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EDITOR'S INTRODUCTION

The Wagner Forum for Undergraduate Research is an interdisciplinary journal which provides an arena where students can publish their research. Papers are reviewed with respect to their intellectual merit and scope of contribution to a given field. To enhance readability the journal is typically subdivided into three sections entitled *The Natural Sciences*, *The Social Sciences* and *Critical Essays*. The first of these two sections are limited to papers and abstracts dealing with scientific investigations (experimental and theoretical). The third section is reserved for speculative papers based on the scholarly review and critical examination of previous works.

This issue contains several noteworthy papers which encompass a variety of topics including memory retention in a noisy environment, female influences on science, the flow field associated with unsteady buoyant flows and whether or not a nurse's own smoking habit impacts his or her effectiveness in rendering smoking cessation education. The interested reader will explore domestic violence in postwar and modern Spain through an examination of the identities of female protagonists and find out how and when rhythm and song enhance memory recall.

Read on and enjoy!

Gregory Falabella and Richard Brower, Editors

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Section I:
The Natural Sciences

An Experimental Investigation of Free Convection in a Rectangular Enclosure

Jared Jax (Physics)¹

A two-dimensional natural convection process was simulated within a water-filled square enclosure. To accomplish this, a dye was injected and allowed to settle at the bottom of the experimental apparatus. When heat was applied to a highly localized region buoyancy caused a plume to rise. The resulting unsteady motion was captured on video and analyzed. Different heat inputs allowed for analysis of both laminar and turbulent convection currents.

I. Introduction

Background

Heat transfer by convection is accomplished primarily by the bulk motion of a fluid. There is, however, a thin region near solid interfaces where the contribution due to random molecular motion is significant. In this boundary layer diffusion tends to dominate due to low fluid velocity. Large amounts of energy can be transported by convective motion. This is because, at any point in time, vast numbers of molecules are collectively moving as aggregates. Such bulk fluid motion, in the presence of a temperature gradient, allows heat transfer to occur at greater rates than that predicted by diffusion.

Convection can be subdivided into two major subdivisions: free (natural) or forced convection. The latter occurs when an external agent such as a fan or the wind initiates a fluid flow. The former, which is the topic of this paper, results from a density difference in the presence of a gravitational field. A hot fluid is propelled upward by a buoyant force until its interaction with the surroundings has cooled it sufficiently. It then descends, heats up and repeats the process forming what is known as a recirculating region.

As previously mentioned, convective flow can be divided into two regions. The first is the boundary layer, where diffusion is important; the second is the region outside

¹ Research performed under the direction of Dr. Greg Falabella (Physics) in partial fulfillment of the Senior Program requirements.

dominated by inertia forces. There are many types of boundary layers. The most common is the aforementioned velocity boundary layer. Another is the thermal boundary layer. As with the velocity boundary layer, the transfer of heat by random molecular motion is significant near a solid interface and negligible elsewhere. The relative thickness of each is given by a dimensionless parameter known as the Prandtl number. The Prandtl number is a ratio of momentum and thermal diffusivities. A value equal to unity indicates that the velocity and thermal layers coincide (see figure1). So why does diffusion dominate near a solid surface? This is due to the fact that molecules in a fluid exert attractive forces on each other. For a molecule deep within a fluid the net result is symmetrical. At a solid boundary the situation changes causing those molecules in contact with the wall to assume its velocity.¹ The shearing stresses produced by this no slip condition enhances the rate of diffusion and also results in the production of instabilities that can lead to turbulence and enhanced mixing.

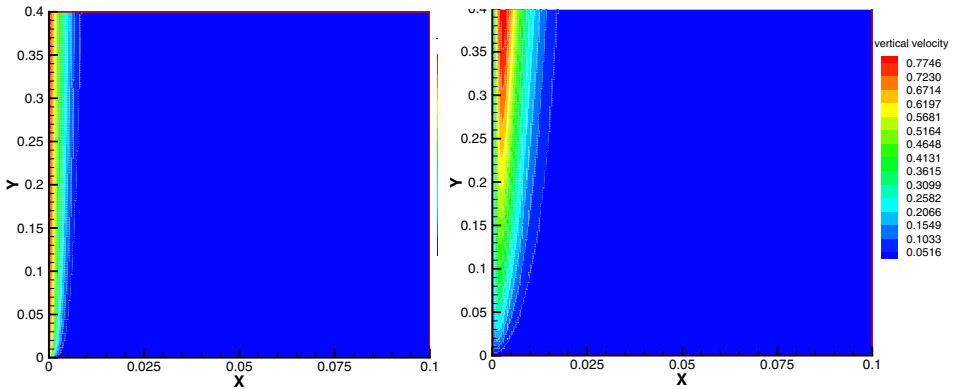


Figure 1: The thermal (left) and vertical velocity (right) boundary layers associated with a vertical flat plate immersed in an unbounded quiescent fluid.

Free convection may be classified on the basis of whether or not the flow is bounded by a surface. In the absence of an adjoining surface, a free boundary flow (i.e. a plume or a jet) may occur. In the case of a plume, buoyancy forces cause a fluid to rise from a submerged, heated object. The width of the plume increases with distance from the heat source and eventually dissipates due to viscous forces and decreasing buoyancy as cooling occurs. The distinction between a plume and a buoyant jet is the initial fluid velocity which is zero for a plume but finite for a jet.²

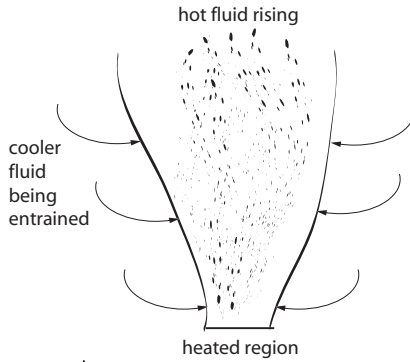


Figure 2: Example of a buoyant plume

The experiment in question differs from a plume in that it takes place in an enclosed square subject bounded by solid surfaces in all four directions. Because of this more complex interactions occur after the initial plume has reached its maximum height (see figure 3).

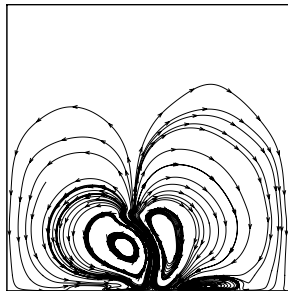


Figure 3: Free convection in an enclosure

Larger Implications of Natural Convection

Free convective flows have many environmental applications. First is the rejection of waste heat and particulate matter into the atmosphere by chimneys and cooling towers. Scientists want to be able to predict the local temperature distribution and downstream spread and decay under various conditions including temperature inversions.³

Also of importance are flows in enclosed or partially enclosed regions. Studies of bounded free convection greatly improves our understanding and ability to deal with heat rejection to water, fires, insulation and the cooling of electronic equipment.

Past Work and the Current Research Effort

A good deal of research pertinent to the current investigation can be found in the AIAA Journal of Thermophysics and Heat Transfer. Torrance and Rockett conducted a numerical study of the convection of air in a vertically cylindrical enclosure, induced by a small hot spot centrally located on the bottom. Solutions were obtained for Rayleigh numbers ranging from 2.84×10^4 to 2.84×10^{10} . The theoretical flows were found to be in excellent agreement with experimentally observed laminar flows.⁴

Tamotsu et al performed an experimental and numerical investigation of a rectangular enclosed cavity, of which part of the bottom was heated while the other walls were kept at a low constant temperature. They varied the Rayleigh number up to 6.9×10^5 and obtained results that agreed qualitatively with other experimental observations.⁵

Ahmed and Yovanovich considered an enclosure consisting of two vertical boundaries of height, H and two horizontal boundaries of length L , in which one of the vertical boundaries is cooled at a temperature T_c and the other subjected to a discrete heat source on an otherwise adiabatic surface. The top and bottom boundaries were also perfectly insulated.⁶

Hasnaoui, Bilgen and Vasseur considered a viscous fluid within a rectangular cavity of length L and height H . The lower surface was maintained at a temperature T_h , which is higher than the temperature T_c of the top. The rest of the bottom wall was insulated, and the distance between the center of the heated element and the vertical axis of symmetry of the cavity is E such that when $E = 0$ the heat source is centrally located on the bottom surface.⁷

Like many of these and other investigations the current research examines the motion of a viscous fluid within a rectangular enclosure. It, however, differs from most in that a highly localized heat flux is applied at a precise location. Most other research endeavors impose temperature differences or heat addition on a larger scale involving an entire surface or good portion of it. Furthermore, the behavior of the resulting motion is videotaped and carefully scrutinized.

II. Theory

A subset of the phases of matter, fluids include liquids, gases, plasmas, and to some extent, plastic solids. Fluids share the properties of not resisting deformation and the ability to flow (otherwise described as their ability to take on the shape of their containers).⁸ These properties are typically a function of their inability to support a shear stress in static equilibrium. While in a solid, stress is a function of strain, in a fluid stress is a function of rate of strain. If the stress is directly proportional to the transverse

velocity gradient ($\sigma = \mu du/dy$) the fluid is said to be Newtonian. Air and water are Newtonian fluids. Many other fluids such as paint, ketchup, polymers and blood have a more complex strain rate and are classified as non-Newtonian fluids.⁹

The behavior of fluids is described by modeling the fluid as a continuum and treating all flow properties as functions of space and time. In essence the large numbers of events in the microscopic world are averaged out since it would be impossible to individually tract and analyze each one. This approach is only valid if the mean free path of the molecules is much smaller than that of the dimensions of the area under investigation. In other words, if distance between molecules is large (as in the upper layers of the atmosphere) molecular interactions are too spread out to be used with this method; however, if there is a smaller spacing the use of this hypothesis is valid.¹⁰ When the conservation of mass, momentum and energy are applied under this Eulerian approach a set of partial differential equations describing the flow field results. Known collectively as the Navier-Stokes equations, they can theoretically be used to describe any situation under the continuum assumption. Unfortunately, closed form solutions only exist for a handful of textbook problems. Real world application often requires numerical methods and/or simplifying assumptions.

Many practical problems involve Newtonian fluids (e.g. air, water) and are, for the most part, incompressible (associated with Mach numbers less than 0.1). As a result, if constant properties are assumed and the analysis restricted to two dimensions the Navier-Stokes equations can be expressed:

$$\frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} = 0$$

$$\frac{\partial u}{\partial t} + u \frac{\partial u}{\partial x} + v \frac{\partial u}{\partial y} = -\frac{1}{\rho} \frac{\partial p}{\partial x} + f_x + \nu \left(\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} \right)$$

$$\frac{\partial v}{\partial t} + u \frac{\partial v}{\partial x} + v \frac{\partial v}{\partial y} = -\frac{1}{\rho} \frac{\partial p}{\partial y} + f_y + \nu \left(\frac{\partial^2 v}{\partial x^2} + \frac{\partial^2 v}{\partial y^2} \right)$$

$$\rho c_p \frac{\partial T}{\partial t} + u \frac{\partial T}{\partial x} + v \frac{\partial T}{\partial y} = k \left(\frac{\partial^2 T}{\partial x^2} + \frac{\partial^2 T}{\partial y^2} \right) + q''' + 2\mu \left[\left(\frac{\partial u}{\partial x} \right)^2 + \left(\frac{\partial v}{\partial y} \right)^2 \right] + \mu \left[\frac{\partial v}{\partial x} + \frac{\partial u}{\partial y} \right]^2$$

Furthermore when dealing with free convective flows it is often possible to expect that the velocity along a surface will be much larger than that normal to it, whereas for gradients the opposite is true (i.e. convection dominates parallel to the surface and diffusion normal to it). Additionally viscous dissipation and pressure changes perpendicular to the primary flow direction may be minimal and neglected. In

other words, the boundary layer is thin and viscous effects are confined to extremely small regions close to solid surfaces (no separation). After performing an out of magnitude analysis to confirm this, a considerably reduced subset of the Navier-Stokes equations known as the boundary layer equations can be used to analyze the fluid.

$$\frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} = 0$$

$$\frac{\partial u}{\partial t} + u \frac{\partial u}{\partial x} + v \frac{\partial u}{\partial y} = -\frac{1}{\rho} \frac{\partial p}{\partial x} + f_x + \nu \frac{\partial^2 u}{\partial y^2}$$

$$\frac{\partial p}{\partial y} = \rho f_y$$

$$\frac{\partial T}{\partial t} + u \frac{\partial T}{\partial x} + v \frac{\partial T}{\partial y} = \alpha \frac{\partial^2 T}{\partial y^2} + q''' + \mu \left[\frac{\partial u}{\partial y} \right]^2$$

Lastly, since constant properties have been assumed some means of accounting for the variable density that gives rise to the buoyancy force must be employed. To accomplish this a linear dependence of the density on the temperature is assumed and the definition of the volumetric coefficient of thermal expansion, β applied as shown below:

$$\beta = -\frac{1}{\rho} \left(\frac{\partial \rho}{\partial T} \right)_p \approx -\frac{1}{\rho} \left(\frac{\rho_\infty - \rho}{T_\infty - T} \right)$$

Dimensionless Parameters

In order to simplify the analysis of the data a dimensionless analysis will be utilized to package many variables into a smaller number of dimensionless parameters. Doing so generalizes the results and makes them easier to apply to a wide variety of cases. These parameters may only be used if the equations obtained are dimensionally homogenous (as opposed to empirical). The dimensionless parameters relevant to the study of buoyant flows are¹¹:

- Reynolds number, $Re_L = vL/\nu$, is the ratio of inertia to viscous forces, and indicates whether the flow is in a laminar or turbulent regime. For external and internal flow transition from laminar to turbulence occurs at $Re_L = 500,000$ and $Re_h = 2300$ respectively.

