for improved health care in their homelands.

Statistics, diseases, and poverty exist in Ghana and The Gambia. However, programs have been developed and evaluated, and are being maintained. These statistics, diseases, poverty and programs are the components of qualitative research on primary health care conducted in these countries in June 2001.

This report defines the top six health care concerns of the people of Ghana and The Gambia both statistically and anecdotally. Programs addressing these concerns are described. The conclusion of the report presents methods for enhancing existing programs along with ideas for new programs that national health care workers see as significant in delivering necessary health care. There are dozens of international organizations providing aid to the two countries; however, only the programs run by the indigenous people are explored in this report.

Though HIV/AIDS is an undeniable threat to the African continent, this report does not attempt to deal with the subject more than to mention its significance statistically. HIV/AIDS is beyond the scope of this research.

METHODOLOGY

The information for this report was gathered from statistical data prepared by World Health Organization (WHO), World Bank, and government publications produced by the countries of Ghana and The Gambia. Personal interviews were conducted with government and health care officials, nurses and public health workers, and health care consumers – people with whom contact was made in the course of daily activities. A core set of questions was asked in all interviews with supplemental questions added according to the course of the conversation. (See Appendix 1 for list of core questions.)

REVIEW OF LITERATURE

In a review of literature, statistics were found that outlined the health care problems that exist in Ghana and The Gambia. However, no specific literature was found which evaluated programs that

indigenous populations feel are effective. The lack of literature focused on such programs validates the need for this research. When effective programs are identified, ways of expanding those programs and guidelines for developing other programs can be most efficiently implemented.

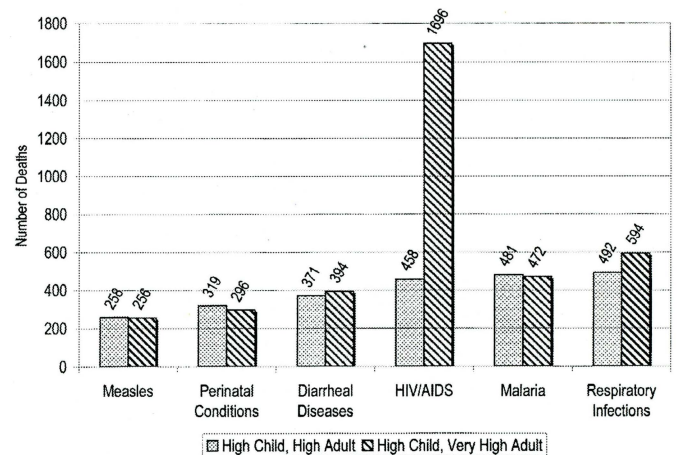


Table 1: Effect of Disease on Mortality

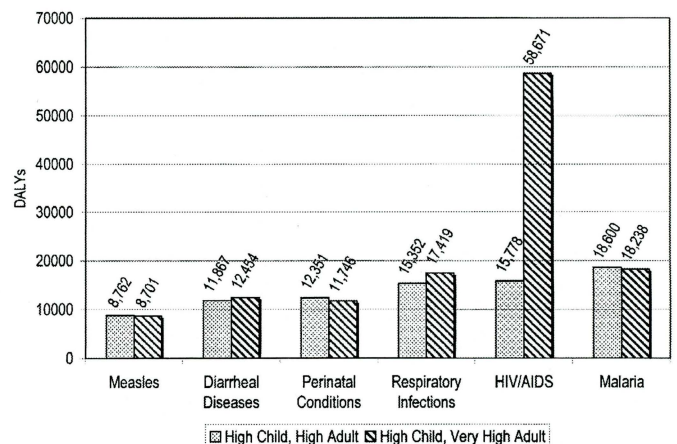


Table 2: Effect of Disease on DALYs

RESULTS

Tables 1 and 2 summarize data from *the World Health Report 2000* (for the year 1999) published by the World Health Organization.

Table 1 defines the six top health care issues in both Ghana and The Gambia. The issues are HIV/AIDS, respiratory infections, malaria, diarrheal diseases, perinatal conditions and measles. WHO has collected and analyzed data on these diseases and produced statistics on both cause of death, as well as effect on disability-adjusted life years (DALYs). DALYs are the result of combining actual death rates with information about disability to create an estimated measure of overall population health; they reflect the burden of disease, that is, the number of disability-adjusted life years lost.

The 191 Member States have been divided by WHO into five mortality strata on the basis of their level of child and adult male mortality. Not every mortality stratum is represented in every Region. For the Region in which Ghana and The Gambia are located, two strata are used to measure the performance of health systems: (1) High Child, High Adult mortality and (2) High Child, Very High Adult death rates (World Health Organization, 2000).

Table 1 shows the impact on mortality attributed to each of the diseases focused on in this report.

Respiratory infections are the greatest cause of death for the mortality stratum of High Child, High Adult. However, in the mortality stratum of High Child, Very High Adult, HIV/AIDS has an exceedingly greater impact than all other diseases, responsible for 28% of all deaths in this category.

These are the WHO statistics. However, interviews with community health officials, public health nurses, administrative officials, state registered nurses (SRNs) and midwives reveal similar but not completely parallel concerns. The question was asked, "What do you consider to be the greatest health concern your people face?" These professionals, without deviation, reported that the greatest problem they must deal with is malaria. When the data are viewed in terms of disability-adjusted life years (DALYs), the results begin to reflect the observations of local health care providers (Table 2).

Again, for the high at-risk stratum, HIV/AIDS is extremely critical. However, for the others, malaria is the most significant, responsible for 12% of the loss of DALYs.

The research interviews were held with a broad base of individuals. Among those holding official health care positions were the director of a community health clinic in rural Ghana; a Ph.D. course coordinator teaching at The University of Ghana, Legon; a midwife who has operated her own private clinic for 20 years in an upper-middle class area near Accra, the capital of Ghana; a 28-year veteran Lt. Colonel female nurse operating a private clinic in one of the most poverty stricken areas in Accra; a nurse midwife working in the Amasaman Health Centre; and a traditional healer working in a rural village in Amasaman Health District, Ghana.

In The Gambia the same questions were posed to a registered nurse midwife running a hotel-based clinic, a deputy director of administration at the largest hospital in the country, and the Director of the School of Nursing of the College of Education in Banjul, Gambia. The response from these professionals was also that malaria is currently the problem most frequently encountered.

Second in importance as observed by those interviewed were perinatal conditions. *Africa Online Services* reports a maternal mor-

tality rate of 740/100,000 and an infant mortality rate of 108.53 deaths/1000 live births in Ghana (AFROL Gender Profiles – Ghana, n.d.). The maternal mortality rate of 1,100/100,000 and an infant mortality rate of 79.29 deaths/1000 live births is reported in The Gambia. (AFROL Gender Profiles – The Gambia, n.d.). The high perinatal mortality rate results in part from the lack of cleanliness and resultant infections, the prevalence of health concerns such as HIV/AIDS, and worms in obstetrical patients and infants. Dr. Kofi Ahmed, Director of Onchocerciasis Directorate of the Ministry of Health, has found that worms, such as hookworms, threadworms and tapeworms cause many problems including anemia, malnutrition, coughing, nausea, diarrhea, stomach pains and low memory. The worms also secrete toxins that lead to other diseases. According to Dr. Ahmed, the combined effect is breakdown of physical resistance or immunity of the individual, increasing the level of mortality. (Ahmed, K. 2001)

Health Delivery Systems

In seeking to identify programs that work in regard to health care issues in both countries, their systems of health care delivery must first be outlined. There are similarities to successful programs, but the programs are adapted according to the structure of the delivery system.

In Ghana, health care is described as pay-as-you-go. The government provides some basic services at public health clinics located throughout the country, but a fee is required for common services such as injections, hospitalization, and infant deliveries.

In addition to private hospitals in Ghana, there are nine regional hospitals and six military hospitals. Public and private clinics are located throughout the countryside, some responsible for as many as 120 villages each month with the help of public health workers and traditional birth attendants (TBAs). (Sister Carolyn, personal communication, June 5, 2001)

Figure 1 is a photograph of the delivery room at Amasaman Health Centre near Accra, Ghana. It is in the maternity unit of a

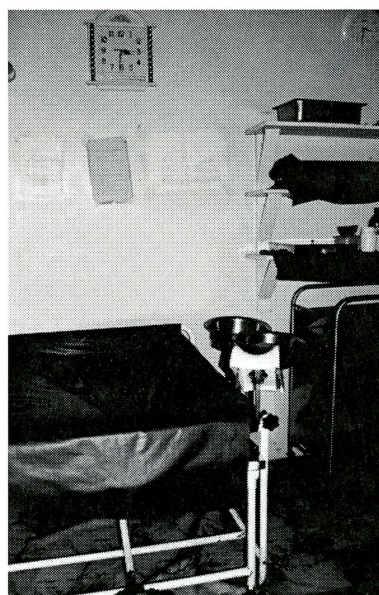


Figure 1: Delivery Room



Figure 2: Clinic Nurses

public primary care clinic. The room is simple but much attention is given to cleanliness. The workers in the clinic seek to maintain as safe an environment as possible to minimize the risks of infection and keep perinatal complications low. One major difficulty encountered in this room is the unreliable supply of electricity that can leave the patient and staff without lighting in the middle of a nighttime delivery.

The clinics are run by a combination of public health workers holding one to two-year degrees and SRNs who have a minimum of three years of formal training after which a certification exam is required.

A doctor serves as head of the clinic. The clinics operate on 12-hour shifts, with the doctor being essentially on call 24 hours a day. Figure 2 pictures the two different types of nurses: the SRNs are in white uniforms and a public health nurse wears the solid colored uniform. The woman in the print and head wrap is a nurse midwife, a former employee at Amasaman Centre who now operates a clinic in her home, and the Caucasian is the author of this report. The nurses perform their duties well together and are very willing to work with anyone who has a genuine interest in improving health care for their patients.

A heavy workload is demanded of the doctor who is head of a clinic. One such individual, addressed as "Chief", is pictured in Figure 3. The doctor may see more than 70 patients in a day spending as long as 15 to 20 minutes with each patient conducting the preliminary interview, doing a physical examination and prescribing a course of action. Patient registration, illustrated in Figure 4, is a manual process using entirely handwritten documentation.

When an emergency arises which requires transfer to a hospital, the process is difficult. The clinics do not generally have a vehicle available, so one must be obtained from either someone willing to volunteer to make the trip or by hiring a taxi. If the patient is unable to pay the taxi, the nurses pay the fare out of their own pockets.

To secure a willing driver or a taxi someone must walk from the clinic to the nearest main road, flag down a vehicle, and return to the



Figure 3: Clinic Chief



Figure 4: Patient Registration

clinic to pick up the patient. If the emergency occurs when the doctor is not on duty, the same process must be followed to get the doctor to the clinic. Again, if the patient does not have money the responsibility for payment falls upon the clinic personnel.

In The Gambia, health care is provided in a different manner with set minimal fees being established for services other than those of the first level of care. If an individual does not have the fee, unlike Ghana the patient will be seen anyway. The government ultimately must bear the cost, resulting in reduced resources for development and compensation to workers. However, any citizen will be seen regardless of his or her personal financial assets. Unfortunately, in The Gambia only 25% of the population actually have access to medical services. (AFROL Gender Profile – The Gambia)

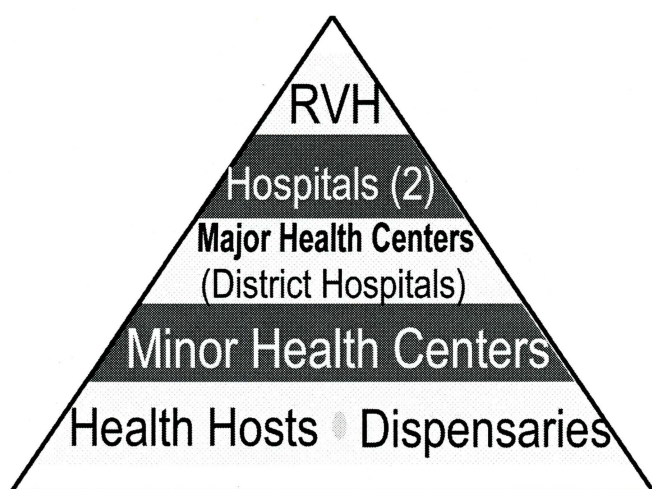


Figure 5: RVH Organization

The delivery system in the Gambia is a pyramidal system of referrals (Figure 5). At the base there are dispensaries and health hosts. Among the health hosts are outposts in remote areas of the country as well as rural clinics and facilities serving more populated areas.

Forming the apex is the Royal Victoria Hospital (RVH) in Banjul, the capital city of The Gambia. In an effort to serve the larger population of the capital city, RVH operates specialized clinics at the hospital site such as an emergency clinic, an obstetrical clinic and a pediatric clinic.

The RVH prides itself on the cosmopolitan makeup of its staff of physicians since the staff consists of doctors from the international community. This is to the advantage of the facility in that this ethnic diversity of professionals brings to the patient a varied background of training and experience. The shortcomings of this system are primarily the under-developed facilities available to the doctors and the workload they must carry.

To objectively evaluate programs, there must be a definition of success. When a reduction in frequency or intensity of disease can be quantified, statistical analysis can be performed and conclusions can be drawn. However, in many cases in developing countries, especially when evaluating internal programs, such statistics are not readily available. In those cases, different criteria must be used to define the success of a program.

In Ghana and the Gambia, one can capture limited quantitative data supplemented by anecdotal reports from indigenous medical personnel and consumers. The balance of this report uses primarily anecdotal information. (See Appendix 2 for list of major interviews)

PROGRAMS

As reported in interviews, one of the most successful programs, as well as perhaps one with the most potential, is the use of traditional birth attendants (TBAs). In both Ghana and The Gambia, TBAs are a crucial link between villagers and improved health care that can be gained from modern medicine. When the TBA is properly trained, personal technique improves and the community gains a teacher of health care practices. These elements of the TBA program significantly reduce the incidence and severity of all six major

health concerns.

There are differences in the way the TBA programs are structured. In Ghana, the TBA is relied upon more heavily than in The Gambia for midwifery, as well as other aspects of teaching and providing basic medical care. This is reflected in the way the TBA is chosen as well as in the accountability of the individual.

In both countries the obvious person of choice is the one who has already been performing the duties of midwife. A TBA in The Gambia is typically an older villager with very limited formal training. The government has identified these individuals as the best link between the village and the health care system.

In Ghana some pursue a career as a TBA, but there is also an active recruitment effort by the government. Anyone selected to be a TBA must successfully complete a six-week course in birthing and basic health care. If it is feasible, the TBA trainee goes to a central health clinic for this training. In the case of extremely remote locations, an SRN will travel to the area and deliver training. Ideally training will be provided to a group of individuals rather than a single student; the instruction will include issues of community health as well as training in the delivery of babies.

An important element of the TBA concept is that individuals already established and respected in the communities are in turn teaching and providing basic health care delivery. This person is going to know the needs more intimately than anyone else, and likely has gained the trust of the local population. When preparing to formalize a program, the founders first observed what the TBAs were doing and took from those observations techniques and knowledge that enhanced health care.

Working hand-in-hand with the TBA is the public health nurse and SRN. After initial training, the TBA in Ghana is regularly monitored by these individuals. The materials that have been supplied to the TBA must be accounted for monthly.

An example of this accounting is that TBAs must purchase sterile delivery kits for midwifery. This kit includes blades and sterile cord ties. Documentation must be provided for the number of deliveries performed, the number of kits remaining, and the disposition of used materials. The TBA is required to sterilize the blades after use in deliveries and then to bury the blade in an effort to curb the spread of disease.

The popularity of the Padan Herbal Clinic with both the public health system and the villagers is evidence of the success of the TBA program. Dr. Padan studied traditional herbal medicine with his father for 14 years, and then attended formal training in traditional healing for 2 years. Having been identified by the government as a TBA, he has received training from the public health sector in biomedical techniques and attempts to carefully adhere to its principles.

For two years he has given formal instruction to nine apprentices, seven male and two female. In his clinic he sees approximately 60 patients daily and also works in conjunction with the public health nurses when they come to the village for routine visits.

Another program being used in both Ghana and The Gambia is immunization of infants and children. Many international organizations have contributed a great deal to the success of these efforts by

providing medications, training and personnel, but the indigenous health care providers working out of the urban and rural clinics keep the programs functioning. At the same time the immunizations are delivered, teaching is done in nutrition, sanitation, and disease prevention. The WHO reported a decline of 60% in the number of measles cases for the years 1995 through 1999 in Ghana. Reporting for the same period in The Gambia is incomplete. (WHO Immunization Profile - Ghana, 2001)

The success of polio immunizations provides a similar example. In interviews with nurse midwives in private practice and with the nurses from the Amasaman Health Centre of the Ga region of Ghana, their data and personal experience reflect a significant decrease in the incidence of polio since immunization became a project supported by NGOs. In interviews with nurses in The Gambia, there was a major outbreak of polio in 1995, but through massive immunization efforts with UNICEF and the government public health system, it is now controlled to the point where it is not currently considered a significant health issue.

Quoting from the UNICEF website, "Immunization remains the single most feasible and cost-effective way of ensuring that all children enjoy their rights to survival and good health. In the developing world, immunization saves the lives of 2.5 million children every year..." (The power of immunization, 1999)

Immunizations provided to the population through public health facilities are key to this success. Figure 6 is an image of an SRN in the Amasaman Health Centre as she prepares to fill an insulated immunization carrying case with vaccines for delivery to rural destinations. Ghana claims a childhood immunization rate of 68% while The Gambia reports with pride a rate of 96% coverage of children through vaccination programs. (Immunization, 1999)

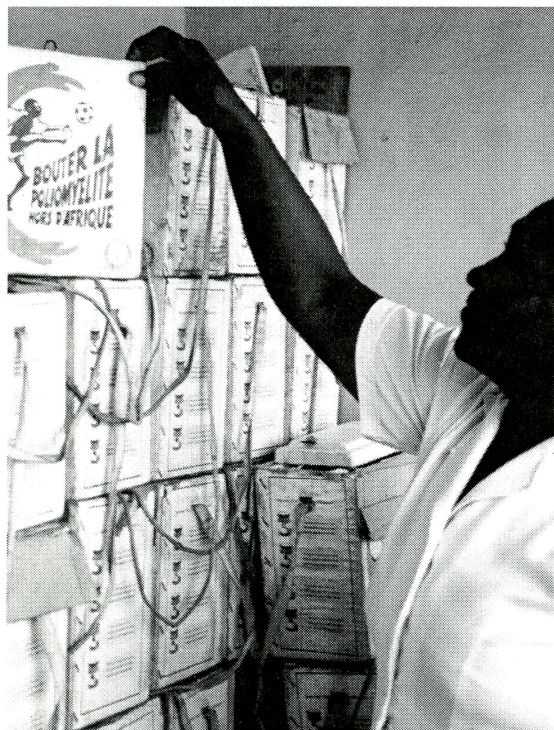


Figure 6: Immunization Carrying Cases

The private sector is working to improve health care as well. Alberta, a nurse midwife who has run a private clinic in Ghana for 20 years, illustrates this effort. In countries where receiving an education is considered an extreme privilege and seldom taken for granted, her entrepreneurial efforts are significant.

Personal improvement equipped Alberta to deliver health care to residents in proximity to her home; to make pharmaceutical supplies conveniently available through the pharmacy she operates on her property; and to increase public health awareness through instruction she provides in her clinic and throughout her community. She is required to yearly update her state certification as a midwife and as a pharmaceutical provider.

Alberta spent years building her facilities. Upon graduation from nursing school she began caring for patients in the home she was building with her husband. In the early years of her practice she supplemented her income by raising poultry, eventually growing and selling her own poultry feed. As her practice grew, she was able to construct two additional buildings at the front of the property that housed a pharmacy and her clinic. She provides prenatal and postnatal care; delivers babies in a sanitary environment; sutures lacerations; provides immunizations; and dispenses antibiotics, analgesics, and antipyretics.

By American standards, Alberta's pharmacy is primitive. By the standards of developing countries, she provides products not normally available. The fact that she has a display case is an example of her progressive approach. The case displays products that will enhance personal care such as male and female condoms, salves, antacids, and sleeping gowns for her obstetrical patients

Insufficient water supply is a common problem in developing countries, and Alberta exercised initiative and ingenuity by installing a water storage tank. In the frequent times when water is not available from the municipal supply, her storage tank provides a continuous reserve as well as water to sell to her neighbors. Interrupted water supply and the recurrent disruption of electrical service are problems common to both countries.