- Prandtl number, $Pr = \nu/\alpha$, is the ratio of the momentum and thermal diffusivities and indicates the relative size of the thermal and velocity boundary with respect to each other.
- Nusselt number, $Nu_L = hL/k$, is the dimensionless temperature gradient at the surface and indicates how fast heat is being transferred to or from a boundary.
- Grashof number, $Gr_L = gB(T_s - T_\infty)L^3/\nu^2$, plays a similar role in free convection to that of the Reynolds number by predicting when the flow is turbulent. It is the ratio of buoyancy to viscous forces.
- Rayleigh number, $Ra_L = Gr_L * Pr$, is an adjusted form of the Grashof number which more accurately predicts transition to turbulence for free convective flows. When $Ra_L > 10^9$ turbulence must be considered.

III. Experimental Approach

Problem Formulation

Our concern will rest in the motion of a viscous fluid within a square cavity of length L , width W and thickness t . Because $L \gg t$ and $W \gg t$ we can assume a two-dimensional analysis. There will be a discrete heat source placed at the bottom of the cavity, centrally located on the inside wall. All of the walls will be adiabatic except for the location at the bottom where the heat source is applied. The temperature of the fluid T_f will be much less than that of the rod T_r and the temperature outside the box will be at constant room temperature T_∞ .

All properties of the fluid will be considered constant, except the density giving rise to the buoyancy force. The heat will be transferred to a specific location in the fluid via the rod. Two cases will be analyzed. For the first the rod will be maintained at 80°C so as to produce a laminar flow. The second will involve continually heating the rod under the flame of a Bunsen burner in an effort to produce turbulent structures.

Designing an Appropriate Apparatus

- Find an appropriate dye that will rest on the bottom of the container until circulated by convection currents.
- Choose a material to construct the walls of the enclosure, which is transparent and able to withstand the pressure of the fluid.
- Select a material which is capable of efficiently transferring heat to the enclosure.

- Choose an adhesive which is capable of not only holding the walls together but can also prevent leaking.
- Determine a means of maintaining the rod at a constant temperature.
- Find a way to insulate the inside box, so that all walls are adiabatic.
- Find a way to inject the fluid into the box.
- Ensure that the box can be drained so that multiple runs can take place
- Determine a way to insulate the rod.
- Decide how to elevate the entire structure so that heat may be applied to the rod from below.

Parameter Selection

- Regular tap water will fill the enclosure and McCormick's food coloring will serve as a contrast agent.
- The 30.5cmx30.5cmx1.25cm enclosure will be built out of Plexi-glass. It will be held together initially with super glue and plexi-glass adhesive. Later it will be sealed with hot glue and caulk.
- In order to insulate the box a double pane structure will be utilized. This thermal barrier will minimize heat lost to the surroundings during the experiment.
- A seven inch long aluminum cylindrical rod of diameter equal to the thickness of the structure will be placed flush against the inside bottom wall at the center. In order to insulate the rod a hollow Styrofoam cylinder with an inside diameter equal to that of the rod, will be placed on the outside surface (see figure 4). This Styrofoam cast will then be wrapped in duct tape so as to insure insulation and prevent any unnecessary heat loss.
- The injection system used to spread the dye eventually on the bottom of the enclosure consists of a seal that can be broken and re-sealed automatically after having been punctured multiple times without allowing any leaks. This syringe cap will be secured to the side of the inside box allowing the food coloring to be introduced via a syringe.
- The drainage system will be a small cylindrical hole drilled through the outer and inner top wall.

- To elevate the structure two supports, each with two clamps, set at heights greater than two feet will be placed next to each other. Below the apparatus will lie a large beaker of water maintained at a constant temperature through manual control of a Bunsen burner.

Execution of the Experiment

Constructing the apparatus was more difficult than expected. The primary difficulty was finding the right combination of adhesives to get the maximum hold. Leaks plagued many test trials because structures, initially water tight, would succumb to the sustained pressure of the water during the experiment. Another problem was getting the outer bottom casing to support the weight of the water and prevent the inner cavity from falling through (see figure 5). With regard to the injection of the food coloring it was tricky to get the needle in just the right spot but otherwise things went smoothly.

After these problems had been corrected a video camera was placed approximately ten feet from the apparatus and recording began. The heat source was stabilized at 80°C, the structure filled with water (18°C) through the drain using a funnel, and food coloring introduced with the aid of a needle.

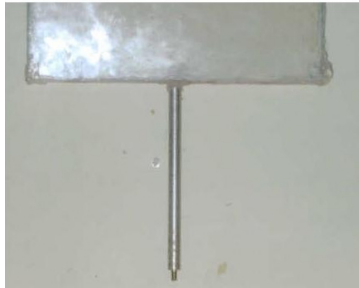


Figure 4: The aluminum rod used to transfer heat from a constant temperature source.



Figure 5: The bottom of the enclosure without the aluminum rod in place (note the syringe cap on the right hand side of the inner box)

IV. Results

First Run ($Pr \approx 6, Ra_i \approx 10^8$)

For this case heat was delivered from a constant temperature source maintained at 80°C . Quick estimates using a lumped parameter approach indicated that the food coloring in the vicinity of the aluminum rod's surface would take approximately one minute to become hot enough to initiate convection currents.

$$-hA_s(T - T_\infty) = \rho V c_p \frac{dT}{dt}$$

$$T = T_\infty + (T_\infty - T_i) e^{-\frac{hA_s t}{\rho c_p V}}$$

$$t = \frac{\rho V c_p}{hA_s} \ln\left(\frac{T_\infty - T_i}{T_\infty - T}\right)$$

T_i – temperature of the heated end of the rod

T_∞ – the temperature of the water

A_s – surface area in contact with the dye

V – volume of the cylindrical rod

h – the heat transfer coefficient between rod & dye

c_p – the specific heat of aluminum

ρ – the density of aluminum

It took a little over three minutes before buoyant flow took place most likely due to the conduction of heat away from the contact area. The flow began as a plume rising vertically upward with an initial velocity of 0.12 cm/s (see figure 6).

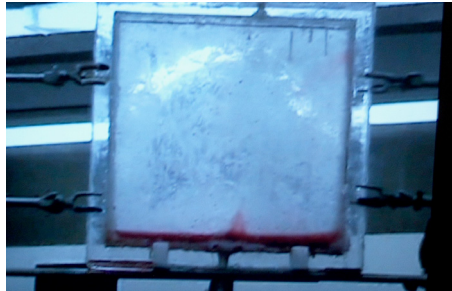


Figure 6: Plume forms and begins to rise

It had two distinct segments at first but then began to form branches descending back to the bottom of the enclosure. Interestingly, these branches were inside the plume and did not form recirculating regions. This is because the dye which cooled upon rising fell back into the main body and quickly picked up additional heat. This process allowed the plume to rise rapidly thereby transporting heat away from the base (see figure 7).

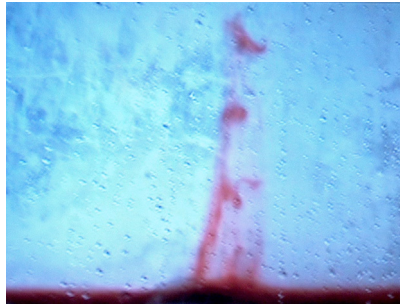


Figure 7: Branches form within the main column

Five minutes into the experiment vorticity inside the plume was apparent at many locations but the aggregate structure was still a slowly rising vertical segment (see figure 8). At six minutes the plume's ascent had stopped and large recirculating regions began to form outside the vertical column but primarily on the left. A slow leak on the left side and a slight tilt had apparently biased the flow. Noteworthy is the fact that the streamlines are everywhere smooth indicating that the flow was laminar as expected.



Figure 8: Vorticity within the plume.

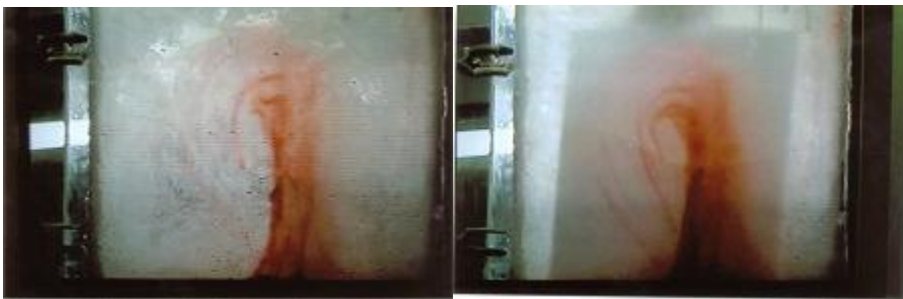


Figure 9: The formation of major external recirculating regions

After several minutes had passed a large mass formed in the center indicating that a thorough mixing had occurred. The mass, however, was by no means uniform and close inspection revealed the evolution of many interesting structures (see figure 10).

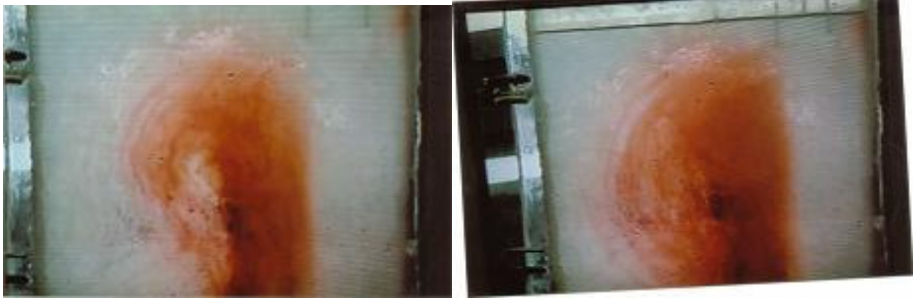


Figure 10: Formation of a large central mass

When thirty minutes had elapsed the structure was inspected and appeared more symmetrical. At this time it occupied most of the enclosure. Secondary recirculating regions had formed at the top and the upper corners. A dark steady stream of food coloring still made its way from the bottom. Alas, a steady-state had been reached.

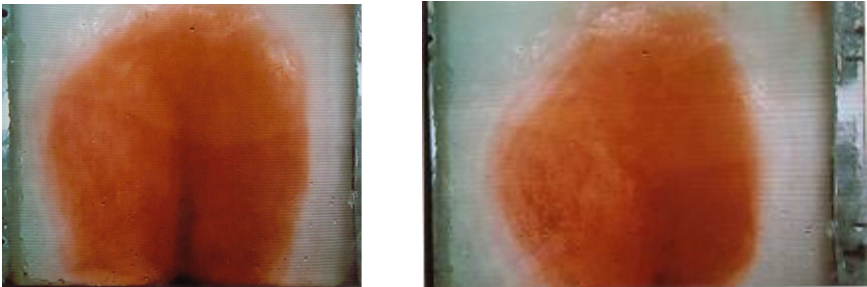


Figure 11: Steady-state

Second Run ($Pr \approx 6$, $Ra_L \approx 10^{10}$)

In an effort to produce turbulent flow the lower end of the aluminum rod (approximately 20% of the total volume) was placed in direct contact with the flame from a Bunsen burner. In less than a minute a thin, concentrated column began rapidly rising at a rate of 0.5cm/s (see figure 12). Shortly afterwards the central plume began to thicken and after only 150 seconds hit the top of the enclosure.



Figure 12: Strong, concentrated plume rises rapidly and thickens

As the fluid met the top boundary it began to fall because of the impact and then on its way down formed recirculating regions. In contrast to the previous run, the confines of the enclosure and rapid rate of heat transfer had a significant impact on the resulting flow field. Although natural convection was present its only obvious manifestation was the central plume rising from the heat source (see figure 13).