These problems are reflected in the needs of the Amasaman Health Centre, which serves a community of 120 villages. For example, if there is a delivery or an emergency at night there is the likelihood that electricity may be disrupted in the middle of a procedure. Even though clinics like that of the Amasaman Region must deal with problems such as this, they none-the-less provide vital health services and are significant in the control and reduction of disease.

The dedicated staff in these clinics consistently follows standard principles of health care and continually seeks to improve not only the conditions of the clinic but also their own knowledge and skills. They are eager to learn and take advantage of whatever educational opportunities they are offered. Additional programs are needed to address the continuing educational needs of medical personnel, but the workers recognize the value of teaching and themselves develop educational programs on topics such as nutrition and hygiene for their clients whenever possible. In both countries, public awareness through education is universally cited by those interviewed as essential to better control sickness and disease.

Several government programs reflect an official acknowledgement of the importance of good primary health care. For example, the military provides good health care and training in community health issues to personnel. A soldier and his family are given immunizations and provided with free health services in military facilities.

Both countries also place a high priority on training doctors, nurses, and public health workers. The government provides room and board and education for a student who is academically qualified. Both Ghana and The Gambia require a three-year term of service to the government in return.

The nursing schools in Ghana and The Gambia are dedicated to professionalism. The institutions have limited resources and the facilities are not elaborate as most classrooms have only table, chairs, and a blackboard as a teaching tool. Having instructors who are educated, dedicated, experienced individuals and students who are motivated to learn compensate for the lack of teaching tools. Though a school library may have few books and perhaps only one computer, if any at all, a student will spend time there to learn as much as possible from these limited resources.



Figure 7: Kitchen at School of Nursing

As part of the state registered nurses training in The Gambia a student nurse is required to spend several weeks in the field providing health care in a remote clinic. Though the school arranges lodging, the student is responsible for providing his or her own meals. An instructor is assigned to the student to facilitate learning and to ensure the safety of patients, but the objective is to allow the student the experience of providing health care in an independent setting.

The rationale behind this system is that once the student graduates the government can place that individual anywhere in the country for the required three years of service. At that point the graduate will have to work independently and only prior experience can prepare one for such a task.

It is evident that nurses in particular are receiving a quality education because other countries actively recruit them. One of the obstacles facing Ghana and The Gambia is that although the government has invested time and money in the education of the individual, the countries are losing their trained nurses to the UK and the USA. Higher salaries and better working conditions are major attractions to nurses from Ghana and The Gambia. Often nurses may earn much more than anyone else in their extended families and become financially responsible for them.

Many nurses who have remained in the country are contributing significantly to improved health care delivery by providing services to previously underserved populations. Frequently, indigenous professionals partner with NGOs to provide primary health care at minimum cost. For example, Lt. Colonel Jemima N. Adusu (RTD) was a nurse in the military for 28 years. She received training as a state registered nurse for three years, initial military training for six months, and formal management training for a year. Upon retirement she joined with a religious group to open a clinic in an extremely poor section of the capital city of Accra.

The cost of going to this clinic is 5000 cedi, the equivalent of approximately \$0.73 US. This fee covers the clinic visit as well as required medications. Due to the poverty of the area in which this clinic is located, many cannot afford the 5000 cedi but are given treatment anyway. This type of primary health care delivery integrates indigenous personnel with resources from outside the country. One of the most important principles of a successful health care delivery system is that indigenous people should be involved in the planning and implementation of the program. The arrangement with Lt. Colonel Adusu and the religious organization funding her is an example of this principle.

Part of the function of clinics such as that of Lt. Colonel Adusu is to provide public health education. Health care professionals universally see education as a key to changing the conditions of their country. Posters are used extensively, and it is common to see billboards with health messages. In Ghana there are many TV programs dedicated to public education on health issues. Shirts with health messages printed on them are also used. Public advertising in conjunction with private reinforcement at health care facilities is beginning to have a positive affect on both the knowledge and attitudes of the general population. Figures 8, 9 and 10 are examples of teaching posters.

In Ghana, a program that holds tremendous promise for a wide range of diseases is the Centre For Scientific Research Into Plant Medicine (CFSR). The program was developed by the government in 1975 and has continually improved and expanded its services. In Ghana, as most African counties, medicine has a deep association with traditional healers and herbal treatments. Rather than deny the heritage of the country or reject what is beneficial in allopathic medicine, combining biomedical and naturalistic medicine is embraced.

The work of the CFSR provides economic advantage for the country and the consumer. It has the benefit of using renewable resources. Combining plant medicine and biomedical technology makes the people more receptive to the implementation of scientific principles in the prevention and treatment of disease and increases compliance to prescribed therapy.

The CFSR is based on the work of Dr. Oku Ampofo, a practitioner of allopathic medicine who did a considerable amount of work during the early sixties in plant research. Following are the stated purposes for its founding:

- I. Conduct and promote scientific research relating to the improvement of plant medicine
- II. Ensure the purity of drugs extracted from plants

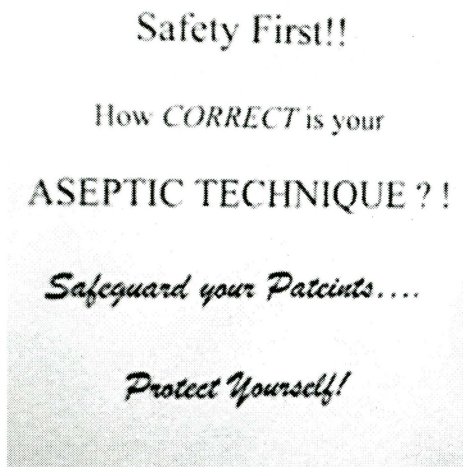


Figure 8: Nursing Poster

Age Group	Day 1	Day 2	Day 3
Under 6 months	5.0mls	5.0mls	2.5mls
6 - 11 months	7.5mls	7.5mls	2.5mls
1 - 3 years	10.0mls	10.0mls	5.0mls

Figure 9: Malaria Poster



Figure 10: Sanitation Poster

- III. Co-operate and liaise with the Ghana Psychic and Traditional Healers' Association, research institutions and commercial organizations in any part of the world in matters of plant medicine
- IV. Undertake or collaborate in the collation, publication and dissemination of the results of research and other useful technical information
- V. Establish, where necessary, botanical gardens for medicinal plants
- VI. Perform such other functions as the government may assign to it from time to time.

The Centre has been divided into specific departments which function independently but not in isolation. Appendix 3 is a table of the departments and their respective individual functions. Appendix 4 is a list of the herbal preparations currently being used by the clinic and the problems the preparations address.

CONCLUSIONS

David Werner and Bill Bower have been working with health care in disadvantaged communities around the world for over 20 years. Their book, *Helping Health Care Workers Learn*, is a companion teaching manual to *Where There Is No Doctor*. This companion book presents guidelines for evaluating health care programs and emphasizes the importance of adaptability and the need to involve indigenous people in planning and implementing programs. The following is a list of the common elements found in programs that have proven successful:

1. Small, local beginnings and slow, decentralized growth
2. Involvement of local people – especially the poor – in each phase of the program
3. An approach that views planning as a 'learning process'
4. Leaders whose first responsibility is to the poor
5. A recognition that good health can only be attained through helping poor improve the entire situation in which they live

A major hazard of otherwise well-intentioned programs is that if not well thought out and conscientiously executed, they can increase dependency on outside help instead of enhancing community participation and subsequent improved health care.

The programs examined in this research meet the criteria put forth in *Helping Health Care Workers Learn*. They are programs initiated and implemented by the people. They are programs with potential (Werner, Bower, 1982)

Problems

The results of this report indicate that the problems of poverty and a lack of opportunity exist in Ghana and The Gambia. Teaching opportunities are reduced because of the lack of a basic education. If a child cannot afford to attend school, classroom instruction is absent; without reading skills many community health awareness messages are missed and personal growth and consciousness are limited.

Lack of basic education leads to difficulties in delivering health education. The absence of health education brings about environmental disadvantages such as poor sanitation and the accumulation of breeding places for mosquitoes and bacteria. Insufficient health education leads to inadequate immunizations. Diminished awareness of public responsibility results in higher incidence of disease. For example, keeping living and working conditions safe and sanitary would diminish the incidence of most major health risks.

Lack of occupational opportunity compounds the impact poverty has on individual and community health. Reduced resources for environmental improvements frustrate countries without a strong economy. Without jobs, people do not have the ability to pay for health care. The combined results of poverty include higher incidence of HIV/AIDS, malaria, respiratory infections, perinatal conditions, and measles – all of which can be prevented or at least can have their severity reduced.

Programs

Despite the problems inherent to poverty, health care workers in

Ghana and The Gambia are dedicated to improving health and diminishing the effects of disease. The workers have developed many programs that address the six most common diseases, the results of which are not always easy to measure. It is easiest to measure the results of immunization programs, which are a joint effort of government and non-government organizations.

Though this research does not concentrate on the issue of HIV/AIDS, Ghana and The Gambia have programs in place that target public health education in regard to this lethal disease. As part of the government program to combat this crisis, the Ministry of Health and the National AIDS/STD Control Programme have published a book summarizing the methods they promote to limit the transmission of HIV/AIDS which consists of:

1. Promoting abstinence and faithfulness
2. Reducing the overall number of sexual partners
3. Delaying the onset of sexual activity among adolescents
4. Promoting the use and availability of condoms, including female condoms
5. Controlling other sexually transmitted diseases
6. Encouraging voluntary counseling and testing

This publication is one of many produced by the Ministries of Health in both countries and demonstrates that those responsible for primary health care in these countries recognize the importance of educating the public about health issues. Interviews with health care workers indicate that continuing similar campaigns is important to them (Ministry of Health, 1999).

The traditional birth attendant program provides a crucial link to improved health care. The trained TBA assists in educating the community in addition to providing basic health care services and attending births. The TBA is the primary health care provider in the community, but is nevertheless accountable to health care professionals.

In Ghana the government has established the Centre For Scientific Research Into Plant Medicine. This program is currently growing and cataloguing herbs, standardizing the potency of herbal preparations, and producing herbal preparations for the treatment and prevention of disease. Scientific study and clinical trials will continue in this area.

Government programs such as the Centre and other public health clinics, military health care systems, and the training of health professionals are significant in the effort to reduce the incidence and severity of the top six diseases in Ghana and The Gambia. Opportunity exists for ambitious nationals to develop private clinics that increase the availability of health care while providing economic advantage to the individual clinic owner. Public and private initiatives combine to produce lower incidence of disease and greater public awareness of health issues.

Potential

Health care workers in Ghana and The Gambia are dedicated to the task of reducing the incidence of disease in their countries despite the problems of poverty and lack of opportunity. They are profes-

sionals who have used carefully thought out principles to develop programs to meet significant health care needs.

Ghana and The Gambia are committed to improving health care and there are many ways assistance can be provided to enhance these efforts. Individuals and groups with a global awareness can contribute many things ranging from time for packaging donated materials to providing postage for shipping to making professional services available for short-term relief. Efforts such as these increase the potential for disease prevention and treatment.

For example, nurses at the Amasaman Health Centre defined a specific need for lighting that would be reliable during nighttime deliveries and emergency surgeries. They identified a need for a restroom in the clinic and described dangerous situations that could be eliminated if they had a vehicle available for clinic transportation needs.

The head of the midwifery unit at the Amasaman Health Centre described the need for supplies for both in-clinic deliveries and deliveries attended to by TBAs. The director of the clinic referred to the luxury of having teaching aids, bandages, and cotton balls available.

When touring the School of Nursing in Banjul, Gambia, the need for books and teaching tools was apparent. The director of the school reported that the school had been unable to procure thermometers with which the students could practice. The director identified a desire for overhead projectors, transparencies, and transparency pens as examples of equipment that would enhance the learning process.

The work of TBAs would be enhanced if teaching aids were available to them. Providing additional supplies would enable them to provide better health care to their communities. Further training would enhance their abilities.

Dr. Padan, TBA from the Padan Health Clinic, pleaded for information as to how he could get more training. He stated that his clinic continues to grow and he needs more education but does not know where to get it. When asked what specific type of training he wanted he responded, "Any type of training. I want anything I can get. I will go anywhere or study anything available to me."

Alberta, the nurse midwife who operates a private clinic, expressed a need for a sonogram system. She currently refers maternity patients to the hospital for preliminary screening and would like to be able to do the sonogram portion of the screening herself.

Mr. Badgie, Deputy Administrator of Royal Victoria Hospital, reviewed the impact a resource room could have on its physicians. There is a need for professional publications, computers, Internet training, and relief personnel for their staff. He expressed a need for a national system of patient identification so that health care can be better delivered through the pyramidal system of referral under which health care providers operate.

The Centre For Scientific Research Into Plant Medicine could increase its impact on the national and international community if its staff could receive ideological and economic and marketing support. The testing it does has the potential to influence herbal medicine globally, so an increase in the amount and quality of testing equipment could be significant to everyone in the health care field.

Many health care programs in practice in Ghana and The Gambia are effective in preventing and reducing disease. With support, those programs can be even more effective and progressive programs can continue to develop.

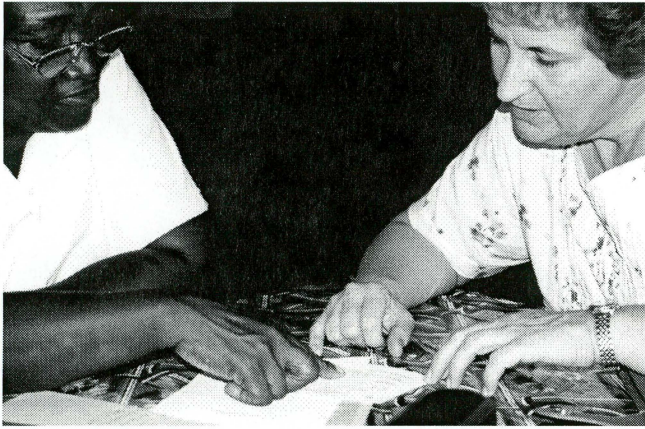


Figure 11: Working Together

APPENDIX 1

Interview Core Questions

1. What do you consider to be the greatest health concerns your people face?
2. How is your country addressing the issues of malaria, measles, and polio?
3. What are the three most productive ways you see for individuals or groups to contribute to better health care in your country?
4. Do you feel your qualified nurses are being lured away by other countries?
5. What do you feel is needed to encourage nurses to remain in this country?
6. What would be the attitude of your workers/people toward contributions of time, and/or expertise to your health care system?

APPENDIX 2

Major Interviews and Lectures

Name	Position	Organization	Subject	Date
Kingsley Karimu	Head of Chancery	Embassy of Ghana	Receptiveness of Ghana to researchers on health care/overview of health care	March 21, 2001
Lena Manga Sagnia-Seck	Deputy Head of Mission	Embassy of the Gambia	Receptiveness of The Gambia to researchers on health care/overview of health care	March 22, 2001
Mr. David Hughes	Manager, HIV/AIDS Initiative	American Red Cross, International Services	HIV/AIDS and health care internationally	March 23, 2001
Professor R. Addo-Fenning	Professor	University of Ghana	Survey of Pre-colonial Era to Modern Period	June 2, 2001
Emmanuel Boeteng	Tour Guide	Sunseekers Tours	Culture and living in Ghana	June 3, 2001
Professor Max Assimeng	Professor	University of Ghana	Survey of Culture and Religions	June 5, 2001
Sister Carolyn	Director	Amasaman Health Centre	Public Health	June 5, 2001
Mavis Lamptey	Head of Midwifery	Amasaman Health Centre	Midwifery and Infant Health	June 5, 2001
Agnes Fusa	State Registered Nurse	Establishing a private clinic	Public health nursing	June 5, 2001
Professor Kofi Drah	Professor	University of Ghana	Politics in Ghana	June 6, 2001
Professor Abena Oduro	Professor	University of Ghana	Survey of the Economy	June 6, 2001
Professor Takyiwaa Manuh	Professor	University of Ghana	Survey of Healthcare and Gender issues	June 7, 2001
Dr. Phyllis Antwi	Course Co-coordinator, School of Public Health	University of Ghana	Aids and public health care in Ghana	June 7, 2001
Ms. Kharolyn Amissah-Aidoo	Architect	Private Business	Survey of Contemporary Technology in Ghana	June 8, 2001
Alberta Segbafah	Nurse Midwife	Private clinic	Primary health care	June 9, 2001
Lt. Col. Jemima N. Adusu (RTD)	Nurse Midwife	Clinic director	Primary health care, military and public health	June 16, 2001
Kristine Nicholas	Student Researcher	Humanitarian Aid Relief Team	Buruli ulcer research in Amasaman Health Centre	June 19, 2001
Dr. Padan	TBA	Padan Clinic	Traditional healing and TBA program	June 19, 2001
Mr. Kebba Badgie	Deputy Chief Executive	Royal Victoria Hospital	Primary health care	June 19, 2001
Mr. Ngum	Chief Executive, Former Director of School of Nursing	Royal Victoria Hospital	Nursing education in The Gambia	June 19, 2001

Name	Position	Organization	Subject	Date
Mrs. Maram Bobb	Director, School of Nursing	School of Nursing, College of Education	Nursing education, primary health care	June 21, 2001
Mr. Halipha Sallah	Political Activist	Padan Clinic	Traditional healing and TBA program	June 22, 2001
Mr. Kebba Badgie	Deputy Chief Executive	Royal Victoria Hospital	Primary health care	June 26, 2001
Mr. Ngum	Chief Executive, Former Director of School of Nursing	Royal Victoria Hospital	Nursing education in The Gambia	June 26, 2001
Mrs. Satang Jobarteh	Former Directory of Schools, Author	Gender and Human Rights Activist	Nursing education in The Gambia	June 26, 2001
Mrs. Salsa	Former Director of Schools, Author	Gender and Human Rights Activist	Gender Issues, Islam Overview	June 27, 2001
Mrs. Maram Bobb	Director, School of Nursing	School of Nursing, College of Education	Nursing education, primary health care	June 28, 2001

APPENDIX 3

Organization of Centre For Scientific Research Into Plant Medicine

2000 Report

DEPARTMENT	FUNCTIONS	SPECIFIC ACCOMPLISHMENTS	ACTIVITIES	FUTURE PLANS
Pharmacology and Toxicology	<ul style="list-style-type: none"> • General pharmacology • Clinical pharmacology • Toxicology • Pharmaceutics • Animal house • Quality control • Analysis of herbal products of the Centre; analyses of products brought by Herbalists and manufacturers; and customizing herbal medicines for industry 	<ul style="list-style-type: none"> • Determination of dosage levels for many herbal products • Present projects include, Mist Nibina, Mist Tonica, Mist Asena, Mist Diodia, Garibe ointment, Kenken capsules, Lipia tea and Sirrappac powder • Conversion of some Centre products to consumer friendly capsules and tablets • Development of safety and efficacy tests 	<ul style="list-style-type: none"> • Toxicological screening using laboratory animals produced and maintained in an animal house • Determines dosage levels after toxicological studies • Conducts efficacy assessment of herbal medicinal assessment of herbal medicinal products • Trains local and foreign students and visitors who come to the Centre for attachment • Working with the University of Science and Technology to establish joint activities 	<ul style="list-style-type: none"> • Research related to mechanism of action of herbal medicinal products • Studies on toxic effects such as metabolism, absorption, excretion, teratogenicity and carcinogenicity • Liaise with the Food and Drugs Board and the Ghana Standards Board towards approval for herbal preparations by herbalists and industrialists
Plant Development	<ul style="list-style-type: none"> • Establishment of arboreta • Nursery sale and arboreta • Herbarium • Grounds and Gardens • Plant search and sourcing 	<ul style="list-style-type: none"> • Store of approximately 1000 voucher medicinal Ghanaian plant specimens • 150 acres of forest and Savannah species of medicinal plants being farmed • Production of medicinal plant extract and plant inspection 	<ul style="list-style-type: none"> • Establishment of four medicinal plant gardens • Obtaining medicinal plants through germplasm collection and establishment of nurseries for Centre use and sale • Documentation of ethno-botanical and ethno-pharmacological data on plants used by herbalists • Documentation of finished herbal medicinal products brought to the Centre by herbalists and manufacturers for analysis • Identification of plant specimens • Preparation of voucher specimens to serve as confirmation guides to the identification of new plants • Training of herbalists in herbarium techniques and sustainable harvests • Maintains data on plant location 	<ul style="list-style-type: none"> • List the Centre's herbarium in the Index Herbarium and on the Internet for the purpose of exchange of scientific information on medicinal plants • Provide interested Ghanaians with scientific knowledge on converting Savannah type vegetation to semi-forest • Provide a consultancy service for the use of medicinal plants for landscaping and home gardening to promote availability • Use Geographical Imaging System and other mapping technology to document all medicinal plants in Ghana