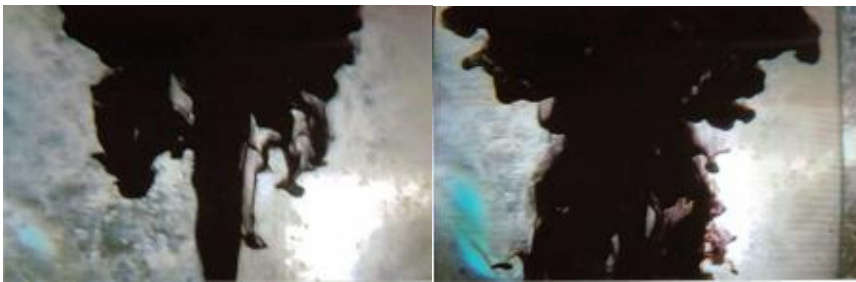


Figure 13: Rebounding and recirculating flow patterns

Three minutes into the experiment small tightly wound turbulent structures form and are most noticeable on the edges of the falling fluid. The shape of the plume is almost symmetric.



Figure 14: Turbulent vortices appear

V. Conclusions

After a thorough review of the video taped results it was concluded that natural convection caused by a discrete heat source in a square cavity produces complex structures especially when either the enclosure is small, highly confined and/or when turbulence is present. In fact, even laminar flow subject to small perturbations can produce interesting and possibly unforeseen results. As expected, the Rayleigh number was a good indicator of the flow regime. Possible future work could include numerical simulations or irregularly shaped cavities.

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Section II:
The Social Sciences

Interference and its Effect on Short-Term Memory Recall

Erin Nemeth (Psychology)¹

This study was designed to show that trying to retain information in a noisy environment will ultimately lead to a lower retention level of that information due to interference. The experiment consisted of twenty two participants. The participants answered questions that would give educational background and any medical history of memory problems or hearing disorders. The results of the study indicated that students who are in noisy environments retain less information in a testing situation than those in a quiet environment when all other testing conditions are kept constant. The experiment showed that there is a real correlation between interference and short term memory retention and that most students feel they perform better in quiet conditions. The hypothesis is supported and with further research can be strengthened and more intricate.

I. Introduction

Interference such as noise will negatively affect a person's ability to recall information from a passage due to the focused rehearsal necessary to achieve retention in the short term memory. Older adults tend to have trouble understanding speech in situations where more than one conversation is taking place according to Schneider, Daneman, Murphy and Kwong (2000). When more than one task is expected of an older or younger adult, the short term memory loses some of its ability to retain specific information and thoughts or information become jumbled in the wake of cognitively multitasking.

Schneider et al. (2000) suggest that listening for detailed information under noisy conditions ultimately affects a person's comprehension of the information whether they are young or old. The researchers used a participant sample of 12 normal-hearing young adults and 12 normal hearing older adults to test age differences in retaining information under noisy conditions (Schneider et al., 2000). In their experiment the participants had to listen to a passage and answer subsequent questions about it, under three conditions, low noise, moderate noise and high noise (Schneider et al., 2000). The results show that both the young and old adults see a decline in their ability to recall information under these conditions; however the older adults show a larger rate of decline (Schneider et al.,2000). When the experiment is adjusted to the hearing needs of all

¹ Research performed under the direction of Dr. Richard Brower (Psychology).

individual participants both young and old scored similarly in their rate of decline. According to Schneider et al. (2000), this suggests that the age differences were more related to hearing ability than a cognitive decline and that noise in general significantly interferes with a person's ability to focus on and retain detailed information in their short-term memory.

Murphy, Craik, Li and Schneider (2000) designed a study to find out more about age related memory decline. In order to test whether background noise would lead to poor memory of spoken words remembered, five experiments were put into effect (Murphy et al., 2000). The first experiment tested younger adults under three conditions of no noise, low background noise and high background noise (Murphy et al., 2000). The second experiment tested younger and older adults in quiet conditions, while the third tested both groups under noisy conditions that were adjusted to each participants hearing needs so they were equally likely to hear the same amount of words (Murphy et al., 2000). The fourth experiment tested young and old adults on their specific abilities to hear the correct words whereas the final experiment tested a different sample of young adults in a high noise environment so as to serve as a baseline of comparison to experiment three's findings (Murphy et al., 2000). Murphy et al. (2000) concluded that the effects of noise and interference on young adults' short term memory are similar to the effects of aging.

Kemper, Herman and Lian (2003) examine younger and older adults' ability to perform other tasks while retaining speech fluency and accuracy. Participants were asked to talk while engaging in a concurrent task such as walking, complex finger tapping, simple finger tapping, and ignoring speech or noise through headphones (Kemper et al., 2003). The speech of the young and old adults did not seem to be greatly affected by performing a motor or selective attention task. Only when the finger tapping was taking place, did participants seem to lose their focus (Kemper et al., 2003). One interesting finding in this study is that younger adults were more affected by the background noise and selective attention process than the older adults were (Kemper et al., 2003). This study shows that language is the exception to the general idea that older adults suffer more short term memory retention problems while performing concurrent tasks (Kemper et al., 2003).

The current study will examine noise interference's relation to short term memory retention in a sample of college students. The study was designed to explore the relationship between background noise and the ability to retain specific details from passage. Since no previous medical background information is submitted by the participants, the group is considered to be a normative sample of students. The participants in this study will all be college students and at the end of the study they will

have the opportunity to write what their perception of their performance in either a noisy or quiet environment is. Researchers will examine whether the perceptions match the final results of the study. My hypothesis is that students trying to recall details under noisy conditions will recall significantly fewer facts than those under quiet conditions and the self-reports will be concurrent with the results of the study.

II. Method

Participants

The initial sample for this study consisted of 18 female and 6 male college students, ranging in age from 19-21 ($M=20.3$, $SD=.64$). Participants were asked if they would like to participate in a study involving the relationship between memory and noise interference. Participants were given a self-report survey to gain background knowledge on their educational status. Participants were asked to read a nonsense paragraph and answer the questions that followed. Participants agreed to participate on a voluntary basis and were given refreshments for their efforts. Two participants had to be removed from the study because of insufficient data on the self-report survey, leaving the study with 22 final participants. The participants were asked to create an ID code to insure confidentiality in the self-report and were asked to be sure the code remained consistent on any subsequent forms. The paragraph and questions were given during individual and group settings in either quiet or noisy environments. The participants were also told they could write how they thought they did in either environment at the end of the study and that results could be given to them at the completion of the study if they wanted them.

Materials

A self report survey was used to determine the participants' educational background as well as gender, age and year of study. The survey was created with an open ended question format and was used for research purposes. A nonsense paragraph was created for the participants to read under the conditions of a noisy or quiet setting. The paragraph contained a simple story with key words in each sentence. The words and phrases used were of an average to low vocabulary so researchers could test for memory retention without creating words that were too difficult to understand or remember for all readers. A question sheet about the paragraph was created for the participants to answer questions about what they had just read. The questions contained the key words from the sentences in the paragraph and participants were given one point for each correctly answered question. Scores were used to test the overall retention of the key ideas. Participants were told that they could write their perceptions of how well they answered

the questions on the bottom of this page. A radio was used to create noise interference with loud music in one group of participants. The radio was set at a volume that was loud but would not make the participants uncomfortable.

III. Procedure

Participants were randomly selected for one of two groups either the quiet environment or the noisy environment. Upon arrival a self report data sheet was handed out to gain the participants demographics and educational background. The participants were instructed to create an ID code for confidentiality purposes and were told to place it at the top of every paper we gave them. Participants were given as much time as they needed to fill out the survey and when they were through they were asked to place the paper face down so as to protect confidentiality. The testing conditions were quiet for one group and once all surveys were complete a loud radio began playing in the other group so as to test for memory through noise interference. A nonsense paragraph was handed out to all participants and they were told to read through the paragraph and raise their hand when they had completed it. When the participants completed the paragraph a sheet of questions pertaining to the information they had just read was handed out. The participants were asked to answer them to the best of their abilities and alert the proctor when finished. When the participants were done answering the questions, the test givers collected the sheets making sure to place them face down in a pile so no confidentiality breaches occurred. Participants were offered the opportunity to write about their perceptions of their performances on the question sheet and were told that results of the experiment could be given to them at the end of the study if they wanted them. Participants were thanked for their participation and were given refreshments for their efforts.

IV. Results

To test the hypothesis that people who try to memorize and retain information under noisy conditions will retain less than those under quiet conditions a correlation study was conducted. Participants on average had scores of ($M=5.09$, $SD=1.06$) on the answer sheet for both the groups ($M=5.14$, $SD=1.04$) on the perception for both groups (see Table 1). The scores on the answer sheet from group 1 were correlated with the scores from group 2 which showed some correlational validity to the experiment. The self report perception answers were correlated with the study results to show validity in the experimental perceptions of the participants. The participants' responses to the self-report survey showed no previous medical history of memory difficulty or hearing disorders and overall participants reported being able to concentrate more in quiet environments. The

participants' perception scores in most cases were higher than their true scores showing that they did not appear to be intimidated by the environmental factors. The hypothesis of this study appears to be confirmed.

Table 1: Mean and Standard Deviations of Passage Answer Sheet Scores for Participants

Groups	Answer Sheet Scores	Perception Scores
Quiet Group	(M=5.27, SD=1.01}	(M=5.18, SD=0.87)
Noisy Group	(M=4.91, SD=1.14)	(M=5.09, SD=1.22)

V. Discussion

Previous research has suggested that there are significant positive correlations between environmental noise and memory retention when under testing conditions (Murphy et al., 2000). The present study intended to extend this research by using a normative sample of college students and using self report perception answers to add to the research results. The results of this study support the hypothesis that people trying to concentrate under noisy conditions will retain less information than those in quiet conditions. Therefore according to the results, this study suggests that students are adversely affected by noise in testing environments. This study is important to everyday life because it indicates to students and researchers that they should take these results into consideration when creating testing environments and performing academic tasks. The perception scores indicated that although the participants wrote down that they concentrated better in quiet environments on the self-report survey, they did not feel that the noise had adversely affected their performance. However as the results confirm, the students in the noisy environment did on average retain less information and had more trouble answering the questions.

The study conducted by Kemper, Herman and Lian (2003) is related to the current study because of its use of reading samples as well as its final results. (Kemper et al., 2003) demonstrated that doing two things at once can often lead to unequally divided attention and decreased memory retention. The results of their study coincided with this study on many levels and served as a great starting point for this measure. If this study were to be performed again, the researcher would need to receive a greater number of participants to be sure that the results are not merely coincidental or based on the educational level of the surveyed population. Also researchers could try varying the level of noise in the noisy condition groups to see how the varying levels would coincide with

the results. Overall this study showed some positive correlation but on the whole could have been a much stronger representation with increased data.

VI. References

1. Kemper, S., Herman, R. E., & Lian, C. H. (2003). “The Costs of Doing Two Things at Once for Young and Older Adults: Talking While Walking, Finger Tapping, and Ignoring Speech or Noise”, *Psychology and Aging*, 18,181-192.
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Appendix A: The Self Report Data Sheet

ID number _____

Sex: _____

Age: _____

Yr. in School: _____

Do you have a previous history of any memory problems?

Have you ever had problems in school because of your memory?

Do you require any type of hearing device?

Do you feel like you concentrate better in noisy or quiet environments when it comes to reading and memorizing information?

Appendix B:

ID Number _____

Please read through this paragraph. You will have 3 minutes to look it over, however if you finish before three minutes please raise your hand. Thank you for participating in this study!

Sally woke up on a beautiful Saturday morning. She brushed her teeth and got dressed for her day. She then made herself eggs and toast for breakfast. After breakfast she took a drive in her blue Saturn to the supermarket. At the supermarket she purchased tomatoes, cheese, apples and milk. On the way home from the market she picked up a newspaper and a bag of M&M's from a sidewalk stand. When she got home, she put away the groceries and sat down to read the paper. She thought to herself as she began to read "I love relaxing on the Weekends".

Appendix C:

ID Number _____

Please answer the following questions on the reading to the best of your ability. When you are through, please write the number of questions you think you answered right on the bottom of the page and raise your hand to let the proctor know you are through.

1. What day of the week is it when Sally wakes up?
2. What 2 items did Sally make for breakfast?
3. What color car did Sally drive to the market in?
4. What 4 items did Sally buy at the market?
5. What did she pick up on the way home from the market?
6. What did Sally say she loved to do?

Does a Nurse's Smoking Habits Affect a Patient's Smoking Cessation Education?

Eileen Magnuski (Nursing)¹

This abstract outlines a research project that investigated the effect of a nurse's smoking history on the amount of smoking cessation education offered to patients. As seen in many research articles, smoking is a major healthcare problem. However, most people who smoke have a desire to quit, and nurses are proven to be an extremely effective tool in helping them. It is also seen that a nurse's attitude toward smoking can affect the quality and amount of smoking cessation education offered. An anonymous questionnaire was administered to thirty five randomly selected registered nurses on their smoking habits and smoking education practices. It was expected that nurses who smoke feel less comfortable giving smoking cessation education and do it less frequently than nurses who do not smoke. Final results supported the hypothesis, revealing that nurses who smoke are less effective at providing teaching than nonsmokers, and quitters provide the best smoking cessation education. These findings are clinically significant, showing a need for aggressive smoking cessation education among nurses in order to make patient education effective.

I. Introduction

Smoking is a major issue in healthcare, society, and the nursing profession. Complications from smoking take many lives every year and cost the health care system an enormous amount of money. Nursing as a profession of educators must teach preventative health and provide smoking cessation information to patients and clients they encounter. However, this may prove to be a complex task if the nurses themselves are the smokers. The main purpose of this research project was to study the impact of a nurse's smoking history on the amount of patients receiving smoking cessation education. The research aimed to ascertain if a nurse who smokes puts patients and clients at a disadvantage by not providing education. The independent variable is the nurse's smoking history; nonsmokers, current smokers, or past smokers. The dependent variable is patient education rates.

¹ Research performed under the direction of Dr. Lauren O'Hare (Nursing).

Research Questions and Hypothesis

The research questions for this project included:

1. How often does each history group provide education materials?
2. How comfortable does each group feel with educating these patients?
3. If the nurse's smoking history changed, would they respond differently to frequency of education and level of comfort?

The main question was:

Does the smoking history of a nurse affect the availability and level of smoking cessation education to the patient?

One hypothesis is that the smoking history of the nurse will affect the availability and level of education of the patient. An alternative hypothesis is that nonsmokers (quitters and nurses who never smoked) will be more likely to educate on smoking cessation compared to nurses who are smokers.

Review of Literature

Smoking and smoking cessation are ever-present issues in healthcare. "Tobacco use continues to be the leading cause of preventable illness and death in the United States." (Bialous, Sarna, Wewers, Froelicher, & Danao, 2004, pg 387) Nursing education is paramount to smoking cessation and education. "As the largest group of health professionals, nurses play an essential role in helping patients to stop smoking. If only half of the 2.3 million U.S. nurses could help one person a month to quit smoking, every year nurses could help some twelve million smokers quit." (2004, pg 55). These statistics and studies have proved the urgent need for smoking cessation education in the American population, and the effectiveness of nursing interventions.

A nurse's teaching alone would be less valuable if the population was unreceptive to quitting. Studies have proven that this is not the case. In the above study by Bialous and Sarnous, it is revealed that seventy to eighty percent of smokers want to quit but are unable to do so without assistance (2004, pg 58). In a more detailed example, a phenomenological study was performed to assess the willingness to quit smoking among psychiatric clients, a population with an extremely high rate of smokers. (Greene & Clarke, 2005, pg 19). It was determined not only that people with mental illnesses are aware of smoking cessation programs and have a desire to quit, but also that "the lack of participation of mental health care providers in promoting smoking cessation is a complex issue that may affect the client's willingness to quit." (2005, pg 24).

It is important to examine nurses' attitudes towards smoking and cessation education. A study investigating this issue found that nurses often feel guilt about their own smoking habits, and experience a lack of understanding and support from their coworkers and family related to their quitting. (Bialous, et al, 2004, pg 391). "Both the current and former smokers expressed shame and guilt about smoking, and described pressures and frustration from friends and family members who assumed nurses "know better" than to smoke." (pg391). Also revealed in this study was that both smokers and ex-smokers felt that nurses could and should play a strong role in promoting cessation among the patient population, but several stated that this would be achieved only after nurses had helped themselves quit smoking. Another study examining the attitudes of nurse's towards smoking in the workplace finds that "hiding smoking from patients and their families" is a common theme and that "strategies are needed to support smoking cessation" among nurses in the workplace. (Sarna, Bialous, Wewers, Froelicher, & Danao, 2005, pg 87).

The need for studies into the effect of a nurse's smoking history on patient education and cessation are evident. Nurses play a major role in educating patients, and people want to quit smoking. Yet nurses and patients report that the nurse's history and attitudes affect their education. Such studies would be extremely useful to continuing smoking cessation through helping nurses quit to improve the education given to patients.

II. Methods

A sample population of thirty five registered nurses from various areas of local hospitals and nursing homes were used. Age, gender, and race were not significant variables in this project. Selection of the subjects was randomized based on availability. For example, one group questioned was all the nurses on a day shift at a local hospital.

The independent variable is the nurse's smoking history; specifically, nonsmokers, current smokers, or past smokers. Nonsmokers are individuals who have never smoked, current smokers are individuals who do smoke, and past smokers are individuals who have smoked but quit and do not currently smoke. The dependent variable is patient education rates. This can be defined as the rate of smoking cessation education each nurse reports.

An operational definition for smoking cessation can be any counseling (verbal or written) that a nurse provides a patient or client about the need to quit or the methods for quitting smoking.

Randomly selected nurses were given a brief questionnaire. The self report question form included seven close ended dichotomous and multiple choice questions. (see Appendix A). Topics addressed included the following:

- Smoking history
- How often the nurse educates on smoking cessation currently
- How comfortable the nurse feels educating currently
- Frequency and level of comfort of the smoking nurse based on hypothetical situations
- Frequency and level of comfort of the nurses who quit compared to when they were smokers.

No names or identifying data were collected. Completed forms were dropped in a sealed box to further ensure anonymity. Information on the top of the survey ensured people of their anonymity and gave information about agencies that could help the smokers quit.

Data collection methods included tallying all survey results, calculating percentage values to assign to each, and compiling the results into bar graphs. (See attachment #2)

III. Results

The results revealed that 37% of participants currently smoked, 29% never smoked, and 34% had quit smoking.

Of the subjects who currently smoked, 15% reported frequently giving smoking cessation education to their patients, while 54% said they rarely did and 31% said they never provided education. This same smoking group had 54% of those surveyed say they felt very uncomfortable about providing education, 31% somewhat uncomfortable, and 15% unsure about how they felt. When questioned about how their actions would change if they quit smoking, 54% said they would always provide education, and 46% said they would frequently provide education, 69% reported that they would feel very comfortable providing the education if they quit, and 31% said they would feel somewhat comfortable.

Those surveyed who reported having quit smoking revealed that they provided cessation education frequently (83%) and always (17%), with 83% feeling very comfortable giving the education, while 17% felt somewhat comfortable. Prior to quitting, 33% of these nurses frequently gave education, 33% rarely gave, 17% never gave, and 17% were unsure about how often they supplied education. While they were still smokers, 17% felt somewhat comfortable giving the education, 50% felt somewhat uncomfortable, and 33% felt very uncomfortable.

Nonsmokers responded that they gave smoking cessation education always (20% of the time), frequently (60%), and rarely (20%). They either felt very comfortable providing the education (80% of the time), or somewhat comfortable (20%).

IV. Discussion

Smokers had the lowest reported rates of providing smoking cessation education, with 15% frequently providing cessation education. Quitters had the best rates at 100% providing education frequently or always, and those who never smoked taught about smoking cessation only 80% of the time frequently or always.

Smokers also reported feeling the least comfortable about providing education, with 85% feeling very or somewhat uncomfortable teaching. Quitters and nonsmokers both felt very to somewhat comfortable 100% of the time, with quitters feeling very comfortable 83% of the time in comparison to nonsmokers 80%.

Patients who smoked said they would counsel always or frequently (100% of the time) as opposed to frequently (15%) while smoking. They predicted they would feel very to somewhat comfortable 100% of the time if they quit, as opposed to 0% of the time while they were smokers.

Quitters reported that they only frequently gave education while they were smoking 33% of the time, compared to always and frequently 100% of the time when they quit. They reported feeling somewhat comfortable providing that education only 17% of the time compared to 100% very to somewhat comfortable when they quit.

These statistics support the hypothesis that a nurse's smoking history does affect the availability and level of education the patient receives, and that nonsmokers (quitters and those who never smoked) provide more smoking cessation education than smokers. Nurses who quit provided the most care and felt the most comfortable, followed by nonsmokers and then smokers. Also assisting in the support of this hypothesis is the data that indicates quitters' rate of educating and level of comfort increased tremendously from when they were smokers, and smoking nurses believed that they would give a significant amount more education and feel much more comfortable doing so if they quit.

These findings are very clinically significant. With patient care being the top priority, smoking cessation education and programs for smoking nurses are a must in order to also fully educate the smoking patient population. It might also be useful to teach nonsmokers more about how to provide education and what smoking is like, in order to increase comfort levels when educating. With the nurse having an enormous influence on teaching patients and affecting their lifestyle, and as indicated in this study, the nurse's lifestyle negatively affecting appropriate education, further steps should be taken to provide smoking cessation education to nurses.

V. References

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Appendix A: Nursing Research Project

Thank you for participating in this project! Please know that all answers are strictly confidential. Please do not put your name on any surveys. Only the researcher will review these surveys, and they will be safely disposed of after results have been collected. If you are a smoker and would like to quit, please visit www.nysmokefree.com or call 1-866-NY-QUITS for tips and support.

- Do you smoke?

Yes, currently No, never No, I quit

- How often do you counsel patients on smoking cessation?

Always frequently unsure rarely never

- How comfortable do you feel about counseling patients on smoking cessation?

Very comfortable somewhat comfortable unsure somewhat uncomfortable
very uncomfortable

****Smokers Only**:**

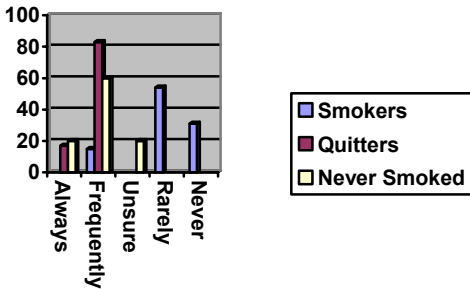
- If you stopped smoking, how would you feel about counseling?
 Very comfortable somewhat comfortable unsure somewhat uncomfortable
 very uncomfortable
- How often would you counsel patients on smoking cessation?
 Always frequently unsure rarely never

****Quitters Only**:**

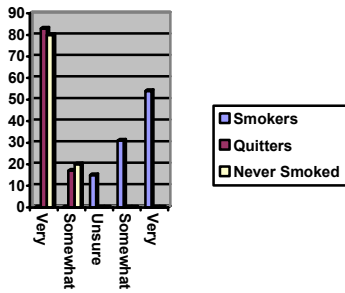
- How comfortable did you feel about counseling on smoking cessation before quitting?
 Very comfortable somewhat comfortable unsure somewhat uncomfortable
 very uncomfortable
- How often did you counsel patients on smoking cessation prior to quitting?
 Always frequently unsure rarely never

Appendix B:

How often do you counsel patients on smoking cessation currently?



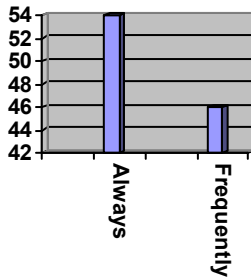
How comfortable do you feel about counseling patients on smoking cessation currently?



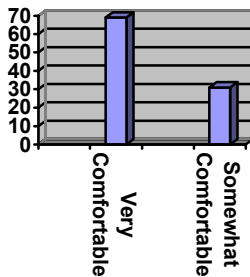
Comfortable → Uncomfortable

Smokers

If you stopped smoking, how would you feel about counseling?

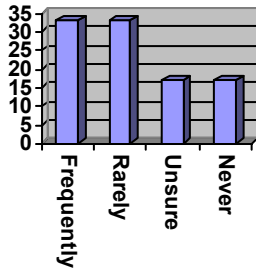


How often would you counsel patients on smoking cessation if you quit?

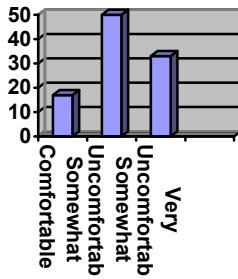


Quitters

How often did you counsel patients on smoking cessation before quitting?



How comfortable did you feel about counseling on smoking cessation before quitting?



Lyrical Memory: Can Music Act as a Mnemonic Device in Order to Enhance Memory Recall?

Elicia Enriquez (Psychology)¹

The level of memory recall based upon a spoken, spoken to rhythm, or sung version of a simple folk song was gathered from 22 undergraduates. Various tests were done in order to compare the memory improvement scores over the repeated listening trials. There were no significant effects found for representation of lyrics but there was consistent improvement throughout trials. The improvement scores of the participants having previous musical experience were compared to those without prior musical knowledge; (16 with musical training, 6 without musical training) no significant effects were found. Potential ways of achieving significant effects of music on memory recall are discussed.