DEPARTMENT	FUNCTIONS	SPECIFIC ACCOMPLISHMENTS	ACTIVITIES	FUTURE PLANS
Microbiology	<ul style="list-style-type: none"> Bacteriology Mycology Protozoology Virology Quality control Standardization Analysis of specimens and herbalist's drugs 	<ul style="list-style-type: none"> Isolation of five species of fungi which infect paint and deface painted walls and houses on the Akuapem ridge In 80% of malarial patients (with parasitemia +2 and +3) studied over 28 days, Mist Nibima was effective in clearing Plasmodium falciparum from the blood in three days of drug administration Pathogens Clostridium tetani and C perfringes were isolated from the sores on the body and mouth region of rabbits. An herbal parasitocidal ointment was used to heal the sores Mist Enterica, a drug used against typhoid fever, was observed to show activity against the pathogen with a MIC found to be 100mg/ml In 1999, the Department analyzed fifteen drugs for herbalists 	<ul style="list-style-type: none"> Aetiology and control of paint-infecting fungi Clinical monitoring of the anti-microbial effect of Mist Nibima on Plasmodium falciparum Aetiology and drug susceptibility profiles of pathogens causing sores on rabbits Provision of clinical microbiological services to patients of the Centre Consulting services to traditional herbal practitioners in the form of microbiological analysis of their herbal products Working links with the Microbiology Department and the Public Health Reference Laboratory of Korle-Bu Teaching Hospital for the acquisition and identification of microorganisms Teaching services to national and foreign students coming to the Centre on attachment 	<ul style="list-style-type: none"> Search for plant extract with anti-mycotic properties for control of the isolated paint-infecting fungi Collaboration with the Bacteriology Unit of Noguchi Memorial Institute for Medical Research on specimens and clinical cases Investigation into possible anti-microbial activities of Mists Tonica, Asena, Bredina, Camber and Cough Mixture which are dispensed at the Centre Assessment of the anti-microbial activity of parasitocidal ointment to common pathogens causing dermatologic infections Determination of microbiology of some sources of drinking water on the Akuapem ridge; results used to advise Ghana Water Company Limited and the local community
Welfare Association	<ul style="list-style-type: none"> Secure and ensure welfare of all workers Create conducive atmosphere and friendly environment 	<ul style="list-style-type: none"> Initiation of a provident fund where workers contribute 5% of salary to the fund which is given as loans on demand Procures consumable items which are given to staff on credit 	<ul style="list-style-type: none"> Organize funeral attendance and bereavement donations Provide financial help for members in times of need Seek ways of raising funds to achieve aims of the association Coordinate activities of other associations at the Centre where necessary for welfare of members 	<ul style="list-style-type: none"> Welfare bus for the staff

DEPARTMENT	FUNCTIONS	SPECIFIC ACCOMPLISHMENTS	ACTIVITIES	FUTURE PLANS
Phytochemistry	<ul style="list-style-type: none"> • Medicine formulation • Standardization • Quality control • Phytochemical analysis of medicinal plants • Macro-and-micromorphology • Phytochemical analysis of herbal products 	<ul style="list-style-type: none"> • Isolation and standardization of medicinal products • Development of dosage forms • Development of medicinal plants of the manufacture of Alomo Gin Bitters • Development of guidelines for the analysis and quality assessment of herbalists' drugs (eighty-four analyzed in the past two years) • Provision of training facilities for several students on attachment 	<ul style="list-style-type: none"> • Encapsulation • Tableting • Determination of concentration of active ingredients • Determining quality control of Centre's products • Qualitative determination of classes of compounds present in medicinal plants and herbal medicinal preparations • Chromatographic isolation and identification of active constituents from medicinal plants • Analysis of herbal medicines for herbalists and manufacturers and Government agencies (Police, Food and Drugs Board, and Ghana Standards Board) • Establish collaborative links with industry 	<ul style="list-style-type: none"> • Large scale production and marketing of Kenken capsules (treatment for pain) • Collaboration with Rose Distilleries for the manufacture of an alcoholic beverage • Conversion of decoction into capsules to facilitate exportation • Finding better natural means of product preservation • Establishment of a modern quality control laboratory
Production	<ul style="list-style-type: none"> • Raw materials purchase • Raw materials treatment • Production • Quality control • Pilot plan • Packaging 	<ul style="list-style-type: none"> • Reduction in volume of decoctions, accompanied by reformulation of dosages, resulting in reduced production costs and increased patient convenience • Development of Kenken capsules, resulting in increased interest in the product from medical practitioners and the general public 	<ul style="list-style-type: none"> • Raw materials purchase (roots, stem barks, leaves, fruit and seeds of over 70 medicinal species) • Raw materials quality check and treatment by oven or solar drying • Standardization of processes which improved quality of products and efficiency 	<ul style="list-style-type: none"> • Pilot plant to facilitate improvement of production and packaging of products and increasing output • Sourcing plant based raw materials for Centre production • Collaboration with other departments to improve dosage forms and new product development

DEPARTMENT	FUNCTIONS	SPECIFIC ACCOMPLISHMENTS	ACTIVITIES	• FUTURE PLANS
Clinic	<ul style="list-style-type: none"> • Clinical trials • Clinical records • Out-patient clinical care using medical doctors and nurses • Medical laboratory 	<ul style="list-style-type: none"> • 36 plant preparations that have shown clinical successes • As high as 98% success in herbal treatment of guinea worm eradication in Amasaman treatment program • Serious evaluation of recent clinical findings in successful treatment of diseases such as prostate cancer; cervical cancer; renal calculus; biliary calculus; hepatitis B; heart palpitations and acute bronchial spastic attacks • Collaboration with University of Ghana Medical School in March 1997 for successful clinical trials on sirrapac powder in treatment of osteo-arthritis • Reduction in treatment period of malaria by Nibima from seven days to 3 days 	<ul style="list-style-type: none"> • Clinical trials • Routine consultations • Maintaining statistical data • Compiles names, method of administration, efficacy, potency, side effects, indications and contraindications of all herbal drugs from Centre • Laboratory analyses of specimens such as blood, urine, stool and skin 	<ul style="list-style-type: none"> • Develop training curriculum for allopathic doctors and traditional healers • Closer collaboration with Tetteh Quarshie Memorial Hospital for monitoring of clinical trials there
Scientific Information	<ul style="list-style-type: none"> • Information highway linkage • Literature acquisition • Lending of literature • Editorial and scientific publication • Annual report • Brochure and newsletters • Curriculum development • Compilation • Intellectual property protection 	<ul style="list-style-type: none"> • Information highway linking enhanced • Partial classification of medicinal plants • Organization of seminars and publication of reports and other literature • Application for patents for protection of intellectual property • Centre Library stocked with relevant journals and books for personnel and research use 	<ul style="list-style-type: none"> • Linking of Centre to scientific community through Internet, email etc. • Acquisition of literature with focus on plant medicine • Management of Centre library • Initiation of publications • Processing of patent applications for the Centre's intellectual property • Organizes workshops, seminars, and conferences • Provides taxonomic data on all medicinal plants used at the Centre • Computerizes all Centre activities from database on plants through production and research to services 	<ul style="list-style-type: none"> • Develop website for Centre • Improve data collection on medicinal plants with focus on micro-and-macromorphology • Collation of information for proposed School of Phytotherapy to be set up by the Government of Ghana • Train Scientific Information Officer in patent techniques to ensure efficient patenting • Make computer services available to other institutions

DEPARTMENT	FUNCTIONS	SPECIFIC ACCOMPLISHMENTS	ACTIVITIES	FUTURE PLANS
Administration	<ul style="list-style-type: none"> • Council meetings • Registry • Human resource development • Status, regulations and legal matters • Reception and liaison with accredited unions • Personnel • Public relations • Entrepreneur connections • Estate and transport services 	<ul style="list-style-type: none"> • Development of research departments, especially by helping to recruit, train and retain qualified staff 	<ul style="list-style-type: none"> • Management of council meetings • Deals with correspondence and other documents • Liaison between Centre and other establishments such as Ministry of Health and Attorney General's Office • Staffing processes • Maintenance of physical properties • Repair, maintenance and smooth running of Centre vehicles 	<ul style="list-style-type: none"> • Building of a pilot plant to serve as a bridge between laboratory and industry
Public Services Workers Union	<ul style="list-style-type: none"> • Promoting good working relationships with management • Workers education • Management negotiations • Healthy working conditions • Information dissemination 	<ul style="list-style-type: none"> • Education on selected topical issues such as public speaking techniques and effective leadership skills 	<ul style="list-style-type: none"> • Foster good working relationships between management and labor • Educate workers on issues discussed at management level • Negotiate workers salaries • Ensure healthy and safe working conditions for workers • Disseminate information from management to staff 	<ul style="list-style-type: none"> • More educational programs • Re-write and adopt conditions of service for workers
Accounts Department	<ul style="list-style-type: none"> • Payroll • Store requisitions • Budgeting • Cost and Management • Sales and Services • Internal Audit 	<ul style="list-style-type: none"> • Achievement of financial targets and financial discipline at the Centre • Generated funds internally to supplement Government subvention 	<ul style="list-style-type: none"> • Sustenance of cost control • Raises revenue to supplement Government sources of funding • Periodic financial reports submitted to Auditor General • Payroll • Validation of receipts of materials purchased by departments 	<ul style="list-style-type: none"> • Computerize the accounting systems

NAME OF HERBAL MEDICINE	DISEASE IT MANAGES OR CURES
Decoctions	
Mist Agetum	Infertility in women
Mist Antiaria	Epilepsy
Mist Asena	Arthritis
Mist Bredina	Diabetes
Mist Camber	Hypertension
Mist Cideia	Mild Hypertension
Cough Mixture	Cough
Mist Diodia	Diuretic
Dyspepsia Mixture	Nausea and stomach pains
Herbal laxative	Gentle purgative
Mist Induce	Diabetes
Mist Membrane	Urine retention in men
Mist Modern	Asthma
Mist Jaundice	Jaundice
Mist Morass	Sickle cell diseases
Mist Nibima	Malaria fever
Mist Ninger	Dysmenorrhoea
Pile mixture	Pile (haemorrhoid)
Mist Sodenia	Numbness in extremities
Mist Tonic	Anaemia
Mist Enterica	Typhoid fever
Powders	
Blighia Powder	Diarrhoea and Bleeding Piles
Kenken Powder	Abdominal and menstrual Pains
Lippia Tea	Sedative and mild hypertension
Ninber Powder	Asthma
Olax Powder	Enema (Lumbago)
Aphrodesia Powder	Aphrodesia
Aphrodesia Roots	Aphrodesia
Ritchiea Powder	Migraine and nasal disorders
Ointments	
Anti-Fungal/Anti Bacterial	Skin infections (herpes zoster)
Pile-C ointmentw	Pile (haemorrhoid)
Rheubalm J Ointment	Joint pains
Garibe Ointment	Skin infections
Parasitidal	Skin infections

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Identification and Analysis of Transporter Gene in *Vibrio cholerae*

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ABSTRACT

The ZntB gene product has been shown to be involved in the flux of zinc(II) across the membrane in *Vibrio cholerae*. To demonstrate this activity we amplified the locus VC2334 from the *V. cholerae* genomic DNA. The PCR product was used to construct a plasmid, pAC1, which was introduced into a *Salmonella typhimurium* ZntB mutant (RS1100), which regained the Zn^{2+} -transport activity. Disk diffusion assay and zinc transport assay concluded that ZntB is capable of efflux and influx.

INTRODUCTION

Zinc (Zn) is an essential trace element that is utilized in a wide range of biochemical and biophysical roles. It is the second most abundant transition metal in biological systems (1). It is primarily used to maintain the structural stability of macromolecules and employed as a cofactor for hundreds of metabolic enzymes. In addition, recent studies have demonstrated that zinc plays a prominent role in the regulation of gene expression and receptor-mediated signaling (2-8). While the requirement for zinc is absolute, excess concentration of this cation is highly toxic to all living cells. This toxicity is primarily the result of Zn^{2+} inhibition of the electron transport chain and binding to reactive sulfhydryl groups in proteins (9,10). Consequently, a cell must regulate the intracellular concentration of zinc within very narrow limits while the extracellular concentration changes several hundred folds. Due to its charge Zn^{2+} does not readily pass through the membrane at a rate that is physiologically significant; therefore, its passage into the cell is achieved through the activity of highly selective and highly regulated membrane transport proteins. However, little is known about the molecular mechanisms that cells use to sense and adapt to changes in the extracellular Zn^{2+} environment. This property is particularly important to bacterial pathogens, as they make the transition from environmental growth to growth within a mammalian host (11-14).

The most studied systems for Zn^{2+} homeostasis are those of the Gram-negative enteric bacteria, particularly *Escherichia coli*. It is believed that in *E. coli* Zn^{2+} homeostasis is maintained through the activities of two Zn^{2+} -specific transport systems, whose expression is individually controlled by zinc-dependent transcription factors (15-21). The bacterium responds to zinc deprivation by inducing the expression of the ZnuABC influx system, which is a member of the ABC family of transporters. ZnuA is a periplasmic binding protein, which works in conjunction with the membrane pump encoded by *znuB* and energized through the ATPase activity of ZnuC (15,16). As the extracellular Zn^{2+} concentration increases, the Zn^{2+} -responsive transcription factor Zur represses *znuABC* expression while expression of a zinc efflux protein ZntA is concomitantly increased (17-19). Mutations at *zntA* confer an increased sensitivity to Zn^{2+} , Cd^{2+} , and Pb^{2+} , which are competitive inhibitors of Zn^{2+} efflux through this transport system. Moreover, mutations at *zntA* significantly reduce the virulence capacity of the organism (13-15,17-19). Our laboratory has recently identified ZntB as a third component of this Zn^{2+} homeostatic apparatus. This protein is homologous to the CorA family of cation transport proteins (25) and appears to possess the ability to mediate both the influx and efflux of Zn^{2+} .

We have recently identified a homolog of ZntB in the genomic sequences of the historical pathogen *Vibrio cholerae*. Cholera is a serious epidemic disease that continues to cause major outbreaks worldwide resulting in the deaths of millions. It is propagated mainly by ingestion of fecally contaminated water and food, which are the unfortunate byproducts of poverty and poor sanitation (22,23). Unlike *E. coli*, which is a normal inhabitant of the mammalian colon, *Vibrio cholerae* is a natural inhabitant of a wide range of aquatic niches, and as such must be able to adapt to severe fluctuations in the physiochemical environment. Vibrios are frequently found in marine environments, which contain extraordinary levels of divalent and monovalent cations (24). Many of these cations are competitive inhibitors of Zn^{2+} . Thus, the proteins comprising the Zn^{2+} homeostatic mechanism of *Vibrio cholerae* must possess unique structural or biochemical features that enable this organism to persist in such radically different environments. As the first step toward understanding this complex mechanism, we attempted to clone the ZntB homolog from the *Vibrio cholerae* genome and measure its transport activity.

EXPERIMENTAL PROCEDURES

Bacterial strains and plasmids

Vibrio cholerae O1 was obtained from the American Type Culture Collection. *E. coli* strain TOP10 was used as a routine host for plasmid cloning and propagation. *Salmonella typhimurium* strain 14028s was used as wild type in growth and transport assays. Strain RS1100 as host and pCR®2.1-TOPO® as vector in cloning experiments. For DNA manipulation, plasmids were introduced into *Vibrio cholerae*, *E. coli*, and *Salmonella typhimurium* (ZntBCam14028S) strains by transformation through electroporation.

Media and growth conditions

Bacteria were grown in Luria-Bertani (LB) medium at 37°C with shaking. Ampicillin (Ap), kanamycin (Kan), chloramphenicol (Cm), and X-Gal (5-bromo-4-chloro-3-indolyl-D-galactopyranoside) were added as required at 50µg/ml, 50µg/ml, 25µg/ml, and 40µg/ml, respectively. *Vibrio cholerae* was also maintained on Thiosulfate-Citrate-Bile-Sucrose agar (TCBS).

DNA manipulation

Oligonucleotides were from IDT (Coralville, IA). Restriction enzymes and other DNA-modifying enzymes were from Promega. *Pwo* (from Roche Diagnostics) and *Taq* polymerase were used in PCR tests. Qiagen products (Hilden, Germany) were used to isolate plasmid DNA, gel-purify fragments, or purify PCR products. Chromo-

somal DNA purification, DNA ligation, bacterial transformation, agarose gel electrophoresis were carried out by standard techniques. Genomic DNA was isolated from an overnight culture of *V. cholerae* using Gentra Puregene isolation kit. The *zntB* open reading frame (orf) was amplified using the following oligos: Vibchol for 5'ATGGAGTTTCTCATCG3' and Vibchol rev 5'TTTACGATTGGATTATC3'. The amplicon was cloned into pCR® 2.1- TOPO® cloning vector (Invitrogen). The plasmid containing *zntB* in the clockwise orientation (with respect to the Lac promoter) was named pAC1.

Determination of metal sensitivity

Total growth levels of *V. cholerae* and *S. typhimurium* strains were monitored in L-B medium containing various concentrations of inhibitory $ZnCl_2$ and $ZnSO_4$. Cultures were initially inoculated with 2×10^7 cells that had been washed and resuspended in 0.85% saline. Resistance was determined by monitoring the absorbance at 600 nm of the culture following 16 hr incubation at 37° C with aeration. The minimal inhibitory concentration was defined as the lowest cation concentration, which prevented growth. Growth curves were generated by measuring cell counts over time in N-minimal media containing various levels of $ZnSO_4$. Overnight cultures were diluted 1:100 into appropriate growth assay media and optical density readings at 600nm were made every hour until stationary phase was reached.

$^{65}Zn^{2+}$ Uptake

Overnight cultures were diluted 100-fold into fresh N-minimal media and grown at 37°C with aeration to an optical density of 0.8 at 600 nm. Cells were then washed twice with fresh ice-cold N-minimal media without $MgSO_4$, casamino acids and glucose supplementation. The pellet was resuspended in wash buffer to a final density of 0.4 at 600 nm. Cells were kept on ice until assayed. Uptake was measured in N-minimal media containing 10 mM $MgSO_4$, 300 μM $ZnCl_2$, and 17 μM $^{65}ZnCl_2$. The reaction was initiated by addition of cells at a 1:5 dilution. At intervals, 1 ml samples were removed and filtered through nitrocellulose filters (.45 μm pore size, Whatman). Filters were washed with 5 ml cold wash buffer containing 1 mM EDTA and dissolved in 4 ml Complete Cocktail Fluid (Research Products International). Radioactivity was analyzed by a liquid scintillation counter (Beckman LS5000TD). A background value, obtained from 1 ml of assay without the addition of cells, was subtracted from all readings.

RESULTS AND DISCUSSION

The complete genomic sequence of *Vibrio cholerae* revealed a single open reading frame, VC2334 (PID: g9656901) encoding a highly charged peptide of 327 amino acids homologous to ZntB from *S. typhimurium*. The region of greatest sequence diversity is among

those residues comprising the N-terminal domain, which is presumed to facilitate cation binding. The region of greatest similarity is confined to those residues comprising the second and third transmembrane segments of the small C-terminal membrane domain. The *V. cholerae* locus VC2334 was amplified from genomic DNA and cloned into the plasmid vector pCR2.1. The resulting construct, pAC1, was introduced into an *S. typhimurium zntB* mutant, strain RS1100, and tested for the ability to complement the Zn^{2+} -transport deficiency.

Disk diffusion assay techniques were used as a preliminary screen to identify cations, which are transported by the *Vibrio* ZntB encoded on plasmid pAC1. The insertion mutation carried in strain RS1100 renders the cell hypersensitive to the cytotoxic effects of Zn^{2+} . Expression of pAC1 in this background results in a slight increase in sensitivity, suggesting that the ZntB protein is facilitating Zn^{2+} uptake. In contrast, pAC1 decreased the cell's sensitivity to Cd^{2+} , Co^{2+} , and Mn^{2+} . This phenotype suggests that the *Vibrio* ZntB is capable of an efflux activity (Figure 1).

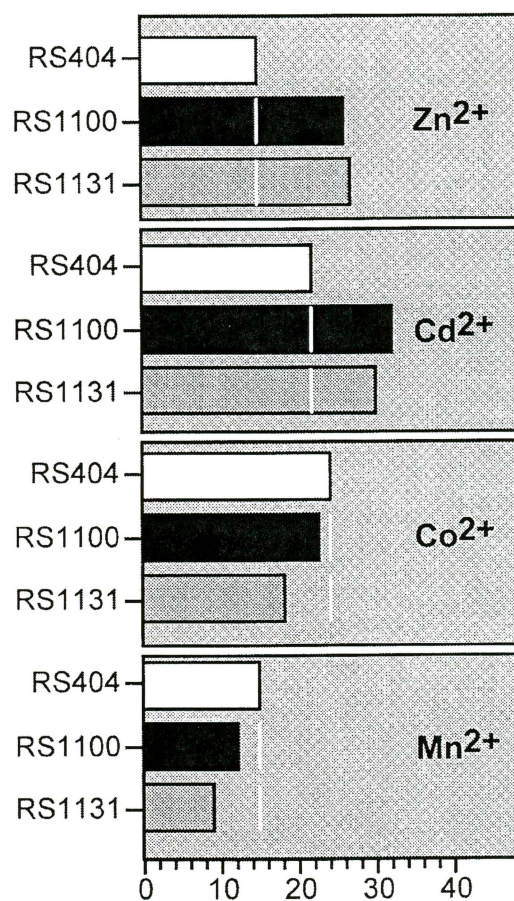


Figure 1: Cation sensitivity by disk diffusion assay

To further evaluate the function of *Vibrio* ZntB, we measured the growth rates of the *zntB* mutant (RS1100) and the strain expressing pAC1 (RS1131) in minimal culture media containing various levels of inhibitory Zn^{2+} (Figure 2).

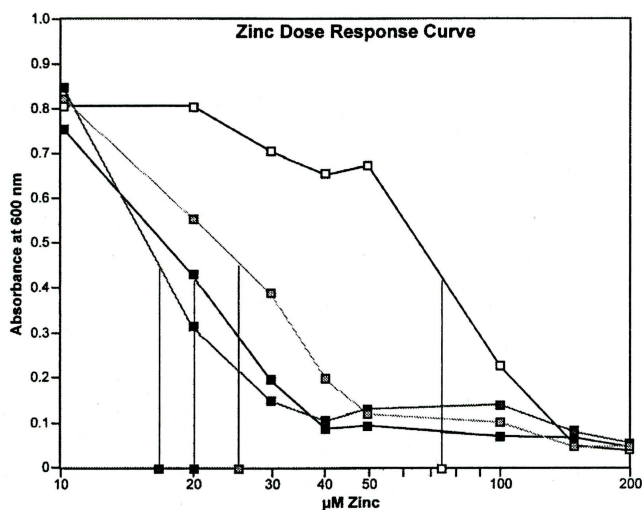


Figure 2: Growth Inhibition by Zn^{2+}

The wild type strain RS404 achieved half maximal growth in media containing 75 μM Zn^{2+} . The *zntB* mutant, strain RS1100, achieved half maximal growth in media containing 20 μM Zn^{2+} . Expression of a plasmid encoding the wild type allele of *S. typhimurium* *zntB* reduced the half maximal growth to 15 μM Zn^{2+} . In contrast, expression of the *V. cholerae* *zntB* raised this value to 25 μM Zn^{2+} .

The transport activity of the *V. cholerae* ZntB was measured in bulk uptake assays using the isotopic cation $^{65}Zn^{2+}$. Uptake was measured in strain 1131 and compared to the activity of the wild type strain (RS404), the insertion mutant (RS1100), and a strain over-expressing the *S. typhimurium* *zntB* allele (RS1102). Uptake was linear for 15 minutes at 20° C. Total $^{65}Zn^{2+}$ accumulation in the *zntB* mutant was 64% less than that observed with the wild type strain. The strain over-expressing *Salmonella* ZntB displayed an increased capacity for Zn^{2+} uptake that was 102% of the uptake capacity of wild type. The transport activity displayed by the strain expressing the *Vibrio* ZntB was 450% greater than that of the *Salmonella* wild type (Figure 3).

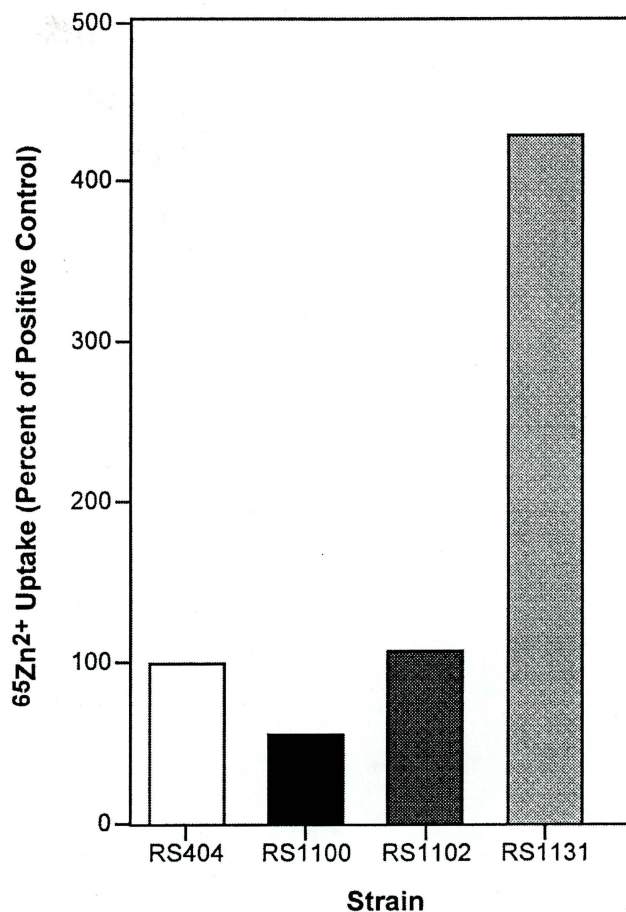


Figure 3: ZntB mediated uptake of $^{65}Zn^{2+}$

This report describes the functional characterization of a novel transporter recently identified in *Vibrio cholerae*. The protein is homologous to ZntB of *S. typhimurium* and appears to share a similar function. In conclusion, our results suggests that ZntB of *Vibrio cholerae* is involved in the transmembrane flux of zinc cation; however, further studies are required to better characterize the activity of this protein.

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Assessment of Career Choices of Adolescents Attending a Career Camp

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ABSTRACT

This study was conducted on 14 middle school students between the ages of 11 and 14 that were participating in a career day camp. A survey was constructed to assess the factors that affected these adolescents' career choices in order to create a program that would broaden adolescents' career opportunities. The survey asked about age of first career aspiration and level of interest, top three career choices, predicted career at age 30, sources of career information, and preferred source when learning about careers. Holland's career topology was used to code career responses, and SPSS was used to analyze the responses. Results showed that the factors that affect career development were age, school system, parental involvement, preferred sources of information, and gender influences.

INTRODUCTION

Why is unemployment high when there is a severe shortage of nurses and radiological technologists? There have been many advances in technology, medicine, and in other fields that have opened up more opportunities in the workforce than ever before. Yet the work force is not as diversified as the opportunities it offers. Research has been done to determine why youth are not pursuing these opportunities, focusing on the way adolescents think, learn, and choose careers. The focus of this research is a group of adolescents from a career camp and their particular career choices. Specifically, I constructed a survey to assess the factors that affected the adolescents' career choices to determine at what age they began thinking about careers, their level of interest, where the adolescents in general learned about careers, which method they preferred for learning about careers, and how their parents' current careers related to their adolescent's career choices. The purpose of this research was to assess the factors that contributed to career choices of adolescents in a career camp in order to create a program that broadens adolescents' career opportunities.

LITERATURE REVIEW

It is important to understand career development in order to help broaden an adolescent's career opportunities. Career development, as other kinds of development, occurs in stages. Research by Borgen and Young (1982) supports a developmental sequence of learning about careers. Their study focused on students in grades 5 through 12. They measured nine variables that related to occupational titles and descriptions. The results showed that younger adolescents were able to identify occupations based on the behavior component of the occupation, and older adolescents were able to identify occupations based on more variables such as interests, career progress, and outcomes of the occupation. The results suggested a developmental sequence according to age in the way adolescents gain occupational information. Yet some believe that teaching adolescents about careers is a waste of time because they do not know what they want at that age and change their minds about careers a lot during adolescence. Research contradicts this belief. Armstrong and Crombie (2000) researched the compromises regarding career aspirations of students in grades 8 through 10. They reported adolescent compromises could be attributed to the inconsistency between their career goal and the careers accessible to them. Another study on career development in relation to first aspirations, parental occupations, and current occupations also showed that adolescents are seriously think-

ing about careers (Trice, 1991). In Trice's study 620 adults were interviewed to identify the age of their first realistic occupational aspirations. Occupations and aspirations were categorized according to Holland's six occupational categories (Holland, 1985). Fifty-nine percent of the participants indicated a first occupational aspiration before the age of thirteen. Forty-one percent of childhood aspirations and 46 percent of adolescent aspirations matched current occupations. Research has shown that career information is obtained in a sequence, which develops with age.

Some believe that during adolescence, when young people are still in the school system and when making career decisions becomes more relevant, the educational institution should play a more vital role in structuring students' perceptions and directing them to different occupational paths. Research shows that different educational experiences instill different abilities and skills in students, making them more or less suited for different occupations (Meyer, 1986). A study done by Clausen (1991) suggests that the school system teaches adolescents that a person's level of intelligence, degree of education, and gender will determine his or her occupation. Those not able to attend college then begin to think they are not intelligent enough to go to college, so they settle for low paying jobs and never advance. Clausen suggests that the school system plays a major in adolescent career development.

Other theories about adolescent career choices involve the acquisition of career information as a developmental process starting with the family. Jordan and Pope (2001) conducted a 17-year study starting at birth on the developmental process of occupational knowledge. They measured occupational knowledge over the years using the Career Maturity Inventory Competence Test and other measures. Their research indicates that there is a sequence in which one obtains occupational information. Results show that in the first stage of life, one's family circumstances have the most effect on career development. Children learn that their mothers and fathers (or brothers or sisters) have jobs outside the house, but may not understand the concept of a "job." As children go to school, they learn more about the concept of a job because they see their teacher every day and learn that teaching is his or her career. Jordan and Pope (1991) also concluded that the career development process begins at birth with the family's socio-economic level being the most important, but not the only, factor that affects development. The cognitive-conceptual attainment by the child, as well as the cognitive maturity of the mother, are major factors of career development. Kracke (1997) examined

236 ninth-grade students and also found that parental authoritative-ness, parental concern with promoting career exploration in their adolescent, and parental candidness with their adolescents on issues of concern were significantly correlated with the level of career exploration of their adolescent, independent of parent's educational levels and the gender of the adolescent. This supports the theory that parents are important in career development.

Some researchers believe adolescent career choice is affected by the way society "gender types" careers, and that adolescents choose traditional gender accepted career choices. Brooks, Holahan, and Gallian (1985) did a 5-week intervention program with middle and high school students on nontraditional role modeling. They tested interest in nontraditional gender occupations, career salience, and vocational-exploration behavior. Their results showed that programs structured to increase interest in nontraditional gender careers were not effective. Evelo, Jessell, and Beymer (1991) reported in their research that adolescents in seventh and eighth grade tended to classify careers as belonging to one gender or another. Boys perceived fewer than half of the careers listed to be gender specific while girls perceived only one third of the careers to be associated with gender. The researchers speculated that these findings were a result of television. Wroblewski and Huston (1987) wrote in the *Journal of Early Adolescence* about the effects of televised occupational stereotypes on early adolescence. They surveyed fifth and sixth graders about masculine and feminine occupations they viewed on television, personally encountered, or those occupations not seen often on television or in real life. Participants knew more about occupations on television and real life occupations than other jobs indicating television served as a source of career information. Occupations seen on television were viewed as more sex-stereotyped than those personally encountered or not often seen. This shows that gender affects career development in many ways.

METHODS

Participants

Participants for this study were chosen from a weeklong summer day camp, which focused on medical occupations. Fifteen middle school students attended the camp. One student left the camp early, which reduced the sample size to 14. Eight of the students were male and six were female. They were between the ages of 11 and 14 and had recently completed sixth, seventh, or eighth grade. The group was ethnically mixed: five White, one Black, five Hispanic, two Polynesian-American, and one Vietnamese-American. The study consisted of a non-randomized, convenience sample. The students participated in field trips and career development activities.

Apparatus

A survey of 10 questions was constructed for this study. Both close-ended and open-ended questions were used. There were also questions that asked students to choose from a list, but they were given the option of adding their own items to the list. The questions in the survey asked about the adolescents' top career choices, predicted career at age 30, parents' current careers, age they became interested in their first career choice, level of that interest, sources of

obtaining career information in general, and preferred sources to learn about careers. Holland's 6 categories of careers were used to code the career responses to the survey which were then input into the Statistical Package for the Social Sciences (SPSS10.0) for analysis.

Procedure

First the participants were separated, one at each table, and each received a survey. Then each survey question was read and explained. The participants had a chance to ask about each question on the survey. The participants were allowed as much time as needed to complete the survey. The completed survey was picked up and not shown to the other participants. The responses were input into the SPSS 10.0 program. The careers listed were coded according to the 6 categories in Holland's career topology: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. For questions that had multiple choices each choice was input as a variable. The open-ended responses were categorized; then each category was input as a variable. Descriptive statistics were used for demographic information, analysis between parents' careers and their adolescent's career choice, and factors that affected their career choice. A Wilcoxon Matched-Pairs Signed-Ranks Test was performed for the age that they became interested in their first career choice and their strength of interest in their first career choice.

RESULTS

Age

Thirteen of the 13 participants reported first career aspirations before age 13. One reported the age of 4 as first career aspiration, 1 reported age 5, 3 reported age 8, 2 reported age 9, 4 reported age 10, 1 reported age 11, 1 reported age 12, and 1 reported age 13. The Wilcoxon's Matched-Pairs Signed-Rank Test showed that there was no significant relationship at $(p) < .05$ level between age adolescents became interested in their first career choice and level of interest of this choice.

General sources of information that inform students about careers

The response listed most frequently was school with 8 responses. Parents and the Internet were the next highest with seven responses each. Tied for third were TV and teacher, with six responses each. Refer to Figure 1 for results of other factors.

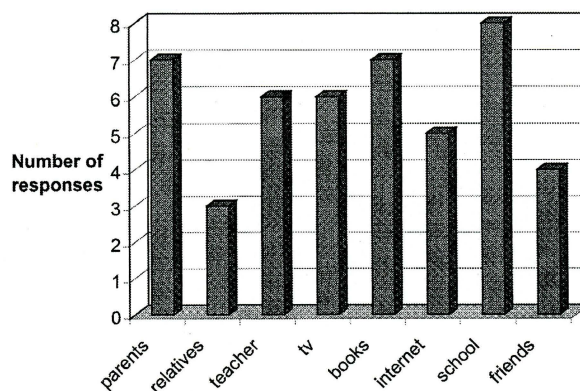


Figure 1. Where Adolescents Learn About Careers
(A group of fourteen adolescents were asked to check off sources where they learned about careers.)

Gender Differences

Both males and females listed school as one of their top choices to learn about careers. Males rated school, parents, Internet, TV, and friends the highest, with four responses each. Books came in second, with three responses, and relatives came in third, with two responses. Females rated books and school the highest, with four responses each. Females indicated parents as the second most frequent selection, with three responses, and TV came in third, with two responses. Refer to Figure 2 for additional information.

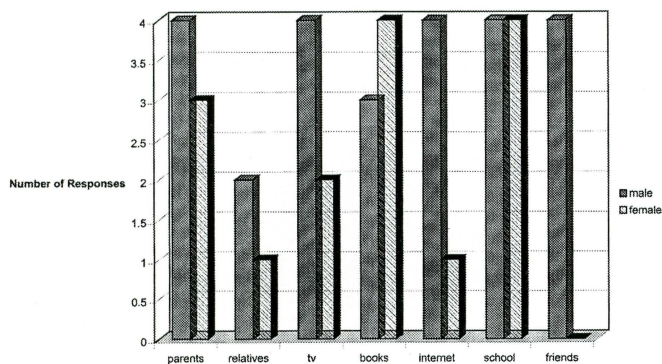


Figure 2. Gender Differences for Sources of Information

(The graph shows the comparison of male and female responses when asked to check off sources from a list about where they learn about careers in general.)

Which source of information do students prefer to learn about careers?

This was an open-ended question. The most frequent response given when asked this question was through a professional in a particular career, with six responses. The second most frequent response was from personal hands-on experience, with five responses. The third most frequent response was through a relative, with three responses. Refer to Figure 3 for other results.

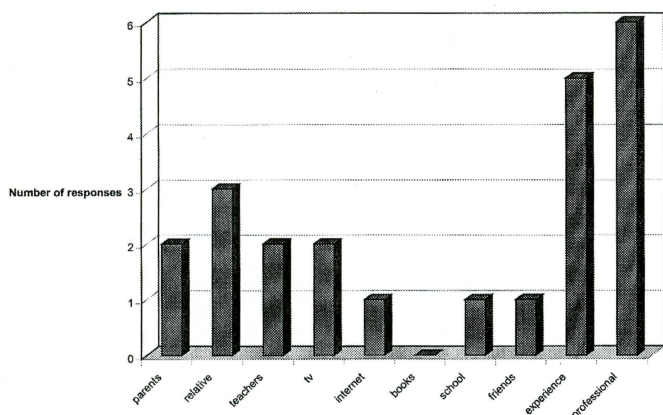


Figure 3. Sources Adolescents Prefer to Learn About Careers

(A group of fourteen adolescents were asked to list sources where they preferred to learn about career and these were their responses.)

Gender Differences

Males preferred to learn about careers through a professional, personal experience, parents, and relatives. Each source received two responses. Females preferred to learn about careers through a professional in a particular career. The second preference was through a personal experience, indicated with three responses. Refer to Figure 4 for results of other factors.

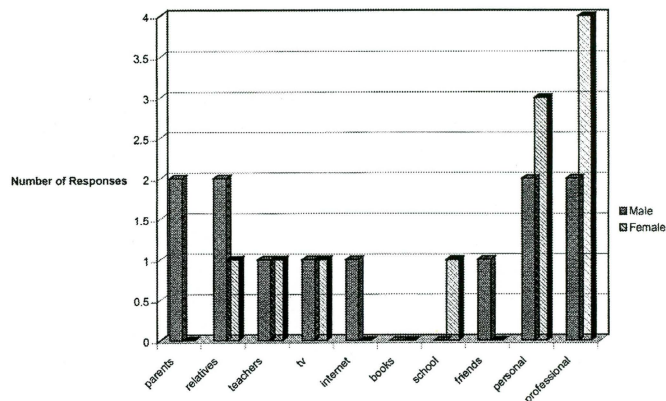


Figure 4. Gender Differences for Preferred Sources of Career Information
(The number of responses can be examined to see differences among males and females regarding which source of career information they prefer to learn about careers.)

Parents' current career and their adolescent's career choices

Using Holland's 6 categories of careers, adolescents' career choices were compared to both parents' current careers. For adolescents, their first choice of career matched the mother's current career twice as frequently compared to as the father's current career. For the adolescents' second choice of career they matched the mother's current career 4 times and only matched the fathers 3 times. At the adolescent's third career choice the mothers matched 5 times and the fathers only matched 2 times. At adolescents choice at what they thought they would be doing at age 30, the mothers matched 6 to 1 compared to the fathers. For an overall total of all adolescents' choices, the mothers' current careers matched 17 times and the fathers' only matched 7 times with their adolescent's career choices. Refer to Figure 5 for other results.