I. Introduction

Children's television shows have always greatly encouraged learning through the use of songs and melodies. *Sesame Street*, *Blues Clues*, and *Barney* are some of the top contenders that use songs to teach important lessons to children. Songs are also used in school, one in the form of *School House Rock*, a video that helps teach students certain concepts about language and grammar (Simpson, Biemat, & Marcdante, 2002). Although there are multiple forms of educating material available to teachers, only a few choose to use these helpful melodies in teaching their students. Studies have been done to test as to whether or not students gain knowledge through the help of music and all of the studies have suggested positive outcomes for integrating learning with music (Higbee, & Kunihiro, 1985).

In order to learn new material, one must be able to encode information, move it from short-term into long-term memory and retrieve information, bring it back to consciousness when necessary (Stemberg, 2006). According to Kilgour, Jakobson, and Cuddy (2000) imposing some form of structure or organization on to-be-remembered material improves memory capacity. The memorability of material is affected by structural characteristics, ease of observing and acquiring characteristics, organization, constraint, and cue recall (Wallace, 1994). Association is a way of organizing information that links two different pieces of information to one another and results in a higher form of learning. One type of structure that utilizes association in learning is a

¹ Research performed under the direction of Dr. Richard Brower (Psychology).

mnemonic. A mnemonic is a specific technique that is applied to aid in the memorization of a list of words. There are many different types of mnemonics, some focusing on the use of visual images and others on the chunking of information (Sternberg, 2006).

Music is a type of mnemonic. Kilgour, Jakobson, and Cuddy (2000) claim that the "rhythmical pattern in verse is itself a place-keeping and segmentation mnemonic" (700). Melody when paired with any type of information (lyrics) can be used as a memory aid. Melody chunks the text and therefore acts like a mnemonic, allowing the brain to hold more information at a time (Wallace, 1994).

There are two aspects to a song, the words and the melody. When presented as a song, these two separate parts become integrated, such that one component is better recognized in the presence of the other than in its absence. (Crowder, Serafine, & Repp, 1990) Tune and text are integrated in memory and are encoded or stored together (McElhinney & Annett, 1996). In order for the text of the song to be easily recalled, it must be accompanied by a simple, easily learned melody. There has been an extensive amount of research done regarding integration within song, so much so that melody and text are found to cue each other even over long time delays (Wallace, 1994).

Studies have been done which compare the memory recall of spoken words to that of lyrics accompanied by melody, or song. McElhinney and Annett (1996) found that prose recalled more single words than chunks of information and there was a higher recall from the music condition than from the spoken prose. Wallace (1994) claimed this phenomenon occurs due to the melody providing a framework for the recall; a sturdy structure that makes recall easier. Also, in order for music to enhance text recall, the melody must repeat more than once. This repetition functions as a type of rehearsal, the conscious repetition of information, in which the more practice the material is given the better the chances of recall (Sternberg, 2006).

Due to their constant exposure to songs, people with formal musical training perceive musical structure that is not perceived by those without music training. Because of their higher ability to perceive structure, people with musical training exhibit greater performance on tests of verbal memory skills. (Jakobson, Cuddy, & Kilgour, 2003) According to studies done by Kilgour, Jakobson, and Cuddy (2003) musicians are reported to have enhanced short term memory; they actually have shown an enlargement of the auditory processing areas of the left temporal lobe. Musicians have overall had better recall than non-musicians, even when it came to spoken text. There have also been tests run in order to make sure this enlargement is due to musical training and not intellectual ability; studies have shown that musical training is not significantly correlated with intelligence scores (Jakobson, Cuddy, & Kilgour, 2003).

Research done in order to examine the interaction between melody and text has been conducted on both musical and non-musical students; musical being defined by those students who chose music as a career path. Musical students tended to sing, hum, or tap while listening to melody, while the nonmusical students did not (Kilgour, Jakobson, & Cuddy, 2000). There has been evidence of the melody providing not only the rhythm but the length of the next line, how many syllables it contains and the order of those words (Wallace, 1994). In most cases the participants did not have to know the melody by heart, they only needed to learn enough of it in order to gain the basic structure of the song. The melody provided the students in the musical condition with rhythm, constraints, access points, and order. Constraints work along with rhythm in order to allow the participant to guess as to the missing word in the phrase; it gave boundaries, such as syllable length, and rhyme for the regeneration of a forgotten word (Wallace, 1994). An access point is a place where recall can be picked up again, such as at the beginning of the next phrase or line break. The order in which the text was represented was the order in which it would be recalled; this action limited the likelihood of skipping over material without being aware of it. The melody must match the text in intonation and syllables must go along with the notes in order for the music to effectively enhance memory recall (Wallace, 1994).

In addition to intonation matching, there are other criteria of music that must be met in order for it to enhance memory recall. According to Wallace (1994) the three main criteria for ease of acquisition are clarity, repetition, and simplicity. In order for the material to be learned it must first be easily understood. Second, the music must be repeated in order to be correctly encoded into memory. Wallace (1994) has found in cases where the melody did not repeat it has not always been helpful in recall. In fact results have shown no differences between spoken or sung text when the melody has been heard only once. The melody in this case has the potential to distract from learning and actually hinder the recall process. Melody adds another piece of information to be remembered and can cause interference with the memory of text. Wallace (1994) also found that participants who heard one verse which gave them equal exposure to the melody and text actually had better memory recall in the spoken version because the melody became a distraction; they were given too much information to process at once. Other studies done by Kilgour, Jakobson, and Cuddy (2000), have stated that text set to the musical rate of presentation could be slower than when spoken and the participants have therefore been allowed a longer time to encode information, which could be resulting in better memory recall of music.

According to Wallace (1994), provided the music is repeated and easy to learn, verbatim recall is better for sung over both spoken and spoken to rhythm versions of text and performance improves over trials, due to repetition. The hypotheses of this paper are derived directly from Wallace's findings of music aiding in memory recall. When given an easy song to memorize containing a repetitive melody, participants in the sung version will have far better recall than those in the spoken or the spoken to rhythm conditions. Participants with musical backgrounds will have better memory recall overall, no matter which condition they are placed in, spoken, spoken to rhythm, or sung.

II. Method

Participants

The participants in this study were 6 male and 16 female introductory to psychology students fulfilling their research requirement through participation in Wagner College's Psychology Department Participant Pool.

Material and Procedure

Students from the Participant Pool were informed of the study and were asked to participate. Informed consent was obtained prior to the study. The participants were instructed to complete a short survey containing questions such as sex, age, major, and level of musical training. They then were asked to listen to a recording of a simple folk song entitled *The Water is Wide*. This recording was of a professional singer reading the lyrics, speaking the lyrics to a rhythm, or singing the lyrics. After listening to the randomly assigned version of the song, the participants were asked to write down as much of the song as they could remember, verbatim. The participants listened to the song twice more and recorded their recollection of the lyrics after the third trial. Once the final trial was completed, the participants were debriefed, given an opportunity to ask questions, and thanked for their time.

III. Results

A two-way analysis of variance was used to examine whether prior musical knowledge and version of recording predicted memory recall. No main effects or interaction emerged. The sought after effect of those with musical experience ($M=25.69$, $SD=12.39$) having significantly higher memory recall than those without prior musical knowledge ($M=21.83$, $SD =7.83$) was not achieved $F(1, 16) =.47$, $p=.504$. Version, whether it be spoken ($M=18.50$, $SD=11.26$), spoken to rhythm ($M=27.13$, $SD=8.68$), or sung ($M=28.86$, $SD =11.94$) also was not a significant predictor of memory recall,

$F(2,16) = 1.42, p = .270$. In addition to testing for significance of musical background, a two-way analysis of variance was used to test the significance of version and memory recall for music-related majors ($M = 26.17, SD = 10.76$) versus non-music related majors ($M = 24.06, SD = 11.77$). Neither version of lyrics $F(2,16) = 1.42, p = .270$ nor memory recall $F(1,16) = 1.07, p = .504$ was found as a significant predictor of major.

Although the versions of recordings were evenly distributed among participants who had prior musical knowledge and those who had music-related majors, no significant effects with improvement in memory recall occurred. Improvement of memory recall was calculated by taking the difference between Trial 1 and Trial 3. A Pearson Correlation was conducted and it was found that all participants showed improvement over the trials, memory recall of Trial 1 strongly predicted recall of Trial 2, $F(2,20) = .51, p = .015$.

IV. Discussion

Unfortunately the hypothesis of memory recall being affected by prior musical knowledge or music-related major was not supported; although prior research has supported the claim of people with musical backgrounds having better memory recall over all three versions of the song than those without any musical experience (Jakobson, Cuddy, & Kilgour, 2003).

The hypothesis of participants in the sung or spoken to rhythm versions of the song having higher memory recall than those in the spoken version was also not supported. Wallace's (1994) research indicated that music can be used as a mnemonic, provided the song has a simple structure and the lyrics are easy to recall when paired with a melody or rhythm.

There are a number of reasons why version of song or musical background might not have had a significant impact upon memory recall. One of the main reasons being the quality of the recording. At the end of the study participants from all three versions were asked how well they could hear and interpret the lyrics. Most of them indicated that they could do so only about 80% of the time. The response was even less in the spoken to rhythm and sung versions where over articulated consonants at the end of phrases was considered distracting. A remedy to this problem for future studies entails using a recording that is of superior quality and having it pre-judged for understanding of lyrics prior to running the experiment.

Another possible extraneous variable could have been the way in which the memory recall was scored. Similar to a study conducted by McElhinney & Annett (1996), participants in both the spoken to rhythm and the sung versions had higher memory recall of complete verses within the song and stronger understanding of the

overall meaning than those in the spoken version who tended to recall more single words or phrases. This result was due to chunking of information, using the rhythm or melody of the song as a mnemonic device which allows a greater capacity of short-term memory storage. Perhaps those in the sung version understood more of the song, some created words that fit into the melody, and even though they were not the exact words of the song, they would have fit if the song were to be rewritten. Finally, a lot of participants, all from differing versions wrote "She" where "I" should be within the lyrical line. The scoring did not reflect these differences and therefore participants who made all or some of these mistakes were scored lower than those who stated the exact words from the song. To prevent this situation from occurring in the future, the experimenter should make it very clear to only state the exact words of the song, not to interpret the song and its meaning.

Location of the experiment might also have had an impact upon the level of memory recall. The study took place in different locations, some with higher levels of noise and more distractions than others. A simple solution would be to only hold the study in one location; that way the environment does not have the ability to become an extraneous variable.

Another major reason as to why the results were not significant could have had to do with the fact that there was prior knowledge of the recorded song. Some participants did comment at the conclusion of the experiment that they had heard or sung the song before which could have had a positive impact upon their memory recall. For future experiments participants should be asked prior to the study if they have ever heard the song before and if they reply affirmatively an alternative should be readily available.

A final reason as to why significant results might not have been obtained is due to sample size. This study only utilized 22 participants; if the sample size were to be larger, possibly some results would have reached a level of significance. Improvements that could be made include all of the above plus including another factor to compare memory recall, such as intelligence or GPA. This way recall could be assessed against another variable pertaining to cognition and brain capacity.

V. Conclusions

The study of memory recall in association with music and melody has created great improvements upon the learning and teaching of children. Since studies have supported claims that learning music creates enhanced short-term memory capacity and better mastery of planning abilities, more schools have focused upon music based learning (Jakobson, Cuddy, & Kilgour, 2003). Teachers are taking children's educations

into their own hands and coming up with newer more improved ways of learning by incorporating music into the classroom (Simpson, Biernat, & Marcdante, 2002).

Music has the ability to act as a mnemonic and aid in the learning of not only children but of adults. Music is a universal language that everyone is able to understand. Through the use of music, there is much to be learned.

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Table 1: Means and Standard Deviations

<i>Musical Experience</i>	Version		
	<i>Spoken</i>	<i>Rhythm</i>	<i>Sung</i>
All (N=22)	18.50 (11.26)	27.43 (8.68)	28.86 (11.94)
Prior (N=16)	19.67 (13.02)	29.25 (9.36)	29.33 (13.00)
None (N=6)	15.00 (2.83)	25.00 (8.89)	26.00 (0.00)

Appendix A: Questionnaire

Please complete the following information to the best of your ability.

Sex _____

Major _____

Age _____

Years of musical training/education _____

Appendix B: Lyrics on the Recording

The Water is Wide

The image shows a musical score for the hymn "The Water is Wide". It consists of three systems of music. The first system is an instrumental introduction for piano, marked *mf*, in G major and 4/4 time. The second system contains the first two lines of the vocal melody with lyrics: "1. Oh, the water is wide; _____ I can-not cross o'er, _____" and "2. I leaned my back _____ up a-against an oak, _____". The third system continues the vocal melody with lyrics: "_____ and nei-ther have I _____ wings to fly, _____" and "_____ I thought it was _____ a trust-y tree, _____". Chord symbols (G, Cmaj7, Am, C, D, Em7) are placed above the vocal line to indicate the harmonic accompaniment.

D7 Bm C G
 — but give me a boat — that will car - ry — two —
 — but first it — ben - ded — and then it — broke

Am C D C 1. G
 — and both shall row, — my love and — I.
 — as did my false, — false lord to —

2. G
 me.

G C G
 Oh, love is sweet — and love is fair, —

Musical score details: The score is in G major (one sharp) and 4/4 time. It features a vocal line and a piano accompaniment. The piano part includes chords and a melodic line in the right hand, and a bass line in the left hand. Dynamics include *mf* (mezzo-forte). The score is divided into two systems, each with a first and second ending.

fair as the dew when first it is new,

but love grows old and wax-eth cold,

and fades a way like morn-ing dew.

Chord symbols: Em, Am, Bm, C, G, Dsus, D7, G.

Section III: Critical Essays

Voces y Cuerpos Abusados: Representaciones de la Identidad en *Nada* y *Te Doy Mis Ojos*

Mia Romano (Spanish)¹

English Summary

The novel *Nada* (1945) by Carmen Laforet (1921-2004) narrates in first person the story of Andrea, a teenage orphan sent to live with her aunts and uncles after the Second World War. She is stuck between the abusive relationship of her Uncle Juan and Aunt Gloria and the manipulative relationship she has with her Uncle Román. In the end Andrea chooses to move to Madrid. In the 2003 film *Te doy mis ojos* (I give you my eyes) by Icíar Bollaín (1967) Pilar flees from her husband Antonio one night with their son Juan and goes to live with her sister. Antonio then starts taking anger management classes and tries to win Pilar back, but when he does he continues to abuse her. The movie ends, after a mortifying scene in which Pilar is stripped of her dignity, with Pilar and her son moving to Madrid. In my paper I examine the identities of the female protagonists, analyzing how they construct their self-image in a masculine space under the manipulative influence of abusive men. The women must escape from the suffocating relationships before they can regain control over their bodies and “see themselves” from their own perspectives.

Laforet and Bollaín offer new models of women, creating a displacement of the gaze and narration. They provide a critical analysis of the use of violence toward women through new portrayals of abusive men. The works highlight the theme of domestic abuse in postwar and modern Spain, with the female body represented as an abused object. Historically in Spain the role of women was controlled by men and society, and severely limited to the domestic world and left only to observe the male sphere from a distance. Laforet and Bollaín tell stories of women in a male sphere, depicting how hard it is for women to exist in this space, remaining held back and abused. *Nada* takes place in Barcelona and *Te doy mis ojos* in Toledo, and both cities visualize a space that suffocates the protagonists. The women are anonymous because in resembling labyrinths with their narrow winding streets, the cities cause the women to lose themselves physically and mentally. The cities represent the older cultural mentalities in which the theme of domestic abuse still finds its foothold in modern times. The only way for the women to

¹ Written under the direction of Dr. Margarita Sánchez (Languages)

survive is to escape, and therefore both Pilar and Andrea move to Madrid. With this escape they are able to discover their identities outside of the familiar yet oppressive male sphere.

Laforet and Bollaín explore the deadly combination between fear and desire, and being the subject and the object in the works. Pilar, Gloria and Andrea construct their identity based on how men perceive them. The relationship between Gloria and Juan and Pilar and Antonio is centered in their sex life, and the women choose not to leave these abusive men because they are made to believe they are beautiful and desired. They are given meaning through the men's eyes, but that beautiful image is destroyed by the abuse. *Te doy mis ojos* provides the viewer with contrasting images of the female body. In one scene Pilar is naked while making love with Antonio, but is naked in another while he abuses her. The women are robbed of their dignity, and therefore must escape.

While in the novel there are vivid scenes in which Juan abuses Gloria, in the movie Pilar is abused off-screen, with the only proof being her skittish behavior around the husband and medical records the sister finds indicating that Pilar has severe damage done to her kidneys and one eye. Bollaín uses colorful images to relay the idea of violence although none appears in the film. Pilar stands next to a large purple circle resembling a bruise on a canvas at the museum, and Antonio writes angry thoughts on the blood-red pages of his journal. In *Nada* Laforet uses the symbol of water to represent how Andrea wants to purge the violence she witnesses from her body. These images of abuse provide an analysis of Spanish culture and men.

The female gaze in the works, represented by the image of the eye, is a prevalent theme in the works. The gaze between the subject and object and the desire to be visible or invisible are also important themes concerning the perspective of the female protagonists. Barry Jordan, in his article "Looks that Kill," writes that "the gaze becomes a metaphor for the body, an extension whereby the woman's gaze must be barricaded by the eyelids." (85-6) This visual censorship of women is seen in Andrea's desire to close her eyes and hide, but is broken by Pilar's desire to become visible in society as she asserts herself in public. When the object views the subject there is a severe and destructive displacement of power, and therefore when the women observe the male characters, they threaten the male sexuality that is being exerted to suppress them. Andrea begins to ignore Román and he commits suicide, and Antonio attempts suicide when Pilar leaves him a second time. Both women gain personal power and are able to meet the eyes of their suppressor, and therefore become a threat to the man's sexuality and power.

Laforet and Bollain tell stories of domestic abuse not for Hollywood horror stories but for describing a reality for women in Spain who live within that culture. These Spanish authors and directors, representing women fighting against abuse for their own voice and identity, have contributed to changing Spanish society. In “The Laugh of the Medusa” Hélène Cixous says “Write yourself. Your body must be heard.” These works announce the power of the female body and the need for liberation.

Voces y Cuerpos Abusados: Representaciones de la Identidad en *Nada y Te Doy Mis Ojos*

Mia Romano (Spanish)¹

“I write woman: woman must write
woman. And man, man. So only an
oblique consideration will be found
here of man; it’s up to him to say
where his masculinity and
femininity are at: this will concern
us once men have opened their eyes
and seen themselves clearly.”

~Hélène Cixous

A mi madre, porque aunque no
entiende el idioma de la tesis, me
entiende.

I. Literatura femenina como cuerpo

Escribir no es simplemente poner palabras en el papel. El autor o autora pone la fluidez de la sangre y la carne en cada línea para que el texto se transforme en su propio cuerpo. La tinta es como la sangre que da vida al texto, el cuerpo físico en el que viven las palabras. Al mismo tiempo el cine provee una mirada literalmente diferente porque la lente manipula la mirada del espectador en una manera diferente de la que un narrador describe los acontecimientos desde la página. La autora española Carmen Laforet (1921-2004) y la directora Icíar Bollaín (1967) cambian el canon literario sobre la mujer porque ofrecen una perspectiva diferente del modelo femenino, rompiendo con la tradición social y literaria. Crean un desplazamiento de la mirada y de la narración por medio de personajes y conflictos en sus obras. Proveen perspectivas nuevas de los personajes masculinos y un análisis crítico del uso de la violencia brutal hacia las mujeres. Poner a los hombres en este marco negativo les ayuda en la lucha contra el machismo español de los siglos XX y XXI.

¹ Written under the direction of Dr. Margarita Sánchez (Languages)

Laforet y Bollaín no solamente crean protagonistas en sus obras, sino que relacionan el cuerpo femenino consigo mismas y con la experiencia universal de la mujer. Representan el cuerpo de las mujeres como objeto abusado violentamente por los hombres, e igualmente les dan la palabra a sus protagonistas para hablar de sus propios cuerpos, golpeados pero transformados. La gente escribe para comprender la sociedad en que vive y la civilización a la que pertenece, (Huffer y Dean 115) y por lo tanto Laforet y Bollaín definen el pensamiento de España de la posguerra hasta la actualidad desde una mirada nueva, especialmente desde el tema del abuso femenino. En la novela *Nada* (1945) de Laforet y en la película *Te doy mis ojos* (2003) de Bollaín las señales del abuso aparecen vívidas como en el cuerpo de una mujer.

Este ensayo explora el papel de la mujer española en la literatura y el cine, enfocándose en la novela *Nada* de Laforet y en la película *Te doy mis ojos* de Bollaín. Observo cómo las mujeres funcionan en los espacios masculinos, y me concentro en la lucha por crear una subjetividad dentro de un marco estático en el que han sido percibidas como objetos. Analizo cómo la ciudad sofoca y atrapa a la mujer, las formas en que la identidad femenina se rompe, el abuso a la mujer y el uso de la mirada. Me interesa mucho el uso de la mirada en *Nada* y *Te doy mis ojos*, y la forma en que el espacio, la subjetividad, las representaciones del hombre y el abuso aparecen como temas unidos, como piezas de un cuerpo físico. Las descripciones del abuso en la literatura y en el cine son más importantes cuando se relacionan con otros aspectos de la experiencia femenina. En los casos de Laforet y Bollaín, la exploración de la mirada para descubrir y redescubrir la identidad a través de los ojos abusados de las protagonistas genera el enfoque de sus obras.

En el trabajo examino las maneras en que las autoras españolas han presentado el tema del abuso a través de diferentes épocas, y el impacto literario o cinematográfico de las obras de Laforet y Bollaín. Precursoras como María de Zayas (1590-¿1661?) y Emilia Pardo Bazán (1851-1921) empezaron los cambios literarios, escribiendo sobre la violencia hacia las mujeres con ejemplos de mujeres como objetos. En mi trabajo voy a referirme a los cuentos “La fuerza del amor” de Zayas y “Las medias rojas” de Pardo Bazán para comparar los temas e imágenes que usan Laforet y Bollaín en sus obras. Las obras llegan a un nivel más complejo cuando son comparadas con los textos de Zayas y Pardo Bazán porque no sólo sirven como una referencia histórica, sino que cuentan una realidad femenina que todavía no ha cambiado radicalmente en la cultura española. Hablo de cómo la mujer funciona en un espacio masculino y cómo estos espacios, los lugares en que las historias se desarrollan, las sofocan, las limitan y crean la necesidad de escapar y liberarse. La mujer aparece fragmentada como un objeto sexual y hay una línea fina entre

el deseo y el miedo, experimentado también por los personajes masculinos. La mujer construye su identidad a través de la mirada y del deseo del hombre. Al comparar las situaciones de abuso en Laforet y Bollaín entendemos que los hombres actúan violentamente por los celos, el miedo, y el deseo de control sobre la mujer. Hay dimensiones interesantes en las descripciones del abuso y los cuerpos femeninos, como el uso de los colores y del agua. Las identidades femeninas se construyen a través de las miradas de los hombres, pero al liberarse de estas miradas, las mujeres amenazan a los hombres. En las obras de Laforet y Bollaín hay muchos ejemplos de instancias en que la mujer es agarrada y tocada, golpeada y observada. La mirada está representada a través del símbolo del ojo, está en el centro de todos estos conflictos con la identidad y el abuso. Laforet y Bollaín exploran modelos la resistencia desde la fuerza que tienen las mujeres para que se libere la mirada femenina de la masculina a través de un escape físico y mental del hombre para ganar independencia.

El tema del abuso femenino aparece mucho en obras españolas. La primera obra española de la Edad Media, *El cantar de Mio Cid* del siglo XIII habla del abuso. En la epopeya hay una escena muy violenta del abuso hacia las hijas del Cid por parte de sus esposos. Aunque es una escena muy sangrienta porque “mucho las golpearon, pues despiadados son; / sangrientas las camisas y todos los ciclatones,” (CXXVIII. 2743-4) en la descripción de una batalla en el mismo cantar no hay ni una gota de sangre. El autor puso más acentuación en la violencia doméstica que en la lucha, dirigiendo la importancia a los cuerpos sangrientos de las mujeres. En el siglo XVII María de Zayas presenta el tema de la violencia doméstica en su cuento “La fuerza del amor.” Describe una escena muy violenta en la que don Diego golpea a su esposa Laura: “le empezó a maltratar de manos, tanto que las perlas de sus dientes presto tomaron forma de corales bañados en la sangre que empezó a sacar en las crueles manos.” (238) Una escena similar con la violencia aparece en “Las medias rojas” de Emilia Pardo Bazán del siglo XIX cuando Ildara es abusada por su tío. Al fin del cuento ella “salió fuera, silenciosa, y en el regato próximo se lavó la sangre. Un diente bonito, juvenil, le quedó en la mano.” (248) En los dos cuentos vemos la imagen de los dientes, normalmente en el canon de la belleza femenina como perlas blancas, convertidos en corales sangrientos. En la cultura española del siglo XXI todavía la violencia doméstica no se ha resuelto y continúa siendo expresada en diferentes obras de arte. La novela *Nada* de Carmen Laforet describe la vida de Andrea, una muchacha huérfana que es forzada a vivir en la casa de sus tíos. Desde la mirada de Andrea el lector ve que su cuñada Gloria es abusada fuertemente por su esposo Juan, y las dos mujeres son convertidas en objetos y sus identidades son fragmentadas por el tío Román. Iciar Bollaín explora el abuso doméstico a través de la mirada femenina en la película *Te doy mis ojos* con los actores Laia

Marull y Luis Tosar, pero a diferencia de las obras previamente mencionadas, la película no se enfoca en escenas violentas. Hay tensión y señales palpables de que el hombre abusa de su mujer, pero no se ven luchas ni golpes ni sangre.