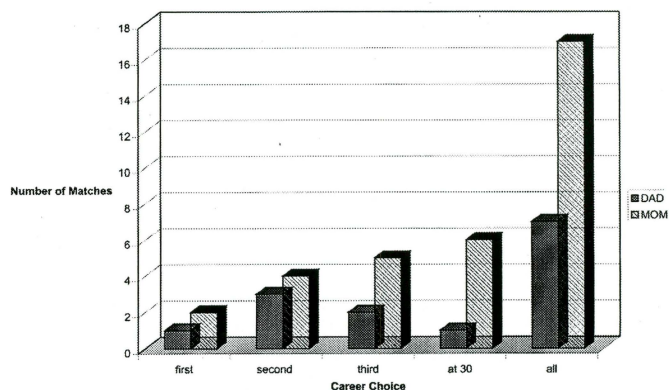


Figure 5. Adolescents Career Choice Compared to Parents' Current Career
(Adolescent's first, second, and third career choice and career prediction at age 30 was compared to their mother's and fathers current careers. All 4 career choices were added to get a total of matches with either parent.)

Gender Differences

For first and second choice of careers, boys matched their father's current career category and girls matched their mother's current career category the most, with three matches each. For the third career choice, girls matched their mothers the most, with four matches. For their career prediction at age 30 career choice, girls matched their mother the most, with four matches. For an overall total of all four career choices, girls matched their mothers the most, with fourteen matches. Boys matched their father's current career category nine times. There were five matches for boys with their mother's current career category, but no matches for girls with their fathers' current career category. Refer to Figure 6 for other results.

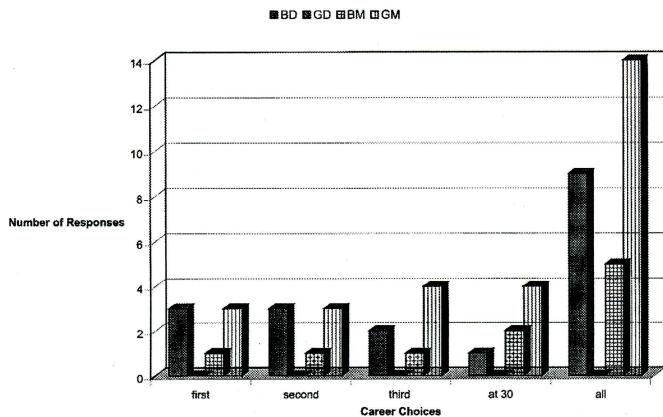


Figure 6. Gender Differences In Adolescent Career Choices Compared with Parents

(BF represents a match between Boys and Fathers. GF represents a match between Girls and Fathers. BM represents a match between Boys and Mothers. GM represents a match between Girls and Mothers. The graph demonstrates the number of matches that were found at each choice and gender differences can be seen.)

DISCUSSION

It is important to understand that no one factor determines career development; rather, many factors working together in an individual's life affect career development. Age is one of the major factors that affects career development. Many believe that stressing careers in early adolescence is not important because young people do not fully understand everything an occupation entails and they will probably change their minds during adolescence because they do not know what career to select at that age. The fact that they change their minds may actually mean that they are considering careers more seriously than many believe, as the research by Armstrong, et al. (2000) suggests. Children may want to be professional basketball players, and then in adolescence change their minds because they realize that they may not grow to be 6-foot 5-inches tall when both parents are barely 5-foot 3-inches. In our present study, 13 of the 14 participants reported a first career aspiration before the age of 13 and as early as age 4. Another study on career development showed that 59 percent of 620 adults interviewed also indicated a first career aspiration before the age of 13. The results also showed that 41 percent of a child's and 46 percent of an adolescent's first career aspirations matched the adult's current career (Trice, 1991). This suggests, along

with the present study, that students decide on careers at an early age; therefore, students should be taught about careers from an early age.

The way the school system teaches career information is another factor to take into consideration when looking at career development. School plays a major role in where adolescents obtain career information since most of adolescence is spent in school. When the adolescents in this group were asked to identify where they learned about careers, school was the most frequent response, and books one of the second most frequent. But when adolescents were asked which method they would prefer to learn about careers, their number one response was through a professional in a specific career and their second most frequent was through personal experience. School and books were among the least preferred methods to learn about careers. These results show a discrepancy in the way adolescents learn about career information and the way adolescents prefer to learn. Perhaps adolescents are able to learn more through a professional because they are able to interact with a person face-to-face and are able to ask questions when that person comes to talk to them. Meyer's (1986) research suggests that the educational system instills different skills and abilities in each student, thus making that individual more or less suitable for a particular career. Perhaps if the school incorporates individual learning styles in the way they teach career information, adolescents may feel more prepared for making wise career choices and thus would broaden their career opportunities.

The first stage of career development begins with the family. The concept of a career is introduced to the child as he or she learns that mother and father have to go to work. Kracke's (1997) research showed that parents have a strong influence on their adolescent's career choice. This current study confirms that parents influence their adolescent's career choices. The adolescents in the study were asked to indicate their top three career choices and their career prediction at age 30, and the responses were compared to parents' current careers. Results showed 24 matches between an adolescents' career choices and their parents' current career. The results also showed that mothers have more influence on adolescents' career choices than fathers. Adolescents' career choice matched their mother's current career category more than their father's two to one. Both boys and girls were more likely to match their mother's. A previous study also found that the mother-daughter relationship contributed to the girls' career aspirations (Rainey & Borders 1997). In the present study no girl's career choice matched their father's current career category for any career choice. While it appears that mother's career choice influences both boys and girls, the influence is much greater on girls. This finding is similar to that of another study done by Jordan and Pope (2001) that indicated the mother's cognitive maturity was a major factor of career development. The school system should take into consideration that career development begins with the family and that parents have a strong influence on this development, and perhaps integrate parents at an early age into the school curriculum on teaching career information.

Since the day one is born society and culture dictate gender differences, that is at birth they place a pink hat on girls and a blue hat on boys. In this research, gender differences can be seen in first ca-

reer choice and career prediction at age 30. The boys' first career choice differed greatly from what they thought they would be doing at 30, while girls tended to be consistent with all their career choices. This research also showed gender differences in the way adolescents learn about career information. According to this research, girls did not choose friends as a source of career information, although it was the most frequently reported source for boys. Males chose television as sources of career information twice as frequently as females. Previous research also shows that television is a source of career information, and that it gender stereotypes occupations (Wroblewski & Huston, 1987). Our findings are also similar to those of other researchers that indicated gender differences. For instance, Clausen (1991) stated that gender expectations continue to provide a rough script of the career each gender is expected to pursue, and in Kelly's (1989) 17-year study results showed that there was a difference between genders at all three of the points that the participants were measured. Gender plays a role in adolescent career choices in many ways – from the way each gender learns to what occupation each gender is expected to pursue. Each gender seems to learn a different way and prefers to receive career information through different sources. The school system should take into consideration not only age, parental involvement and learning style, but also gender.

CONCLUSION

The results of this study show that career development starts at an early age, is related to gender and parental involvement, and that adolescents have definite preferences for learning about careers. If a student is tested at an early age to see which way they prefer to learn about careers, the school system can group students in a program specialized for that particular student's preferred learning style. The program should also be structured to include parental involvement. Perhaps parents could be encouraged to spend time explaining their careers to their child and encourage her/him to explore different careers. Parents can also be invited to become involved in career day with their child. In this way, the parents and the school system can work together to broaden opportunities for the adolescent to learn about careers through personal contact, the preferred source of information for this group of adolescents.

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Development and Characterization of MALDI Probes of Self-Assembled Monolayers and Peptide Interaction

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Mentor: Dr. Gary Kinsel, Department of Chemistry and Biochemistry

ABSTRACT

Various substrates were explored to determine the most effective surface properties of selective MALDI probes, via Self-Assembled Monolayers. Three types of surfaces were examined; silver sputtered on to glass, gold evaporated on to glass and gold evaporated on to PET. All surfaces were exposed to the same conditions. Both surfaces on glass disintegrated after exposure to a solution of copper chloride. After extensive characterization, the most versatile substrate appeared to be gold evaporated on to the PET.

INTRODUCTION

Matrix Assisted Laser Desorption/Ionization Mass Spectrometry (MALDI-MS) is a very sensitive technique utilized in molecular analysis. MALDI probes that demonstrate specific selectivity for a particular functional group are extremely desirable. Previous studies have demonstrated that modifying the surface chemistry of probes can increase the selectivity of the MALDI process towards certain molecules. Self-Assembled Monolayers (SAMs) are an ideal method to control surface chemistry.

Self-Assembled Monolayers are made from alkane thiols (long carbon chains with a sulfur group on one end) that demonstrate a unique property of self-orientation when introduced on to gold or other metal surfaces. The sulfur bonds covalently to the metal substrate and the functional group is presented as a new surface. The functional groups can be varied to meet the needs of the specific project. In this project, a 16-carbon chain with a carboxylic acid as the exposed functional group will be used. An almost identical monolayer differing only in exposed functional group is utilized as a control.

Phosphorylation is an important biological function in which proteins are modified by the addition of a phosphate group. This basic process changes the form of the protein, thus changing the function. By developing MALDI probes that are selective towards phosphorylated peptides we will be able to closely examine sensitive biological functions such as phosphorylation.

This research will result in the production of selective probes, via SAMs, for use in investigation of biological functions, specifically the process of phosphorylation. Three different metal substrates are explored. The first metal substrate examined is silver sputter coated on to a glass cover slip. The second metal substrate is gold vapor evaporated on to similar glass cover slips. The third metal substrate is gold vapor evaporated on to Poly(ethylene terephthalate) (PET). All substrates will be developed and characterized utilizing various methods explored further in this paper.

METHODOLOGY

Substrate Preparation

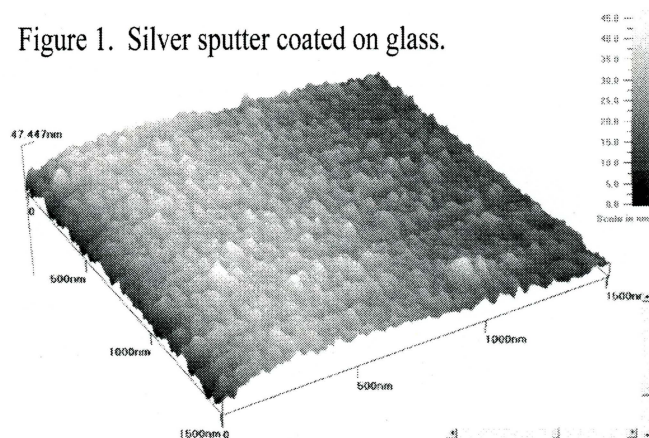
All substrates were extensively cleaned with methanol prior to vapor deposition of the metals. Silver was vapor deposited on to the glass utilizing a vapor sputtering apparatus located in the Material Science Department at The University of Texas at Arlington (U.T. Arlington). Gold was evaporated on to the glass and PET utilizing a vapor evaporator located at the NanoFab Center also located at U.T. Arlington.

Self-Assembled Monolayers were prepared as a 2mmol solution in ethanol. All surfaces were left in the SAM solution for 24 hours. Upon removal from solution all samples were dried in a stream of nitrogen gas and kept in a desiccator until ready for use. Specific samples were then placed in copper chloride solution for copper impregnation.

Surface Characterization

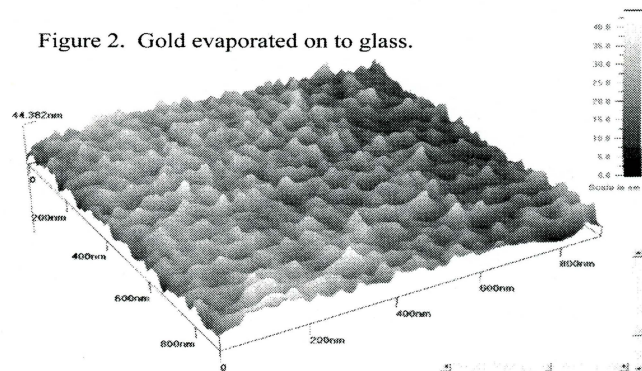
The first step in the characterization process was examination by an Atomic Force Microscope (AFM). The AFM is a way to visually inspect the substrates for obvious defects prior to the SAM preparation step.

Figure 1. Silver sputter coated on glass.



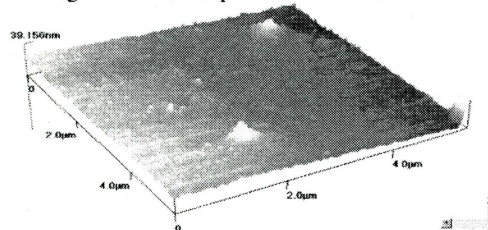
The silver sputter coated on to the glass was rough. The height of the peaks displayed was 47.447 nm. As shown below, the roughness was approximately the same for all of the substrates examined. The height of the gold peaks, as shown below, is 44.382 nm.

Figure 2. Gold evaporated on to glass.



The gold evaporated on the PET appears to be smoother but in reality is not. The sample size of the scan is larger. However, the peaks seem to be smaller, measuring only 39.156 nm.

Figure 3. Gold evaporated on to PET.



The second method employed to analyze the experimental surfaces was X-ray Photoelectron Spectroscopy (XPS). XPS relies on the principle of the photoelectric effect. Electrons of a surface are ejected when photons are directed to the substrate. A spectrum is derived from the photoelectrons emitted specific to the chemical composition of the substrate.

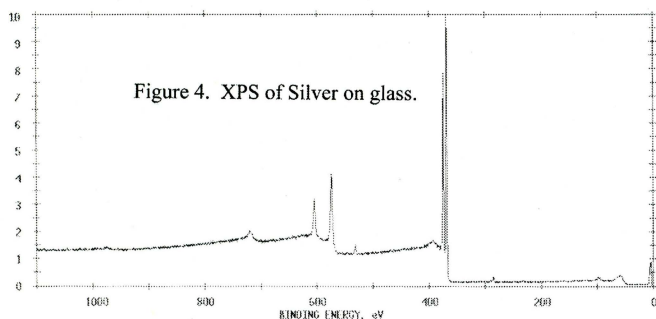


Figure 4. XPS of Silver on glass.

Figure 4 is a sample spectrum of the XPS scans generated. The peaks at the different binding energies represent the specific elements present in that sample. In this instance we see a large peak at 368 eV and two smaller peaks at 503 eV and 604 eV. These peaks are characteristic for silver. There is also a small peak at 284.6 eV, which represents that carbon is present in the sample. The amount of carbon is small in this spectrum.

The third step in the surface characterization process was measuring contact angles of the various surfaces. The SAM surfaces were prepared and a drop of distilled water was placed on various areas of the surface. A goniometer was utilized to measure the contact angle between the liquid and the solid surface. Paraffin was utilized as a control due to its extreme hydrophobic nature.

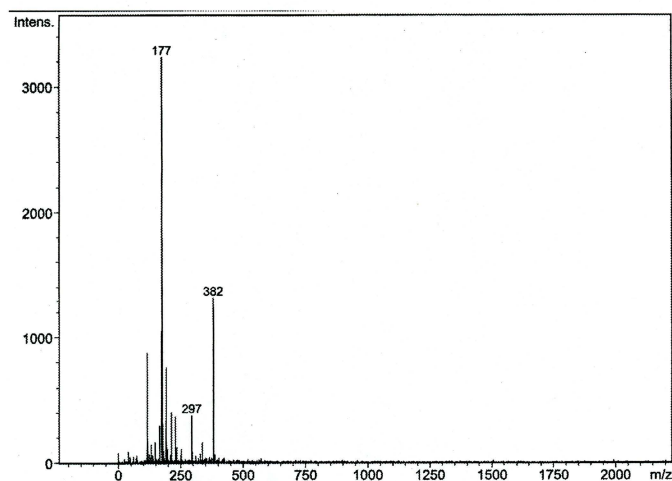
	Paraffin	Gold on glass	
		CH3	COOH
	92	80	47
	93	81	51
	93	81	51
	95	80	53
	94	80	53
	94	79	53
	96	80	51
	96	79	49
Mean	94.1	80.0	51.0
Standard deviation	1.4	0.7	2.0

	Gold on PET		Silver on glass	
	CH3	COOH	CH3	COOH
	81	57	86	72
	83	55	85	73
	83	42	86	52
	82	43	86	50
	82	50	86	64
	80	51	88	67
	85	53	81	62
	86	54	83	62
Mean	82.8	50.6	85.1	62.8
Standard deviation	1.9	5.1	2.0	7.8

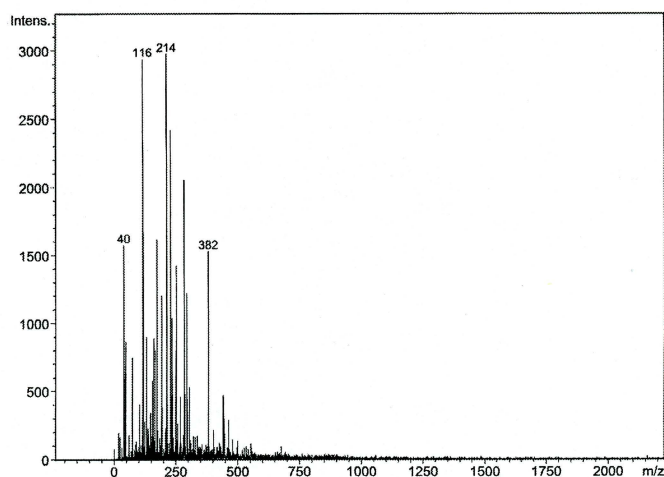
Table 1: Contact Angles for the Experimental Surfaces with Methyl and Carboxylic Acid Terminated SAMs

The various samples taken represent the uniformity of the monolayer formed and also allows for experimental error. A methyl terminated SAM should demonstrate a high level of hydrophobicity. The carboxylic acid terminated SAM should demonstrate a much lower level of hydrophobicity. The results, above, demonstrate that this is the case. Our raw data also suggests that our SAMs did not form as well as hoped and that holes are present in our monolayers. The most affected substrate seems to be the carboxylic acid terminated SAMs. The data suggests that more care must be taken to form ideal surfaces comparable to the methyl terminated SAMs.

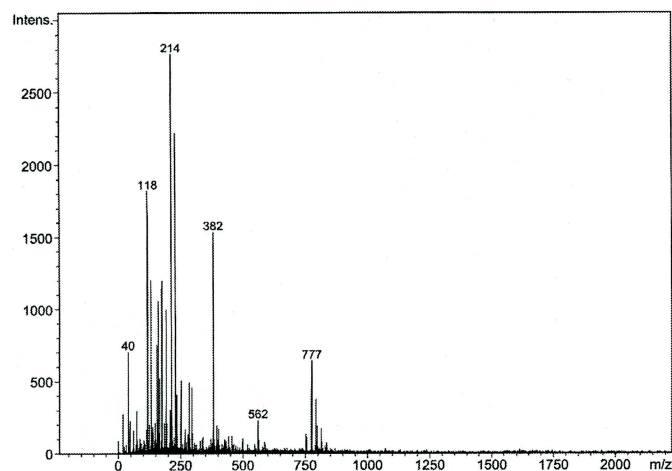
After determining the contact angles for the various solutions, all surfaces were soaked in a copper chloride solution to prepare for impregnation. The only surfaces to survive the immersion were the PET surfaces. All the glass surfaces disintegrated in the ionic solution. The PET surfaces were then treated with a phosphorylated peptide and a matrix solution of a known mass. Mass spectra were obtained from each sample and analyzed. The phosphorylated peptide has a characteristic peak at 748.7 mu. The matrix demonstrates characteristic peaks at 214 mu.



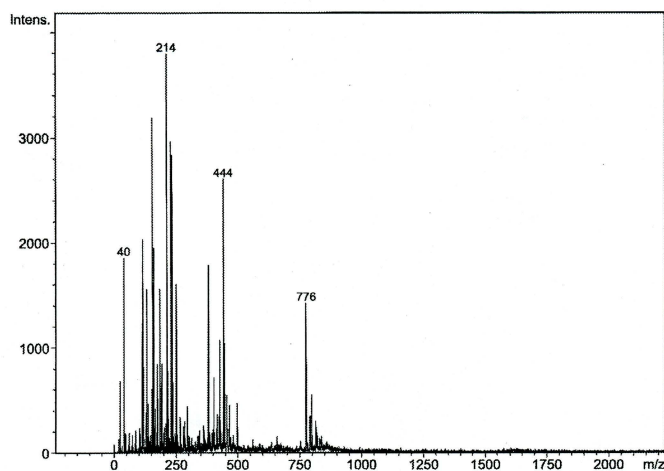
Spectra 1. Methyl terminated SAM without copper.