En la historia de las mujeres españolas, su papel ha estado enmarcado en el mundo doméstico. Sus identidades han sido controladas por los hombres y la sociedad, y la conformidad ha sido lo normal. En la época medieval los escritores también controlaban las vidas de mujeres, y a menudo, si la literatura no era religiosa, se producían libros sobre la etiqueta y cómo aplicarla. (Ariès y Duby 350) Las autoras no recibieron mucho apoyo, fueron forzadas a usar pseudónimos, una forma literal de esconder la identidad femenina. María de Zayas fue una de las primeras feministas del mundo literario español.¹ Lisa Vollendorf explica en su artículo “Reading the Body Imperiled” que sus textos “register the voice of resistance to the tolerated oppression and abuse of women under patriarchal rule.” (280) Zayas no solamente logró sobrepasar estos obstáculos, sino que le abrió el camino a la escritura de mujeres. Su presentación de hombres que desengañan y que son violentos llega desde un rencor personal que experimentó, y a través de su rencor personal, escribe desde esta perspectiva sónica y fuerte. El mundo literario en que escribe Emilia Pardo Bazán no fue muy diferente al de Zayas. Emilia Pardo Bazán fue una mujer muy educada, privilegiada, y aristócrata. Fue una de las primeras profesoras mujeres en España y luchó mucho por los derechos de las mujeres, aunque le tocó vivir en una época en la cual los hombres recibieron el voto en España y las mujeres no. Las escritoras y directoras que pueden ser llamadas feministas como Laforet y Bollaín describen modelos femeninos nuevos de la mujer, más fuertes y liberadas. Al mismo tiempo, en cambio, hablan de mujeres atrapadas en un espacio sofocante donde están limitadas por la dominación mental y física de los hombres.

La literatura y el cine de los siglos veinte y veintiuno son más similares en el sentido que hay más autoras y directoras, pero la lucha por una voz artística se mantiene fuerte. Carmen Laforet escribió muchos textos importantes, incluyendo *Nada*, y dejó de escribir muchas décadas antes de su muerte. Se enfoca mucho en su vida personal, y en *Nada* provee además una perspectiva detallada de la Barcelona de la posguerra donde vivía. Icíar Bollaín usa sus películas para examinar la sociedad española, y “the theme of domestic violence is more and more pronounced in each successive film.” (Levine 2) Presenta las ideas del hogar, el desplazamiento y el abuso en sus películas desde *Hola ¿estás sola?* de 1995 hasta *Te doy mis ojos* de 2003. (2) El cine y la escritura actual, como la de los siglos de Zayas y Pardo Bazán, ofrecen una perspectiva y un análisis de la vida española, y una exploración del espacio femenino abusado, tanto el del cuerpo como el geográfico.

II. Mujeres Atrapadas en Espacios Masculinos

La idea de que un espacio puede ser designado como masculino o femenino aparece en la historia y en la literatura. No solamente hay papeles designados para los géneros, sino espacios físicos e imaginados en que residen hombres y mujeres. La antropóloga Shirley Ardener observa que en la América colonial del norte había espacios que le dieron el poder a los géneros:

the ‘social map’ of patriarchy created ‘ground rules’ for the behavior of men and women, and that the gender roles and relations of patriarchy constructed some spaces as ‘feminine’ and others as ‘masculine’ and thus allocated certain kinds of (gendered) activities to certain (gendered) places. Gender difference was thus seen as inscribing spatial difference. (Blunt y Rose 1)

El mundo público de la cultura, la política y la economía correspondía a un espacio masculino. El papel de la mujer era estar en la casa, cosiendo, cocinando y cuidando a los niños. Ellas no sabían mucho del mundo masculino, separadas de este espacio por la opresión. El espacio femenino era más personal, y puesto que no tenían acceso al espacio público, observaban. En tiempos actuales muchas autoras y directoras españolas ofrecen un acercamiento distinto a la utilización del espacio, pero como explica Linda Gould Levine en su artículo “Saved by Art,” en el cine contemporáneo no aparece “a feminist agenda for social change or a space for women outside of patriarchal control” (19) aunque los argumentos estén centrados en la mujer. Con el poder de la literatura y del cine ellas cuentan experiencias desde su espacio y la manera en que se perciben sus cuerpos y el abuso a través de su mirada.

La exploración del espacio femenino representa una lucha por cambiar la perspectiva de la mujer de objeto a sujeto. En relación con el espacio femenino, Susan Kirkpatrick escribe sobre la subjetividad de la mujer en el siglo XIX: “identifying female subjectivity with family love amounted to the same thing as conceiving of woman as the object rather than the subject of consciousness.” (60) La mujer es vista como un objeto en el pasado, casi al igual que en el presente. En la época medieval en su casamiento la mujer es sólo un premio o una dote para la familia del marido. No valía nada la sabiduría ni la consciencia de la mujer, y no podía cambiar su papel y transformarse en el sujeto de su vida. Simone de Beauvoir describe en su obra *The Second Sex* (1949) que la mujer es “otra” como el objeto del hombre. (xxxv) Al igual que en sus vidas, las autoras eran disuadidas a incorporar la subjetividad y la identidad femenina en sus narrativas, porque poner a la mujer fuera de su espacio femenino era peligroso.² (Kirkpatrick 289) Los textos de la época medieval y del siglo de oro representaron a las mujeres en papeles tradicionales, pero sin sus propias voces y pensamientos. Romper los modelos estereotípicos y presentar temas

anormales acerca de las mujeres es parte de la lucha femenina contra la literatura escrita por los hombres. Muchas autoras cambiaron la representación de las mujeres en la literatura a través del poder del sujeto.

En relación con el espacio, Laforet y Bollaín usan las ciudades para visualizar un espacio que sofoca a las mujeres. *Nada*, la novela pseudo-biográfica de Carmen Laforet, captura la realidad del siglo XX en España. Laforet pinta una escena vívida de Barcelona, con toda la presión de su crueldad y sufrimiento, y también las tensiones que afectaban a la gente psicológicamente durante la posguerra. La gente se sentía atrapada. Los espectadores ven la misma opresión en la película *Te doy mis ojos* de Iciar Bollaín. Realizada en Toledo, la película captura una España clásica; en la arquitectura y el arte encontramos la cultura antigua que influye en los pensamientos machistas alrededor del abuso femenino. Andrea en *Nada* y Pilar en *Te doy mis ojos* parecen anónimas en las ciudades porque en una ciudad, con calles estrechas como un laberinto, la gente puede perderse mentalmente al igual que físicamente. Con todo el arte antiguo de Toledo y los efectos lúgubres de la posguerra en Barcelona, las ciudades añaden atmósfera a las obras. Barcelona y Toledo, como los mismos personajes, representan las tradiciones españolas que sofocan a las protagonistas femeninas.

Nada y *Te doy mis ojos* se enfocan mucho en la idea del escape. En su libro *Novela femenina, crítica feminista*, Katica Urbanc arguye que los críticos proponen el tema del escape femenino relacionado con la emancipación femenina en España y la causa feminista del siglo XX. (9) En la escritura feminista hay una necesidad de escaparse de la influencia del poder machista, y vemos la desesperación que siente Andrea cuando vive rodeada por sus tíos. Las situaciones sofocan a Andrea al igual que a Pilar en la película, y en las narraciones la liberación personal y física son su objetivo. En este sentido las dos obras reflejan muchos rasgos de la escritura feminista con sus temas del escape, la soledad, hombres “abusivos” y el maltrato femenino. (22) La tradición machista del país aislado no crea muchas oportunidades para la emancipación de la mujer. Al igual que la gente en España, las mujeres en las obras están atrapadas. La madre de Pilar en *Te doy mis ojos* se puede comparar con la abuela en *Nada* porque las dos están encarceladas en la cultura, y no hacen caso a su condición de inferioridad ni al abuso de las mujeres: lo aceptan. En *Nada* Gloria se queda en la relación de abuso con Juan y su cuñado. Andrea no tiene una opción diferente a vivir en la casa de su extraña familia. En la novela Laforet se enfoca en la necesidad de un escape para las mujeres. La novela empieza con la narración de Andrea, sofocada en su habitación nueva:

Al fin se fueron, dejándome con la sombra de los muebles que la luz de la vela hinchaba llenando de palpitations y profunda vida... Sentí que me ahogaba y trepé en peligroso alpinismo sobre el respaldo de un sillón... tenía miedo de

meterme en aquella cama parecida a un ataúd. Creo que estuve temblando de indefinibles terrores cuando apagué la vela. (Laforet 19)

Andrea piensa mucho en cómo se siente sofocada y está ahogándose en la Barcelona de la posguerra. Su tía Angustias dice que Andrea está “en medio de la gente, callada, encogida, con aire de querer escapar a cada instante.” (Laforet 33) El fin del manuscrito original de *Te doy mis ojos* y el fin de *Nada* capturan la idea del escape para las protagonistas. Para Andrea y Pilar, la única forma de escapar es mudarse a Madrid. Andrea encuentra su salida cuando al fin ella se va a vivir con la familia de su amiga allí, y a pesar de que el espectador solo ve que Pilar y sus amigas dejan a Antonio en el piso, es claro que ella va a Madrid con su hijo.³ Madrid representa la modernidad a pesar de que al igual que Barcelona y Toledo, también está llena de riquezas antiguas e históricas. Su escape final es crucial para descubrir sus identidades fuera del espacio familiar, liberadas de la tristeza enorme que sofoca sus vidas.

El uso del espacio y la dislocación de la mujer en un espacio masculino y sofocado presentan una exploración interesante de la construcción de la identidad de la mujer. Al estar en espacios masculinos, los hombres influyen en las mujeres. Ellos transforman la mirada que tienen las mujeres de sí mismas, y por lo tanto la identidad femenina cambia. Ellas son casi destruidas no sólo por los espacios masculinos sofocantes sino también por los hombres. En las obras aparecen los efectos del deseo y del miedo en la mujer y cómo éstos transforman sus identidades. Al igual que el espacio sofoca, el miedo fragmenta.

III. El Deseo y el Miedo Convierten a las Mujeres en Objetos Fragmentados

Zayas, Pardo Bazán, Laforet y Bollaín no escogen sólo visualizar a la mujer como un sujeto, sino que juegan con la idea de cómo existe la mujer entre dos mundos donde existen como objetos y sujetos. Continúan representándola como el objeto con una perspectiva crítica a través del desplazamiento de mujeres en espacios masculinos. Paul Julian Smith examina en su libro *Vision Machines* la idea de Paul Virilio, un historiador francés, del “vision machine.” Describe con el concepto del “vision machine” como la gente se percibe en el contexto de los sujetos y los objetos, y provee un análisis de lo que ocurre cuando el sujeto pierde el control de la mirada. Explica como el “vision machine” es “a paradoxical condition in which it is the object which perceives the subject.” (2) Al objeto mirar al sujeto, experimentamos un desplazamiento de la mirada normal donde el objeto no puede expresarse, casi ciega por su obsesión con la mirada del sujeto. Es una explicación pertinente para describir la manera en que las protagonistas, objetos sexuales, son representadas en contraste con los hombres, los sujetos. Laforet y Bollaín proveen

ejemplos de la perspectiva de la mujer como objeto en su camino hacia su condición de sujeto.