Spectra 2. Methyl terminated SAM with copper



Spectra 3. Carboxylic acid terminated SAM without copper



Spectra 4. Carboxylic acid with copper.

RESULTS AND DISCUSSION

As suspected, the carboxylic acid terminated SAMs demonstrated a higher affinity for the phosphorylated peptides introduced to the surface. The methyl terminated SAMs did not demonstrate an affinity for the peptides at all. The absolute intensity for the phosphorylated peptide on the copper impregnated carboxylic acid SAM surface was double the amount for the non-copper impregnated surface. One possible interpretation of the results could be increased surface interaction of the peptides with the copper impregnated surfaces. However, additional research will need to be conducted to support this hypothesis. Further studies will utilize the PET as the substrate for our SAM surfaces because of its evident stability. Further research will concentrate on the production of carboxylic acid terminated SAMs and a viable way in which to impregnate the surface with copper.

ACKNOWLEDGEMENTS

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Survey of Equine Infectious Anemia Viral Strains in the State of Texas

Jennifer Williams

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ABSTRACT

Equine Infectious Anemia Virus (EIAV) is a retrovirus belonging to the lentivirus subfamily. Although “fewer than 1 percent of the 1 million horses tested annually are found to be carriers,” the virus is being studied, and has been since 1904, because it provides an animal model for the replication and pathogenicity of other retroviruses in the lentivirus family.^{3,5} Another member of the lentivirus subfamily of retroviruses is the human immunodeficiency virus (HIV); therefore, studies of EIAV may aid future efforts to develop a vaccine for AIDS. The EIAV strain currently under investigation is a lab strain; however, we do not know how closely this strain resembles wild-type strains across Texas. The purpose of this study is to examine the sequence and structure of the naturally occurring EIAV strains in Texas compared to: (1) the Wyoming17 lab strain and (2) a strain used in China as a vaccine since 1978.

INTRODUCTION

Equine Infectious Anemia Virus (EIAV) is a retrovirus that infects about 2,000 horses per year in the United States.⁵ There are three stages of the viral infection: (1) acute, “characterized by fever and hemorrhages,” (2) chronic, which is marked by cycles of remissive and symptomatic states; and (3) inapparent, or asymptomatic, a state in which the horse shows no symptoms of illness but still is a carrier of the virus.^{5,7} Symptoms may include “fever, depression, decreased appetite, fatigue or reduced stamina, rapid breathing, sweating, blood shot eyes, swelling . . . [and] colic abortion in mares.”³ Most of the infected horses in the United States “...(85% to 95%) are asymptomatic with owners that are unaware of their infection,” and even though asymptomatic horses are life-long carriers of the virus, the viral concentration in their blood is so low that they are not considered an immediate danger to uninfected horses.⁴ The “acutely and chronically infected horses” have exponentially higher viral blood concentrations and “are considered the most dangerous to uninfected horses;” however, all horses who have tested positive for the EIA virus are “treated as if they pose the same risk for transmission of the virus, even though at certain moments there may be million-fold differences in the virus content of the blood of individual test-positive, infected horses.”^{2,4}

There are statutes and regulations in most U.S. states that require testing and reporting of equine infectious anemia (EIA).³ The 76th Legislature in 1999 declared that a person who transfers ownership of an “equine animal” without testing for EIA commits an offense of a Class C misdemeanor.¹ The laws are stringent because there is not yet a vaccine for the virus in the United States and there is no cure for the disease. Most animals that contract EIA face euthanasia; however, it is also legal to brand them and quarantine them at least 200 yards from other animals.⁵

Transmission of the virus requires blood-to-blood contact. Using blood-contaminated equipment on uninfected horses can result in the transmission of the virus, but most often transmission is the consequence of horse flies and deer flies, which inflict a painful bite.² The bite causes a defensive movement by the horse, which interrupts feeding, and the biting insect then attacks the same horse or another horse in close proximity, possibly infecting the second horse. “Studies have shown that 99% of the horseflies, when interrupted in feeding would be expected to return to the original host when separated by as much as about 50 yards from other horses.”⁴ This is one reason

why infected horses are quarantined at least 200 yards from other animals.⁵ “There is an estimated million-fold greater risk of acquiring EIA by co-mingling with untested horses than being maintained 200 yards or more from quarantined test-positive asymptomatic carriers in areas of the country where infection is expected in 1 of 10,000 horses.”⁴

When a horse is infected, the virus first attacks by recognizing and binding to a receptor on the surface of the target cell, the peripheral blood mononuclear cell (PBMC). After attachment, the viral particle fuses with the cell membrane and the viral contents are discharged into the interior of the cell. The viral RNA is then transcribed into complimentary DNA (cDNA) by reverse transcriptase. The cDNA migrates to the nucleus of the cell, where it is inserted into the cellular genome by integrase. The integrated DNA becomes a permanent addition to the cellular genome, now called a provirus. This newly formed provirus is transcribed and then translated into a long protein, which is cut into the smaller viral proteins by protease. The viral proteins are packaged together and bud from the cell, forming new viruses that then infect more cells.

Several areas of the EIAV genome were explored in this study, including the LTR, GAG, SU, and S2 regions. The Long Terminal Repeat (LTR) regions on either end of the genome are important for viral gene expression and are the targets of the viral integrase. This region is reported to exhibit extensive nucleotide variation.⁸ The GAG gene, a region that shows little nucleotide variations, encodes four proteins – p9, p11, p15, and p26 – that are abundant in the virus particle and determine particle structure.⁸ The SU region, found within the envelope gene, encodes the surface unit envelope protein (gp90).⁸ SU mediates attachment of the virus to host cells and is a major target of the immune response. The function of the second of the open reading frames, S2, is unknown. The organization of these genes and their products can be seen in Figures 1 and 2.

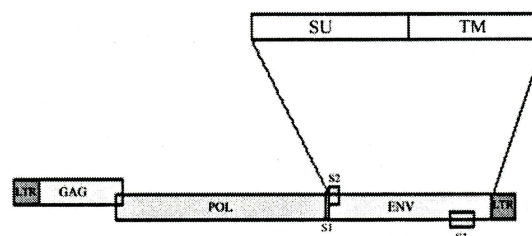


Figure 1. Structure of EIAV Genome.

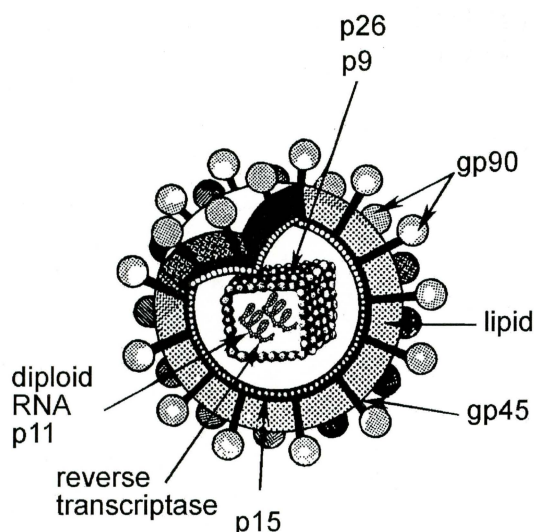


Figure 2. Structure of EIA Virus.

METHODOLOGY

Purification of DNA Samples

Several veterinarians across the state of Texas agreed to collect blood samples from horses naturally infected with EIA and sent them to the University of Texas at Arlington. These blood samples were purified for the peripheral blood mononuclear cells (PBMC), where viral DNA is located. The blood was mixed with PBS to increase volume and then a lysis buffer consisting of 0.32-M sucrose, 100 mM Tris-HCl, 1M MgCl₂, and 1% TritonX-100 was added to lyse the red blood cells. The samples were spun in a centrifuge to pellet the PBMC's, and this process was repeated several times until the pellets were completely white.

The purified cells were then themselves lysed to release the chromosomal DNA. A PCR buffer was prepared that contained 10mM Tris-HCl, 0.45% NP40, and 0.45% Tween20. Each sample was re-suspended in 200 mL of this detergent buffer to which 3 mL proteinase K had been added. The samples were incubated at 60°C for one hour and then the proteinase was inactivated by placing the samples in a heat block set at 90°C for 10 minutes. The purified samples were stored in the freezer at -20°C.

Polymerase Chain Reaction and Gel Purification

Polymerase chain reaction (PCR) was used to amplify the EIAV sequences from each sample. The PCR product was run through an agarose gel containing ethidium bromide and viewed over a UV light source. The DNA fragments of correct size were cut from the gel and purified using either QIAquick Gel Extraction Kit or QIAEX II Agarose Gel Extraction protocol (Qiagen, Valencia, CA).

Cloning

A Topo-TA cloning kit (Invitrogen, Carlsbad, CA) was used to ligate the gel-purified PCR product to a plasmid vector (pTOPO) containing ampicillin and kanamycin resistance genes; the ligations were then used to transform competent *E. coli* cells. A master mix of

vector, salt solution, and water was prepared in a 1:1:1 ratio and 1 mL of this mix was added to 2 mL of PCR product. The ligation reactions were incubated for 30 minutes at room temperature and then added to 8mL competent cells. The reactions were allowed to incubate another 30 minutes on ice. After incubation the samples were heat shocked in a water bath of 42°C for 30 seconds. Recovery from the transformation was facilitated by the addition of 100 mL room temperature SOC medium to each reaction tube. The tubes were placed in a shaker at 37°C and shaken at 200 rpm for approximately one hour.

After the one-hour incubation period, the cells were plated on Luria-Bertani agar containing 50-mg/mL kanamycin and pre-spread with 40 mL X-Gal. The cultures were grown at 37°C overnight. White colonies were chosen and grown in nutrient broth containing 50 mg/mL kanamycin and 50-mg/mL ampicillin on a shaker at 37°C overnight.

Plasmid Preparations and Sequencing

The plasmids were purified from *E. coli* cultures using a QIAprep8 Turbo MiniPrep Kit (Qiagen). A small amount (5 mL) of each of the plasmid preparations was then digested with the restriction enzyme EcoRI. A master mix was prepared that contained 1 mL 10X RE buffer, 0.3 mL EcoRI enzyme and 3.7 mL dH₂O per reaction; 5 mL of the plasmid preparation was then added to 5-mL master mix and the reaction was incubated for one hour in a water bath at 37°C. The samples were then run on gels to screen for the appropriately sized products.

The desired plasmid preparations were prepared for sequencing reactions by ethanol precipitation. A tube containing 5 mL plasmid, 12.5 mL absolute (200%) ethanol, and 0.5 mL 3 M sodium acetate was prepared for each sample and placed in a freezer at -80°C for 20 minutes. The samples were then centrifuged at maximum speed for 5 minutes and the supernatant was discarded. The pellets were washed with 50 mL 70% ethanol and centrifuged again for 1 minute. The supernatant was again discarded and the samples were allowed to air dry for 30 minutes. DNA sequencing reactions were then performed and separated on a LiCor sequencer. The data was analyzed using the DNASTar software package (DNASTar, Inc., Madison, WI).

RESULTS

The SU region was amplified successfully for 10 samples. Two samples successfully amplified for the LTR region, but attempted PCR amplification of the other regions of interest (GAG, and S2) did not produce the correct fragments and therefore were not analyzed. A set of SU wild-type sequences from six animals was compared to the existing Wyo17 strain and Chinese vaccine strain, as shown in Figure 3.

Most of the SU variability for the wild-type strains was found in the principle neutralizing domain (PND), shown in Figure 4. This area does not have well-conserved sequence homology, so the variability is not surprising. In the PND region, although Texas samples TX A4-5 B and TX A4-9(1) were similar to the Wyoming strain, samples TX A4-3(5)A, TX A4-3(5)B, TX001A, and TX001B all had the same 3 amino acid deletion, and sample TX001C had a 14 amino

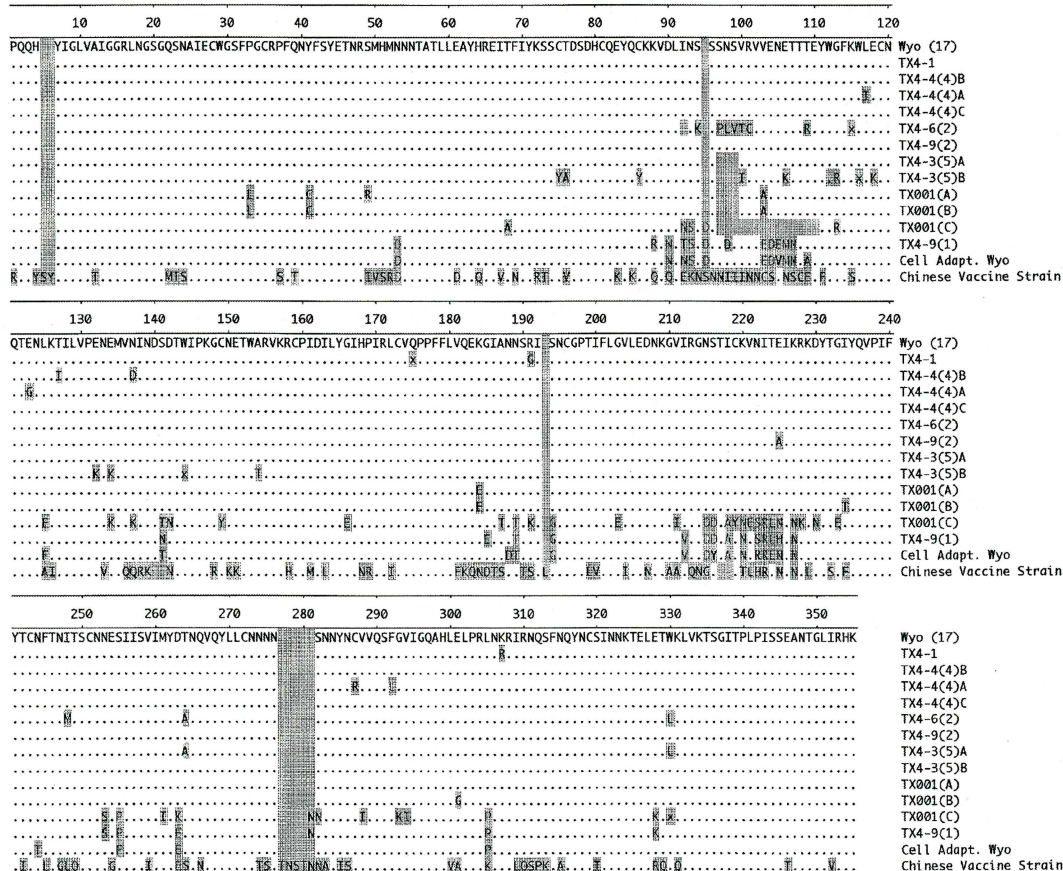


Figure 3. Alignment data from SU region.

acid deletion. The Chinese vaccine strain differed considerably from both the Texas samples and the Wyoming strain in the PND domain, exhibiting an amino acid insertion and many amino acid substitutions.

There was also some variability in the SU hypervariable domain. Texas samples TX001C, TX A4-5 B, and TX A4-9(1) were all similar to the Wyoming strain. The Chinese vaccine strain, however, differed again from both the Texas samples and the Wyoming strain with 2 amino acid deletions and many amino acid substitutions.

The amino-terminal and the carboxyl-terminal domains of EIAV gp90 (SU) are both conserved domains, also shown in Figure 4. The wild-type Texas samples differed very little from the Wyo17 consensus in both the amino- and carboxyl-terminal domains. The most variability from Wyo17 in the amino-terminal domain was found in Texas sample TX001A with three amino acid substitutions, while Texas sample TX001C had the most variability from Wyo17 in the carboxyl-terminal domain with five amino acid substitutions. The Chinese vaccine strain, however, had much more variability in the amino-terminal domain when compared to both the Texas samples and the Wyoming strains, with a 2 amino acid insert and many amino acid substitutions. The carboxyl-terminal domain of the Chinese vaccine sequence also showed great variability from both the Texas samples and the Wyoming strains.

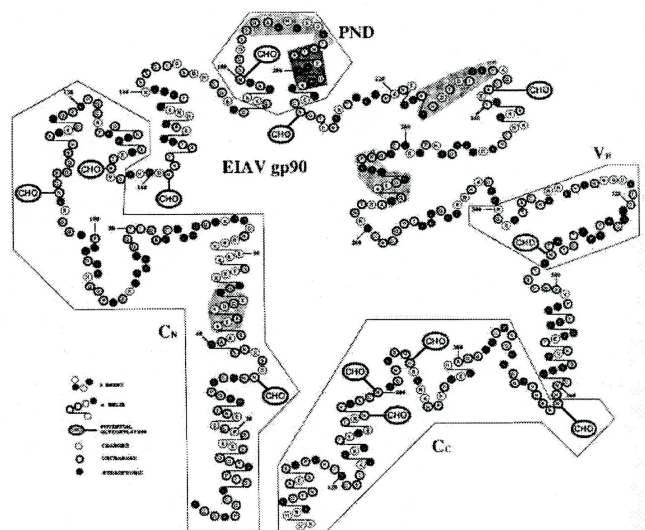


Figure 4. "Structural model of the surface unit (SU) glycoprotein of EIAV (gp90).

The conserved and variable domains defined by Payne *et al.* are designated as follows: C_N, conserved amino-terminal domain; C_C, conserved carboxyl-terminal domain; V (not boxed), variable domain; VH, hypervariable domain. A region functionally similar to the HIV-1 V3 loop is indicated (PND).¹⁸

DISCUSSION

The analysis of the SU domain of EIAV Texas samples shows a great deal of homology to the Wyoming strain, indicating that possible contamination of the wild-type Texas samples with the Wyo17 lab strain seemed feasible. However, there was sufficient variability in the comparison of the Texas samples to the Wyoming strain to sustain that there had not been contamination, but that they were genuine wild-type samples. This suggests that animals in Texas may be infected with viruses similar to the previously characterized Wyo17 EIAV strain.

In ongoing research, the domains of LTR, GAG, and S2 will be recovered and analyzed. Once they are successfully cloned and sequenced, they also will be compared to the Wyoming and the Chinese vaccine strains for sequence homology and variability. This new information will give further insight to the relationship between wild Texas strains and lab strains.

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Women and the AIDS Pandemic in South Africa: Prevention Policies

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ABSTRACT

AIDS has been prevalent in South Africa for a very long time and the HIV/AIDS crisis has taken a devastating toll among women in South Africa. Previous studies show that avenues taken by the South African government to combat this treacherous disease have not been successful at halting its spread to women. Feminist analyses have done much to extend the understanding of AIDS beyond the biomedical aspect to include the social dimension of the AIDS issue. However, such frameworks have not translated easily into realistic social responses. The paradox of women being seen as responsible for HIV prevention, while they lack the power to implement safe sex behavior, remains. This paper includes a meta-analysis and literature review, in addition to research on the effectiveness of South African governmental HIV/AIDS prevention programs targeted toward women. This paper also examines private sector programs (what works and does not work, and related issues), directed toward reducing the AIDS pandemic among women in South Africa. The paper concludes that AIDS prevention policies in South Africa must be anchored in the harsh context of the social and economic conditions of women in the South African society.

INTRODUCTION

The human immunodeficiency virus and acquired immunodeficiency syndrome (HIV/AIDS) crisis has taken a devastating toll in South Africa. An estimated 16 million Africans have died from HIV/AIDS. Two-thirds of the HIV infected population worldwide, that is approximately 30 million people, are in Sub-Saharan Africa. It is estimated that over the next 20 years, AIDS will claim more lives than all the deaths of the wars in the twentieth century (House of Representatives, Hearings, 2000). HIV/AIDS is damaging to South Africa's economic development. It absorbs sparse resources. It strikes down people in the prime of life. It destroys social cohesion. The AIDS epidemic is having an especially alarming impact on women in South Africa. Because of women's lack of economic and social power, Africa is the only region in the world in which women are infected with HIV at a higher rate than men. The disease in South Africa differently impacts women because 55 percent of all new infections in South Africa occur among women. According to the data compiled by United Nations Program report (1999: 2), "For every ten African men with the disease there are twelve infected women." Of the 55 percent, it is estimated that 22.4 percent of pregnant women are currently infected, with close to 1700 new infections per day (United Nations Program report, 1999). Vulnerability to the disease is especially high among young girls because of the lack of education, inadequate access to information and generally lower economic and social status.

There have been many attempts to deal with the epidemic, ranging from life skills programs in schools, to training health care workers and implementing general AIDS-awareness campaigns. This has created something of a paradox. Despite the high awareness of HIV/AIDS in South Africa, high levels of stigma, prejudice and denial still exist. The awareness has not been translated into behavior change or into great community mobilization to get involved and campaign for an AIDS-free country. The role of the government has also been controversial. The debates conducted among the government, media and various community groups have accomplished two things. They have raised the profile of HIV/AIDS in the public consciousness and have created some debate about the impact of HIV in South African development. However, the linking of AIDS to poverty as an agent that has caused some confusion and a reluctance to admit that behavioral change is crucial. Future progress demands a political commitment on the continent.

In my research, I recognized the multiple barriers to women's empowerment in the areas of sexuality and gender relations. It is one thing for women to organize collectively to raise awareness of the dangers of AIDS and its mode of transmission, to raise self-esteem and muster the courage to say no to unwanted sexual contact. It is quite another to challenge men's power in the lonely moment of private relations and to negotiate for safer sex. This is a major problem that women in South Africa have faced for decades. There is no doubt that prevention efforts must overcome significant cultural, educational and resource challenges before the battle can be won.

This paper examines HIV/AIDS prevention policies in South Africa pertaining to women, focusing upon we know about preventive techniques in the female population in South Africa. Various aspects of the problem will be examined, and the particular situation of women will be assessed sociologically, politically, and economically in respect to gender relations. Also, I will discuss how various aspects of HIV/AIDS infection affect women (whether it is physically, mentally, socially and/or emotionally) on a daily basis. The categories that I will discuss are: women and HIV/AIDS, gender inequality, incidence rate (HIV/AIDS), societal attitudes toward women in South Africa, the effects of sexism and discrimination on women, sexuality education, government prevention programs, prostitution, and private sector programs.

HISTORICAL PERSPECTIVE

The Rise of AIDS in South Africa

In the late 1980's, AIDS was identified in South Africa, yet AIDS remains a politically taboo subject. Public discussion was muted, and little information appeared in the international news media. Prodded by international donors, however, the government campaign began in 1987. As health officials, the mass media, and voluntary organizations cautiously began to provide information, people started talking more about AIDS. Ideas regarding transmission and prevention, disease origins and etiology varied widely and changed over time. Urban elites, who had access to television, international publications, and friends in the health professions were the most informed.

Most people's knowledge was sketchy and miscommunication was common. For example, the media told of insect transmission, and despite later disclaimers, people continued to cite it. On the

other hand, few were aware of the risk of mother-infant transmission. Advice to "avoid prostitutes" was heard, but just who was a prostitute? Advice to "stay faithful to one partner" was impractical for many and misleading for those whose partners were already infected. Advice about safer sex was extremely limited and seldom publicized. As predicted, the mass campaign created considerable awareness of AIDS, but relatively few people changed their sexual behavior to sufficiently reduce their own risk of infection or to protect partners. In mid-1987, the most common reaction in South Africa was denial. Mass-media campaigns did not adequately inform the public about the slow action of the virus. People found it difficult to grasp that a healthy looking person could harbor a fatal HIV infection, could infect others, and would be likely to die in a few years. Failure to comprehend the lengthy and variable incubation period contributed to confusion and blame casting.

Numerous popular misconceptions caused peoples' avoidance of threatening personal risk assessments. Because AIDS was first discovered among some Africans who could afford treatment in Europe, it was said to affect mainly the wealthy and prostitutes. Since some rich and powerful men widely reputed for their sexual exploits were apparently unaffected, people joked that AIDS could not be too serious in South Africa. Some working class men believed themselves to be free of risk even while they engaged in risky behavior. Although the government's advice to "avoid prostitutes" was heard, risk was redefined. Fear of AIDS propelled some men to seek very young girls whom they believed were likely to be free of infection. The cars of businessmen and government officials could be seen parked at school yard gates, waiting for girls to emerge. Male teachers claimed sex as a fringe benefit of their poorly paid profession (Webb, 1997). Prostitutes donned school uniforms in an effort to allay the fears of prospective clients. In one study, men reported that they sought plump women, since they knew weight loss to be a sign of AIDS. Schoef, in Wojcicki (2001), stated others sought women from peripheral neighborhoods since they believed AIDS to be an urban disease.

Rise of AIDS during Apartheid

In the period 1990-1994, the government had the financial potential to provide a universally accessible "package" of HIV prevention, care and support activities including mass and targeted educational programs, a safe blood supply, good STD care, free condoms and short course anti-retroviral therapy to pregnant HIV positive women. The task team that wrote the AIDS Plan was armed with knowledge and experience in AIDS prevention, care and support during the 1980s and the early 1990s from both industrialized and other African countries. The plan was drawn up during a time when a National Bill of Rights was being formulated and debates on human rights in the new South Africa were at their height. In addition, the AIDS Plan embraced the sexual rights of women as a crosscutting theme and accorded people living with AIDS a key role in AIDS policy development and implementation. The apartheid government fared poorly on every indicator of social access and outcome that one cares to examine. During the period of the apartheid government, because of multiple pressures, it allowed liberation movements to return to South Africa. The internal democratic movement was in-

corporated into the African National Congress (ANC), bringing together two very different forms of political leadership.

AIDS in the Post-Apartheid Era

In 1994 a new government, with the ANC in the majority and Nelson Mandela as its head, was elected. When it came into power in 1994, the new Mandela-led government immediately mobilized funds and adopted a far-reaching AIDS Plan for the country. The AIDS Program infrastructure post-1994 was thus placed within a narrow health and biomedical framework and staffed by mostly older civil service employees. This infrastructure wielded little authority and had minimal connections with non-governmental networks. Policy makers, particularly at the crucial provincial implementation level, chose to gradually institutionalize the response to AIDS through an evolving public health system, rather than make a special case of AIDS by creating a separate program. The attitude towards AIDS rapidly became incorporated into mainstream health sector restructuring at the provincial implementation level after 1994. AIDS policy implementation in South Africa by the end of 1998 was thus characterized by a slow and hesitant start as well as multiple parallel and unconnected spheres of activity in which the development of coherence and continuity between levels of government was missing (Rosenbrock, in the BBC News report, 2001).

AIDS Continues to Dominate South Africa

In 1998 thirty-nine pharmaceutical companies challenged the legality of a South African law, the Medicines and Related Substance Control Act, that would allow the country to import cheap generic brands of patented AIDS drugs. The law required pharmacists to tell customers when a cheaper generic drug exists and required them to sell that medicine unless the doctor of a patient forbids it. Ending its legal efforts, the companies agreed that the law could be enforced as written. The expensive drugs needed to combat the incurable disease are beyond the reach of most South Africans. Pharmaceutical companies, responding to mounting pressure to make AIDS drugs more affordable, recently slashed prices. But these prices remain high, particularly for struggling economies that are battling a host of intractable social and economic problems.

As of today, South African President Thabo Mbeki says poverty is to blame for the quick spread of AIDS and denies that his country has responded too slowly to combat the disease. The South African government has been heavily criticized in recent months for consulting with AIDS dissidents who argue that HIV does not cause the disease, a position strongly disputed by nearly all scientists and health officials. He has also been criticized for arguing that a program to treat pregnant women with the anti-AIDS anti-retroviral drug, zidovudine (AZT), could do more harm than good. South Africa's health minister, Dr. Tshabalala-Msimang, has admitted, that while her government refuses to prescribe anti-AIDS drugs to people infected with HIV, members of parliament receive the treatments at public expense. The opposition has also accused President Mbeki of gross hypocrisy because the government has told doctors that it is illegal to provide anti-retroviral drugs to pregnant women as a preventive measure, but the parliamentary health scheme specifically offers

treatment in such a case. The president has been attacked by South Africa's medical establishment, the trade union movement and Archbishop Desmond Tutu (who has been a major figure in the fight against apartheid in South Africa), which recently called his AIDS policy a crime against humanity comparable to apartheid.

On the other hand, it is very clear that the government is willing to take action on AIDS when the crisis has direct implications for its own members. However, the needs of the rest of South Africa are ignored with appeals to mythical African solutions, while members of government enjoy the best treatments the world has to offer. Dr. Tshabalala-Msimang has defended the apparent discrepancy in policy by saying, "The parliamentary health scheme is a matter for the private sector. AZT is available out there in the private sector. In the public sector it is not, because we cannot afford it" (United Nations Program report, 1999). Lack of political will or commitment is a common reason given, by both internal actors and external observers, for the difficulties in implementing AIDS policy in South Africa (Webb, 1997). Politically it is taken to mean a number of things, including personal and public identification with the AIDS cause by influential politicians (in particular, President Mbeki) and a willingness on their part to mobilize adequate resources and "fast track" implementation.

Non-Governmental Organizations (NGO) have continued to play a key role in combating AIDS. Both donors and government are committed to funding AIDS work through NGOs. Faith communities that are active in South Africa, the Christian community, Muslim community, Hindu community, and others play a major role in the provision of care and support. Faith-based organizations see AIDS as a very difficult problem in which perception and reality conflict, and in which reality tends to get in the way of an effective campaign. Therefore, prevention tends to ignore reality – reality being a very high level of sexual activity among men, both married and single. One of the difficulties experienced by NGOs is how to receive funding from, while at the same time remaining critical of, a legitimate government. This has been particularly complex in relation to the National Department of Health, whose broad policy direction is generally supported, but whose specific approaches to AIDS have often been viewed as problematic. Conflict, however, does not need to be unproductive and provides the possibility for progress by highlighting the gap between what is and what should be. An over emphasis on and desire for high-level and central political leadership in the AIDS response in South Africa have meant that alternative leadership styles, from both within and outside government, which could shape a new public agenda on AIDS, have been overshadowed.

LITERATURE REVIEW

For those countries worst affected, AIDS represents human tragedy and a developmental emergency of huge proportions. Yet, by exposing how prevailing gender relations and other patterns of structured inequality are implicated in its spread, the AIDS pandemic offers the possibility of change – indeed necessitates it. It lays bare the need to engage with the mutuality that ensures survival of women, their children and their communities (Baylies, 2000). Women are a source of strength and the backbone of both the public sector and

community-based initiatives aimed at care and protection (Wojcicki, 2001). However, AIDS exposes women's vulnerability. Both men and women are affected by AIDS, but women particularly so, given how gender relations configure with sexual behavior and economic security. According to the literature, gender relations not only underlie women's particular vulnerability; they also inhibit women's attempts to protect themselves and their families.

All are potentially susceptible to AIDS. HIV crosses all lines of social division. At the same time, social circumstances may entail particular vulnerability. In the words of Baylies (2000:14): "Gender relations serve in this regard as an important component of the way AIDS has impacted on African societies." While there is a substantial problem of parent-to-child transmission in South Africa, and some transmission via blood, by far the most significant mode of transmission is through heterosexual encounters. Relative proportions of adult males and females infected vary from place to place, but the United Nations Program has estimated that by the end of the century, twelve women were being infected in Africa for every ten men (United Nations Program report, 1999).

Early on in the epidemic, the experience of men served to define the range of presenting symptoms and the course of illness so that women disappeared, indeed were not even in the picture (Patton and Sherr, in the United Nations Program report, 1999). Mukonde, in Campbell (1997), stated if the early misunderstandings on AIDS led to a delay in the recognition of a new illness condition by medical personnel in Africa, it also led to a delayed understanding of its impact on women. But even when women were taken into account, it was typically via discourses of blame. Women have characteristically been viewed as responsible for transmitting the virus, whether as prostitutes infecting their clients or mothers infecting their children, along the lines characterized as whores or mothers and more gently as vectors or vessels (Carovan and Sherr, in the United Nations Program report, 1999).

Schoef, in Wojcicki (2001), stated blame is most consistently and strenuously attached to those women regarded as responsible for the rapid spread of AIDS in South Africa in their capacity as sex workers. But a broad brush of disapproval has often been extended to women in general as being responsible for AIDS. Also, in South Africa as elsewhere, it is women who are blamed for the birth of a child with HIV, as 'contaminated vessels bearing condemned babies' in the words of Bassett and Mhloyi (Bassett and Mhloyi, 1996:146, in the BCC News report, 2001). A number of writers (Bassett and Mhloyi, Schoef & Sherr, in the BBC News report, 2001) have eloquently and forcefully made the case for bringing women into the picture as regards HIV/AIDS, particularly where heterosexual transmission predominates, not as blameworthy but as inhabiting a context in which they are often highly vulnerable to infection. In recognition of the increasing number of women affected and the way the burden of care falls on women's shoulders at both the family and community level, Peter Piot (1998), Executive Director of UNAIDS, has acknowledged AIDS to be a 'woman's epidemic'. However, if women have thus come onto AIDS agendas, it has arguably been to a lesser degree than need implies (Gilmore, 2001). As Hope (1999)

stresses, many women with HIV lack support and continue to be effectively silenced, not least by virtue of the marginalization which increases their probability of being infected.

But important shifts have occurred in discourses around women and AIDS during the course of the epidemic's history. Mann and Torantola, in the Global AIDS Program report (2001) states under the auspices of the Global Programme on AIDS (GPA), and later UNAIDS, initial concern to counter discrimination against those with AIDS has been transformed into a more comprehensive human rights approach, which posits that the very marginalization of particular groups, as materialized in their lack of rights and the inequalities describing their situation has restricted their ability to protect themselves. By insisting that women's rights are necessarily human rights and at least in theory universally applicable, then particular factors, such as cultural conventions or structural inequality, can be cited as obstacles to protection requiring attention within a global, moral framework.

Women and AIDS/HIV in South Africa

Although most research work into understanding, preventing, and treating AIDS has been conducted on males, there has been a recent increase in focus on women, which has begun to produce a clearer picture of the impact on women. At the biomedical level, it appears that women consistently are more likely than men to become HIV infected through heterosexual contact, and that there is the possibility of a greater physiological vulnerability in women (United Nations Program, 1999). In addition, women may transmit the virus perinatally and postnatally to their infants, with roughly 40% of babies of HIV positive mothers becoming infected (Global Programme on AIDS, 2001). Moreover, sexually transmitted diseases (STDs), which have shown to increase the risk of HIV infection, are often less detected and so less efficiently treated in women.

Most women in South Africa do not know that they are infected. Most women do not want to know. Infected or otherwise, they must still continue with their daily lives. There is no one to take their place. For many women that are infected, there is no privacy, no confidentiality; disclosure is not in their hands. Most women find out that they are infected during pregnancy or when a young child falls ill and is diagnosed. The diagnosis of the child makes public the women's infection status. For women who know that they are infected, what dominates virtually every minute of the day are primarily two emotions: anger and guilt. Anger toward the person, usually their husband and the person with whom they share their daily lives, who infected them, and guilt because they have so often infected one or more of their children. The reality of the lives of the women in South Africa is that, probably 60 - 80% of infected women were not infected through their own behavior. Yet, they are blamed as the source of transmission. The stigma and the discrimination associated with this disease rest too often with women.

Next, the supportive services required by seropositive women will include more than drugs and medical care. They will range from household care for ill women, child care for their children, emotional support to deal with anger and guilt, social support to deal with stigma, legal support to lessen discrimination, and financial support, as so

often they will not have an income coming into the house. The dominant concern for many infected women is the present and future support for and care of their children, particularly since the fathers of those children will often be sick or dead.

In addition, there are other social dimensions to the problem of AIDS for women. AIDS raises complicated and often contradictory issues for women regarding reproductive choices. Furthermore, women remain underrepresented in research efforts, so information about aspects of the disease particular to them is limited. The heavy burden on women as caregivers, both formally in the health sector and informally in the community and home, also has not received the necessary attention and resources (Campbell, 2000).

Gender Inequality

Until 1994 there was an apartheid form of government in South Africa which encouraged total segregation of the people. Although many legal aspects of apartheid are being dismantled, significant legal inequalities remain and the social effects of years of inequality persist. In 1996 there were 2 million South African women classified as professional; the majority were teachers and nurses. At the university level only one-fourth of Black students were women (United Nations Program report, 1999). In South Africa, unemployment among Black women has been much higher than that for men. In 1996, the rate for Black women was 24.8% and for Black men 15%. South African women who are not employed in the wage-earning sector are called housewives, regardless of their marital status. Housewives are expected to take care of their families' needs, such as cleaning the house, doing laundry, and cooking. Among the unemployed, Black women assist in times of deaths, marriages, and other community activities. For both employed and unemployed Black women, the strongest influence comes from their participation in religious and voluntary associations. The women find opportunity for shared activities (sewing, Bible reading, choir singing, literacy programs, etc.), support in dealing with illness and personal or family problems, and economic cooperation. Through their participation in community activities, the women have the potential to influence others to adopt behavior changes. The majority of women in South Africa are not affiliated with political organizations because they do not perceive trade unions and political groups as a primary means of addressing their concerns (Berger, in the United Nations Program report, 1999).

Feminist analyses have explored women's position in society in order to understand the problems they face regarding realistic AIDS prevention and care options. Central to considerations of AIDS as a problem for women is an understanding of sexuality and gender. Feminist writers have argued that sexuality is not naturally and biologically determined and that gender relations are relations of power in which patriarchy exerts substantial although not consistent control over women in a variety of spheres, including women's sexuality (Caplan, in Begley, 2001).

Such gender power relations have significant implications for understanding the problem of AIDS for women. Generally, safe sex options reflect a focus on male, heterosexual construction of sexuality, which upholds the traditional view of a sex drive for which men are not responsible but which women are expected to curb (Holland

and Scott, in Belgey, 2001). So it becomes women's work to ensure that safe sex is implemented, to exert control and make choices in an area in which they have notoriously little power and few options. Also, for many women, sex has frequently been associated with danger (health risks, pregnancy) so the talk of safe sex poses somewhat of a contradiction. Such a feminist analysis suggests alternative responses to the threat of AIDS, involving a basic change in the power dynamics between men and women, toward greater equality and control over their bodies for women (Segal, in *Newsweek* 2001).

However, there are writers whose emphasis is on the complexity of power relations and differences of experience between women regarding race and class. Because of their unequal positioning in society, women often lack power and social status and thus access to economic resources. Moreover, in Africa migration to the cities has resulted in large numbers of economically destitute women and female-headed households. For many women then, sexual relationships with men may become a valuable source of material support. Thus, women might come to rely on a number of sexual partners and/or they might be less able to insist on the use of condoms, thereby increasing their risks of HIV infection.

Incidence Rate (HIV/AIDS) for Women in South Africa

While AIDS is a global problem, it is a major threat to the fabric of society only to sub-Saharan Africa, where more than 55% of all infected adults are women. In the worst affected countries, such as South Africa, the figure is approaching one adult in four; 83% of all deaths from AIDS since the beginning of the epidemic have been in sub-Saharan Africa, which has only 10% of the world's population (Government of South Africa, 2000). The strain as a result of the disease that is active in this region differs from that found elsewhere, and the primary means of transmission is heterosexual intercourse. In the absence of an affordable cure or vaccine, only modified sexual behavior (fewer partners and/or higher condom use) will slow the spread of the virus.

One of the reasons why the disease spreads so widely through the population is the long incubation period. Although 4.2 million adults in South Africa are estimated to be HIV + (Government of South Africa, 2000), AIDS is, thus far, largely invisible. This is compounded by under-reporting a disease which still attracts social stigma: in 1995, only 3,306 cases of AIDS were reported in South Africa, compared to the projection of 20,000 (see Table 1). Estimates of the current and future extent of infections depend on the assumptions made about changes in behavior, such as increased condom usage and reduction in the number of sexual partners. According to Green (1995), there will only be significant changes in sexual behavior once large numbers of people in the community are sick and dying from AIDS.

As Table 1 shows, women experience consistently higher rates of infection, despite evidence that they have significantly fewer partners than men. Transfer of the virus is up to five times more likely than the reverse ("Africa's great," 2001). Evidence from South Africa suggests that levels of infection from the whole population will plateau, as the number of sexually active people is reduced (by AIDS related deaths) and lifestyle changes eventually come into effect. According

to most predictions, this plateau will be reached in South Africa after 2010, with 25–30% of the adult population infected. AIDS deaths will peak after this, but will already be high by 2010, with at least half a million people dying of AIDS each year (more than tripling the natural death rate).

Year	Percentage of adults (15-59) HIV+	Percentage of HIV + women/men	Number HIV+ (million)	Number AIDS Sick (thousand)
1990	0.2	0.2/0.1	0	0
1995	4.0	5.0/3.0	1.0	20
2000	12.0	14.0/9.5	2.9	170
2005	18.0	22.0/14.0	4.9	410
2010	22.0	27.0/17.0	6.5	650

Table 1: Projections of the Extent of HIV/AIDS in the South African Population

Societal Attitudes toward Women in South Africa

Notions of the disease were given substance in images of the infected person. Having AIDS introduced one to a Pandora's box of overwhelmingly negative consequences (Strebel, in "Africa's great," 2001). Being HIV positive meant your whole world crumbled, with suicide a likely outcome. Others avoid you, you are likely to be deserted by your partner, and even the medical profession would be reluctant to treat you: you should be isolated to avoid contamination and you might also intentionally infect others. Is it sensible not to let others know when you are infected with HIV? Some women feel that their actions to hide that they have AIDS will be justifiable because of the stigma attached to it by the community.

Another striking aspect of the medical discourse was this traumatic and fatalistic representation of being HIV positive, a depiction which people living with AIDS are likely to internalize. Especially for women, who are often construed as "reservoirs of infection," this fear of abandonment by family and ostracism in the community is not unrealistic, and it belies an image of strong extended family and community support for infected women (Campbell, 2000). The problem renders those affected by the disease relatively powerless to influence their fate, to avert such ostracism, desertion, and neglect. Keeping HIV infection hidden would only further remove those requiring care and support from the route of taking control of their health. Seeing people with AIDS as victims, although framed in more humane terms, is not likely to enhance effective management of the illness. By couching transmission of the virus in individual lifestyle, the victims (usually women) are also blamed for their infection. Given these dire expectations, it is important then to examine how such images arise. Also, we need to understand what the obstacles are to people taking the necessary preventative steps to avoid infection with these grim consequences.

The Effects of Sexism and Discrimination on Women

In South Africa, the focus on political rights has also had problematic implications for attempts to counter sexism, where attempts by women to focus on gender discrimination have sometimes been interpreted as divisive in regard to the primary struggle against apartheid. The sexual stigma of AIDS discourse, with its echoes in the literature on STDs, produces some very thorny obstacles for prevention and care among women. Sexuality is associated with much that

is unconscious. Gender relations and social conditioning have not made communication about sexual matters easy. AIDS in any setting is not going to be discussed with ease. Yet, AIDS prevention requires openness and willingness to talk about and alter sexual practices. Moreover, a focus on sexuality "as an especially dense transfer for relations of power" (Foucault, 1995:103, in the United Nations Program report, 1999), clearly provides multiple opportunities for the emergence of conflicting sets of values, so those engaged in education and care endeavors need to confront such issues in their own practice. What is at stake, then, is the privilege of a particular worldview, which upholds certain practices as normal while others are regarded as deviant, AIDS education becomes an opportunity to instill such values. Adelekan (1998) has described a "discourse of punitive fidelity which has been imposed in the name of monogamy on those whose sexuality eludes the restrictive model of marriage as a sacrament, binding on individuals regardless of all ethical, psychic, social or sexual factors" (p.321). There is clearly much opportunity for AIDS work to be implemented in the name of moral agenda of the planners of AIDS education.

Sexual stigma hampers AIDS prevention work on another level. Because of the implications of sexual promiscuity, it is possible for partners also to use the threat of AIDS to try to impose such sexual codes as fidelity or monogamy onto each other. Also the notion of sexual stigma, with its associations of guilt and blame, contributes to a culture of silence around AIDS, which South African women have faced over the last two decades. As a result, infected people are less likely to come forward for testing or possible care, thus reducing the likelihood of much needed support and management of symptoms.

Prostitution and HIV/AIDS in South Africa

The principal cause of prostitution is undeniably poverty, compounded by a combination of factors such as poor education (and education opportunities), and a family background characterized by neglect and poor socialization. With prostitution at mining compounds, local women are most often forced into prostitution for financial reasons (unemployment), often caused by the breakdown of the marriage or relationship where the woman was economically dependent upon her partner (Green, 1995). Some women seek sexual partners for emotional reasons, due to the absence of the husband, but overall studies have shown poverty to be a major factor forcing women into prostitution. Behavioral motivation should not be underestimated, and other studies reported that a complex interaction of factors would lead women into sexual activity for material or economic gain.

Associating AIDS with morally stigmatized prostitution is a hindrance to prevention. Women, particularly those who seek to escape male control, are especially likely to be blamed for spreading STDs. A deepening economic crisis appears to have increased gender conflict, as men seek to maintain control over scarce resources. Such campaigns to eradicate prostitution by rounding up women are counterproductive. However, they generally drive sex workers underground and alienate them from disease-prevention campaigns. Conducted in the name of "morality," roundups violate women's rights to work, to walk unaccompanied, to choose their associates, and to go about

their daily lives (Webb, 1997).

The focus on prostitutes and "promiscuity" also obscures the risk to other partners of many men and women who have had multiple sex partners over the past decade. Polygyny remains a customary form of marriage in most cultures and is found in all social classes. Men also enjoy other types of multiple-partner sexual relations with varying degrees of social recognition. Thus, many wives are at risk even if they have obeyed normative proscriptions regarding extra-marital sex, which are imposed in some but not all, African cultures. The focus on prostitutes as a risk for men obscures the fact that women can neither refuse risky sex nor negotiate condom use with men they suspect have HIV. Not all women with multiple sex partners consider themselves prostitutes. Some are *deuxieme bureaux* (mistresses) regularly supported by married men of means; others are students or single working women who seek extra income when they visit bars or dancing clubs for an evening's entertainment. Although they expect to receive gratuities, these women reject the idea of using condoms, which are stigmatized by their association with HIV and prostitution (Webb, 1997). The AIDS epidemic will diminish as men come to terms with their own risks, accept responsibility to protect others, and change their sexual behavior.

Sexuality Education Strategies and Women in South Africa: Are They Effective?

One of the major factors contributing to the spread of HIV/AIDS in South Africa is the lack of information among women about its modes of infection and prevention. The majority of black women in South Africa live in the rural areas. They have little formal education and limited access to information about AIDS, particularly on various modes of infection and prevention. Even for black women that live in urban areas, HIV/AIDS facts, including statistics, are difficult for the ordinary person on the street to accept and understand. Moreover, most people live in communities where they have either never seen an AIDS victim or cannot differentiate the disease from other known diseases. This is aggravated by the fact that, unlike other diseases, people who are infected with HIV may get sick only after six or more years have passed. By then, their body defenses may have been broken down by the virus and be unable to resist other fatal diseases, such as tuberculosis, which are known to the people in South Africa. Therefore, many people cannot conceptualize HIV/AIDS or they do not believe that it exists.

According to the World Health Organization (WHO), cited by Sidley (2000), education is an important strategy in limiting the spread of the epidemic. In South Africa, the vast majority of HIV infections are sexually transmitted, and HIV transmission can be reduced by the promotion of safer sexual practices. The provision of effective health education designed to promote safer sexual behavior is an urgent priority for the southern Africa region. Knowledge about AIDS and safer sexual practices is necessary, but the provision of knowledge alone is insufficient (Webb, et al., 1997). They have argued that education alone does not necessarily lead to the behavior change required in the prevention of the spread of the virus. Attitudes, values, and beliefs, as well as cultural norms and the influence of family, peers, and other factors, are all important determinants of whether or

not appropriate behavior is adopted (Green, et al., 1995). Education programs aimed at safer sex behavior must take into consideration all of the factors that expose women to infection. Health educators recognize that approaches that actively involve the target group are more likely to be successful (Daymond, 1996). In South Africa, the African National Congress (ANC) is committed to the promotion of health and has defined the prevention and control of AIDS as:

part of an overall strategy to prevent the transmission of HIV through public awareness campaigns, community-based prevention initiatives and improved infection control procedures. Secondly...all STDs and HIV/AIDS education must actively promote a culture of women as equal partners in sexual relations (African National Congress, 1994:48).

Women, as a gendered, defined social group, face religious, social and cultural norms which place them at risk for AIDS. In a press release calling more attention to women's AIDS prevention needs, WHO identified three major reasons why women are rapidly developing HIV infection:

Women are biologically more vulnerable. As the receptive partner, women have a larger mucosal surface exposed during sexual intercourse; moreover, semen contains a far higher concentration of HIV than vaginal fluid. Hence, women run a bigger risk of acquiring HIV and other transmitted diseases during heterosexual intercourse than men.

Women are epidemiologically more vulnerable. Women tend to marry or have sex with older men, who are likely to have had more sexual partners than younger men and hence more likely to have become HIV infected. Women are also epidemiologically vulnerable to HIV transmission through blood. In the developing world, women frequently require a blood transfusion during pregnancy or childbirth usually because of anemia or hemorrhage.

Women are socially vulnerable to HIV infection. Men are expected to be assertive and women passive in their sexual relationships. In some cultures, men expect sex with any women receiving their economic support. This creates a highly unfavorable atmosphere for AIDS prevention, making it difficult or even impossible for women to protect themselves from sexual transmission through mutual fidelity or condom use (WHO, 1998:2).

Studies in South Africa have found that men engage in more risky sexual practices than women. The female partners are often put at risk by their partner's behavior even though they themselves are monogamous. According to WHO, strong support from other women is an important strategy for empowering women to protect themselves and their children from HIV infection.

Private Sector Prevention Programs Targeted Toward Women

Developmental NGOs have been recognized as potentially important partners, situated in communities as they are with established infrastructures and credibility. Training has been conducted to equip personnel from these NGOs with the skills and knowledge necessary to take on AIDS issues facing women in South Africa. Migrancy has been a way of life in South Africa for decades. Now there are a number of bold initiatives by the mining industry to address the factors which lead to an increased risk of HIV transmission. For example,

several mines are working closely with their neighboring communities to establish credible campaigns to halt the spread of HIV; and more recently, mining companies have invested in AIDS education targeted for commercial sex workers. Sexuality education programs make extensive use of audio-visual aids to illustrate key points. The goal: to convince the women at these squatter camps, almost all of whom are commercial sex workers, to use condoms. For the United Nations Development Fund for Women (UNIFEM), AIDS is both a personal health problem and a societal health problem of pressing urgency. It argues, furthermore, that there is a need to understand how values and traditions often prevent women from saying no to unwanted sex and unprotected sex and from being heard. The World Health Organization (WHO) has a similar perspective, pointing out that social and cultural factors cannot be ignored, since women in some parts of South Africa are not expected to discuss or make decisions about sexuality.

NGOs and other organizations are developing treatment guidelines and models of community/home – based care including curricula for caregivers, who are women. The AIDS Unit at the University of Pretoria has put together a comprehensive package which could transform the response to the epidemic among the women in South Africa. It includes:

- the production of home-based care kits;
- the education of home-based caregivers and buddy teams;
- development of guidelines for nutrition;
- an understanding of the legal process of illness and death in terms of access to health care, creation of wills and plans for dependents; and
- community participation and education.

Dedicated community health workers (women) provide excellent care and support to hundreds of HIV infected clients in their homes. Critical though their work is, primary care givers are reporting increasing pressure on their services, and all admit that there are vast areas where no NGOs exist and no services possible (Williams, 1999). The fact that, on a daily basis, dozens of families in these areas are being precipitated into a crisis that will one day have to be recognized.

Bristol-Myers, a major pharmaceutical company, recently launched their Secure the Future initiative, which makes available \$100 million for five southern African countries, South Africa being included. Much of the funding is earmarked for research which will benefit women. Other ongoing research focuses on mother-to-child transmission. Vaccine research, co-funded by donors like the World Bank and led by the South African AIDS Vaccine Initiative, remains the long-term hope for the future. The announcement by Pfizer, another pharmaceutical company, that it is giving away an anti-fungal medication (Diflucan) used to fight cryptococcal meningitis, a lethal brain disease found in many AIDS patients, will be a significant help. The drug had cost South African women \$15 a dose. Other announcements made by other large pharmaceutical companies were that they are ready to investigate ways of lowering the prices of their HIV/AIDS medications for the people in South Africa [both only after pressure from a number of sources].

Lastly, it should be noted that the AIDS Control and Prevention (AIDSCAP) traditional healer program is heavily focused on women. It works with and through *impanedes* (an association of healers that seem to have been in South Africa for many generations), whose membership is primarily women. There are a number of reasons why emphasis on women is justified in South Africa, including their relative vulnerability to HIV infection, their subordinate status and inability to negotiate sexual relations, their role as child-bearers and child-rearers, their role in family health care, and their disproportionate contribution to food production and hence to nutrition.

Public Sector Prevention Programs Targeted Toward Women

The South African government had no intention of buying antiretroviral drugs in spite of its courtroom victory over pharmaceutical companies that were trying to block the import of generic drugs. The government would resist pressure from local and foreign AIDS activists to buy antiretroviral treatment on the basis that the cost is still too high and that, as the drug companies said, the country lacks clinics and trained health workers to distribute the drugs safely. South Africa has the world's fastest growing AIDS epidemic, with a third of all pregnant women infected with the virus in some areas (Begley, 2001). The South African government has refused to treat the women with AZT, which can halve the chance that the virus will be passed to the newborn. Researchers devised a special "short course" regimen that lowered the cost of AZT by prescribing it only during the last few weeks of pregnancy. Glaxo Wellcome, the maker of AZT, has offered to slash the price for South Africa up to 70 percent, a price the company says earns no profit ("Africa's great," 2001). So it came as a shock when South Africa, one of the wealthiest nations on the continent, announced in October of 1998 that it would not make AZT available for pregnant women. South Africa had even put on ice pilot programs designed to test the feasibility and cost-effectiveness of the regimen. The Health Minister of South Africa made a statement to the media that the government could not afford AZT because the government had launched a broad-based AIDS awareness campaign, such as *Sarafina II*, a musical about AIDS which built on the popular imagery of the musical hit, *Sarafina I*. It was supposed to impart prevention information. A contract of R14million (US\$ 3 million) was signed with the South African playwright of *Sarafina I* (Farmer, in the Public Protector report, 1996). As a consequence of the Public Sector's report, the contract was terminated and the play withdrawn. However, it was roundly condemned for sending mixed messages, and it was astronomically expensive, consuming one-fifth of the government's AIDS budget. Despite African researchers showing that providing the drug to infected mothers will actually save money in the long run by averting the cost of caring for babies who have developed AIDS, the government felt the money allocated would best be utilized for the campaigns.

On the other hand, reducing mother-to-child transmission is far more complex than merely getting AZT pills to pregnant women. Indeed, with Glaxo having lowered the price, another major cost is the counseling required to make sure pregnant women understand their complicated options. Moreover, the issue involves tangled factors ranging from the social politics of breast-feeding to HIV stigma,

to the health minister's stubborn personality and South Africa's troubled AIDS history.

The government AIDS Program was to provide condoms to the women in South Africa, but the program was said to be having a great deal of trouble importing the quantity of condoms needed for its program. Though apparently as effective, female condoms are more expensive than male condoms. Male condoms can cost as little as \$0.03 each when purchased in bulk whereas the female condom currently costs \$0.66 for public sector purchasers in South Africa (Wilford, 2001). Due to the high material cost, female condoms are needed desperately to protect the women in South Africa on those occasions when their partner doesn't want to use a condom. The reality of women buying condoms is hard to comprehend because of social and economic issues, despite what women may feel at the time is a priority to protect themselves from HIV/AIDS. Yet, women have not understood that it is a life or death decision when they choose not to use a condom. The government has the ability to reach out for help to other countries to expedite the import of female condoms.

In approving a scheme to treat women with the costly drugs, President Mbeki is retreating from his refusal to accept the link between HIV and AIDS, which brought international condemnation. From March 2001, HIV positive women are to be treated in an attempt to stem the rising tide of mother-to-child infections. Eighteen state hospitals are to participate in a pilot scheme to test all pregnant women for HIV, provide free medication, and supply free milk to reduce the risk of infants contracting the virus during breastfeeding. The program, to be funded by the central government and the provinces, will start in hospitals where birth rates are highest and be extended to other hospitals and clinics as soon as possible. International drug companies have offered to provide free medication. Recent statistics suggest that the figure for mother-to-child infections could be far higher than feared, which appears to have propelled the government into action. Mr. Mbeki's move follows the South African Medicines Control Council's decision to approve the drug Nevirapine for use in the prevention of HIV transmission from mother-to-child.

METHOD

The methodology that I have been using is meta-analysis, including literature review and research on how effective the South African government has been in respect to HIV/AIDS prevention programs targeted toward women. My research was based on critical analysis of research findings and studies. Also, a quantitative analysis of the data was performed to see what the South African government has done differently regarding the spiraling number of women who have been affected through gendered power relations.

CONCLUSION

Such initiatives may be of considerable value in increasing levels of knowledge and awareness, improving negotiation skills, enhancing assertion and heightening self-esteem. But how far can they also be effective in ensuring protection in the context of intimate relations? This remains an open and critical question. The problem is precisely the way gendered power relations, as configured in intimate

relations, restrict the ability of women to secure protection. The point has been made with considerable cogency that the trio prevention programs which have featured most predominantly in the government AIDS programs – use of condoms, partner reduction and abstinence before marriage and fidelity within it – are inappropriate to the lives of many women in South Africa. This is partly because they depend on cooperation from their male partners but also because, even if women may (and often do) control their own behavior, they are unable to control that of their partners. It is this insight which has led to the critique of public health strategies which rely on individualistic models and, more particularly, which take insufficient notice of the broader context in which behavior, and particularly gendered behavior, occurs.

An examination of how and why the epidemic has gained so strong a grip in South Africa has thus led to the deepest level of structures of inequality and injustice, along lines of gender, but also class and other social divisions. It entailed a critique of prevailing structures and power relations at the level of the intimate social system, the society and the global political economy. For Baylies (2000) this includes a critique of cultural practices, with identification of those which yield harmful consequences in the context of AIDS. To the extent that gender relations are implicated in this process, the very struggle against AIDS not only brings relations of gender inequality into question, it can also provide a persuasive basis for fundamental behavioral change. As Baylies (2000) comments, strategies of protection against HIV have the ultimate capacity to serve as a 'platform' for furthering the emancipation of women in South Africa.

Emphasis on the need for coherence between short and long-term objectives features strongly in the literature on gender and AIDS in South Africa. Thus, Barrett and Blaikie (1992) caution that if strategies achievable in the short term do not address those inequalities which have given rise to the risk of infection, possibilities for more fundamental cultural and social change will be lost. Any potential conflict between long term and short term goals for women must thus be addressed, they argue, when formulating strategies around HIV/AIDS. However, the lack of full engagement with such long-term goals may also be at issue. It is on this basis, for example, that women-controlled methods of protection must be held up to critical appraisal.

Great store is sometimes put on the female condom (Sherman, et al., 1999) because its use does not depend on men taking action and may offer some protection for women in predictably high-risk situations. Yet, these methods remain problematic on several levels. Although some research suggests increased acceptability, the female condom is largely inaccessible, by virtue of price and availability, to the vast majority of women. As late as 1999, there had been no clinical studies assessing its effectiveness against HIV (Baylies, 2000). Were these difficulties to be overcome, questions would still remain as to how far these technologies permit control by women, and more specifically how far women could use them without their partner's knowledge and consent.

Given the enormity of the task, enthusiasm for the potential of women's collective action to make an important contribution to work

against AIDS is frequently qualified by the insistence that women-only action is insufficient or that women cannot stop the AIDS epidemic on their own. Thus, Ulin (2000:254 in Begley, 2001), so forceful in support of harnessing women's organizational capabilities, completes her assertion that "the solidarity of women in South African communities may be their greatest source of strength for coping with the AIDS epidemic" with the rejoinder, "but they cannot cope alone. They must be empowered to share the responsibility with men, participating equally in personal and community strategies to block transmission of the virus." Women's empowerment is only half the solution, men too must acknowledge their responsibility, and all members of the society must be willing to redefine sexual roles in relation to the health of family and the community. Sidley (2000) similarly insists that 'there can be no individual solutions' and that men have to be active agents as well as women. Lastly, I must say, more research is desperately needed to determine the most effective strategies for reducing the incidence of the AIDS pandemic among women in South Africa.

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