Las mujeres, aunque estén en casa, no tienen el control y son convertidas en objetos. El personaje de Laura en “La fuerza del amor” de María de Zayas se casa con un hombre infiel, don Diego, y cuando se queja, es golpeada. Al fin ella deja a don Diego, pero para casarse con otro. Ella hace una transición que va del control de su padre y sus hermanos al control de su esposo, don Diego. En la casa de su familia, una familia sin madre, el lector presume que ella es la figura femenina que limpia y cocina y cuida a los hombres. Con su casamiento Laura entra en un mundo similar donde, otra vez, el hombre tiene el poder y ella no vale nada. En el mundo público de su marido ella pierde el control cuando don Diego tiene una relación pública con su ex-amante, y no es el sujeto de su vida. En “Las medias rojas” de Pardo Bazán, una muchacha llamada Ildara compra medias rojas, y por esto es golpeada por su tío Clodio. El cuento empieza con una descripción de cómo Ildara prepara el fuego y la comida cuando vuelve a casa. (246) Cuando ella está cocinando, “tenía el tío Clodio liado su cigarrillo, y lo chupaba.” (50) No es el espacio de Ildara porque ella es una huérfana, y es la casa del tío, aunque ella lo hace todo. El espacio, que normalmente se identifica con la mujer, es dominado por el hombre. La narración provee una perspectiva de cómo Ildara está atrapada en casa, en un espacio masculino. En *Nada*, Laforet describe a Gloria como un objeto que no puede transformarse en sujeto, aunque es ella la que trae dinero a la casa para mantener a la familia. Andrea, aunque está objetivada por los hombres, tiene la posibilidad de liberarse. Andrea experimenta la misma dislocación en un espacio que no es suyo. Es huérfana al igual que Ildara, y cuando se traslada a la casa de sus tíos vemos por primera vez a una mujer con su poder fuera del hogar. Su espacio está en la universidad, en la calle y en los cafés con su amiga, aunque normalmente los mundos académicos y culturales no pertenecen a la mujer. La autora crea un espacio nuevo para que Andrea crezca. Cuando Andrea está en casa se siente reprimida, pero encuentra su propio espacio afuera. Su tía Angustias logra el desplazamiento cuando se muda a un convento, literalmente un espacio femenino. Las narraciones proveen una perspectiva de cómo viven mujeres objetivadas en un espacio extraño.

Laforet y Bollaín presentan un cruce entre el miedo y el deseo de sus protagonistas. Aunque la madre de Ena dice en un momento que “no es sólo pasión y egoísmo ciego entre un cuerpo y alma de hombre y un cuerpo y alma de mujer” (248) todos los otros ejemplos de uniones sexuales en las obras incluyen un elemento erótico. En su libro *El erotismo*, Georges Bataille propone que “el paso del estado normal al de deseo erótico supone en nosotros la disolución relativa del ser constituido en el orden discontinuo.” (31) Las acciones eróticas pueden destruir al ser desde el interior, (31) y

pueden causar una transición automática del deseo al miedo y viceversa. El deseo y el miedo son emociones que son difíciles de controlar. Es evidente en la escena en *Te doy mis ojos*, cuando vemos a Antonio y Pilar haciendo el amor, que ella se enfoca en el momento erótico y no hace caso de las memorias del abuso que la cara y las manos de Antonio pueden inducir en un momento diferente.⁴ La relación de Antonio y Pilar y la de Gloria y Juan está basada en el sexo, “the glue that keeps their marriage together.” (Levine 9) Una razón por la que las mujeres no dejan a sus esposos a pesar de los golpes violentos es que a través de sus miradas, como a través del sexo, ellas se sienten deseadas y bellas. En *Nada* Andrea describe su visión sobre Gloria “el día en que la vi desnuda sirviendo de modelo a Juan” (Laforet 36) para su pintura. La comparación de Gloria como un objeto visto por Juan es indiscutible, pero al mismo tiempo para ella hay “algo que en sus ojos no lucía nunca.” (38) Es como si una representación pasiva le diera un significado personal que faltara en su vida normal. El objeto inanimado de la pintura le da vida al sujeto que se siente incompleto sin la mirada del hombre. Cuando la madre de Ena habla con Andrea sobre su pasado con Román, le revela que Román le pidió una de sus trenzas, que ella no sería capaz de cortarlas. La madre le admite a Andrea que valora mucho su cabello como su belleza. Por fin ella corta su cabello, y después él le pregunta “¿por qué has hecho esa estupidez, mujer? ¿Por qué eres como un perro para mí?” (243) La mujer pierde una parte de sí misma y se transforma en una muñeca que él ha manipulado.

Hay muchos momentos en *Nada* con tensión sexual entre Andrea y su tío Román. Al llegar a la casa ella nota su apariencia y que aunque la abraza con mucho cariño, tiene una pistola en la mano, y la primera cosa que hace Román frente a ella es provocar una lucha entre Gloria y Juan. (28, 29) Representa una amenaza siniestra en su vida, y en un momento pregunta si Andrea lo quiere y dice que quiere contarle cosas. (90, 92) Los intercambios entre Andrea y Román parecen extraños y al borde de algo peligroso hasta que ella termina la relación. A través de la tensión sexual entre ella y su tío, Andrea experimenta este cruce del miedo y el deseo.

Relacionado con una relación peligrosa entre el deseo y el miedo está la cuestión de la muerte. Una persona abusada que se queda en una situación abusiva juega no solamente con la pérdida de su identidad, sino con la de su vida. Emilia Pardo Bazán presenta una lucha entre el deseo y la muerte en su cuento “El amor asesinado.” La mujer se siente sofocada y con la necesidad de un escape porque está harta de la presión del Amor, personificado en el cuento como un hombre. Ella, llamada Eva, planea la muerte de Amor: “Eva comenzó a pensar en la manera de librarse... Entre el Amor y Eva, la lucha era a muerte, y no importaba el cómo se vencía, sino sólo obtener la victoria.” (246) Eva lucha por su vida, al igual que las protagonistas abusadas están luchando por

sus propias vidas. Las posibilidades son escaparse, liberarse, e identificarse, o morir. Ellas se escapan porque son motivadas por el miedo que sienten, un instinto humano para huir fuera del abuso.

El personaje de Antonio no es un bruto raso, sino un individuo complejo y confundido acerca del deseo, el miedo y el control. El espectador ve a Pilar como un objeto sexual para Antonio. El no le da respeto como un individuo, sino como un ser sexual. El artículo “Amores que matan” de Jacqueline Cruz arguye que Antonio “está obsesionado con la posibilidad de que ella se enamore de otro y se muestra claramente inestable y emocionalmente aislado, expresándose efectivamente sólo a través de la ira.” (72) Actúa violentamente no sólo por celos sino también por miedo. La quiere bajo su control, como una muñeca en sus manos. Parece un niño con su necesidad de tener toda la atención de Pilar cada minuto. Aunque Antonio va a la terapia en grupo, no puede cambiar, y ya que no cambia, es difícil alterar el estado mental de Pilar para independizarse.

Las mujeres solamente se sienten bellas a través de la mirada y del deseo sexual de los hombres, obsesionadas con sus cuerpos. Gloria le pregunta a Andrea “Y bonita... ¿Verdad que soy bonita?” (Laforet 303) para sentirse afirmada.⁵ Ella ha perdido el respeto y la imagen de sí misma. En *Te doy mis ojos* vemos a Pilar desnuda dos veces, una durante una escena sexual y otra durante una escena de abuso. En la cama el espectador ve la ternura y el placer que siente Pilar con Antonio. Pilar siente valor porque es un objeto deseado sexualmente por él. En un instante la perspectiva y la mirada de Antonio pueden cambiar cómo ella se percibe, como en la escena chocante al final cuando Antonio le quita la ropa a Pilar y la pone desnuda en el balcón frente a toda la ciudad. Antonio la agarra y ella se orina por el miedo. A causa de esta humillación ella siente una combinación de vergüenza, horror y miedo, y su imagen de la belleza está destruida. En el resto de la película vemos una distancia remota entre la pareja, y poco después ella se va porque, en un instante de vergüenza, entiende que ella puede construir su propia identidad y belleza fuera de la influencia destructiva de Antonio. Los cuerpos y la belleza de las mujeres son cambiados a causa de los hombres.

Las mujeres en estas obras aparecen fragmentadas por los hombres. Laforet y Bollain muestran a las mujeres y sus “bodies as gendered, violated, fragmented, marginal and central, and the objects that surround the body.” (Gómez-Quintero y Bustillo 6) Hay un momento en *Nada* en que Román le dice a Andrea “Tú no dominarás tu cuerpo y tu alma. Tú no, tú no... Tú no podrás dominarlos.” (Laforet 107) Sus palabras se refieren a la inhabilidad de las mujeres para construir algo sin la ayuda o la participación de un hombre. Linda Gould Levine propone que en *Te doy mis ojos* Antonio, “affirming himself as the aggrieved subject, he converts his wife into an object who is no longer the active spectator.”

(15) Ya sea por el poder de las palabras o los golpes, las mujeres son objetos sin fuerza. Las mujeres no son espectadoras activas y sus cuerpos y sus almas están incompletos. Bollaín propone la opción que tienen las mujeres del escape cuando Pilar se va a Madrid, al igual que Andrea, pero con Gloria no vemos la misma fuerza o mentalidad de la liberación personal del hombre. Aunque ella se queja mucho, no hace nada para salir de la situación. El cuerpo de Gloria es casi descuartizado por la mirada de Juan, y se convierte en lienzo para Juan con el color de los cardenales y la sangre de los golpes. Ella, como modelo para su pintura, no es vista como una persona en total. Llega a ser fragmentada en trozos cuando él pinta una pierna, un brazo, un pecho. La situación es paralela entre Antonio y Pilar. El título de la película, *Te doy mis ojos*, está explicado en una escena cuando Pilar le da como “regalo” a Antonio partes de su cuerpo. Al decirle “te doy mis brazos, te doy mis piernas,” la mujer está descuartizada y vista solamente en trozos. Una parte de la lucha por la subjetividad de las mujeres, que proveen Laforet y Bollaín, incluye cambiar la idea de la mujer fragmentada y reconstruirla como un alma unida.

Los cuerpos femeninos aparecen en un momento como los de una musa bella y en otro luchando por el respeto y la vida. Es difícil comprender por qué ellas están en situaciones de abuso donde se fragmentan y se convierten en objetos, más cuando vemos las imágenes del abuso en las obras. Mirar o leer el abuso no es fácil, pero Laforet y Bollaín lo hacen en formas artísticas y psicológicas. Las obras son diferentes a escenas sangrientas sobre una guerra o batalla o una lucha física entre dos hombres armados. *Nada* y *Te doy mis ojos* cuentan historias de mujeres abusadas por la violencia doméstica, con elementos profundos alrededor de las imágenes y escenas violentas.

IV. El Abuso Hacia la Mujer

Nada y *Te doy mis ojos* presentan al tema del abuso femenino de manera vívida. En *Nada* hay escenas repetitivas de luchas físicas entre Juan y Gloria, casi banales. Juan actúa desde una rabia celosa y Gloria, la ingenua, reacciona con sus erupciones emocionales. Bollaín cuenta una historia de violencia doméstica en una manera artística. Los espectadores no ven la sangre de Pilar en la película, pero experimentan su camino psicológicamente destructivo. Román, Juan y Antonio representan hombres españoles reales, y actúan dentro de los marcos estereotípicos. Estas figuras del machismo español en la literatura de mujeres “are lampooned mercilessly, reflecting social criticism of the ethic of male superiority.” (Brown 68) Estos hombres son instrumentos para la crítica e imágenes del abuso que dirigen a las mujeres. En las obras el tema del abuso contiene algunas imágenes fuertes y al mismo tiempo un análisis de la cultura y los hombres españoles.

Las descripciones de Román y Antonio están centradas en la representación de hombres celosos y cómo afecta la necesidad de atención por parte de sus mujeres. Un tema predominante en la literatura de María de Zayas es el de los celos. Los hombres están motivados por los celos, usando el abuso físico o verbal hacia las mujeres. En *Te doy mis ojos* es evidente que Antonio sufre de un complejo de la inferioridad. Siempre piensa que ella está con otro cuando ella está trabajando o con sus amigas, y duda de sus habilidades en su vida. Desea la dominación completa del cuerpo de Pilar, y si no lo consigue, tiene un pánico violento que dirige hacia ella. Linda Gould Levine explica que con su trabajo nuevo, Pilar evoca “anger and fear in her husband, who feels threatened by the delight his wife finds in an image other than his own.” (4) Para lograr el control, Antonio la posee. El miedo de que ella lo va a abandonar “inevitable leads him to lash out against her and annihilate her re-vision of self” (12) Como Antonio, en la novela *Nada* el miedo que tiene Juan en cuanto a su relación con Gloria lo lleva a perder el control y a golpear violentamente a su esposa. También Román provoca los celos y el abuso a Gloria cuando le habla a Juan sobre la relación que tuvo con ella en el pasado. Gloria amenaza el control de Juan cuando grita que no tiene miedo, y eso le genera furia. Las mujeres que trabajan, como es el caso de Pilar, amenazan al hombre y su poder. Por lo tanto ellos “affirm their manliness” (Brown 60) con la dominación física. Cuando Román pierde el control sobre Andrea y sobre su amiga Ena, se suicida; es un acto claro del efecto negativo que tienen las mujeres en los hombres cuando presentan una amenaza a su masculinidad. El hecho que los hombres sean mostrados como seres violentos es una crítica fuerte a la sociedad española porque revela una realidad triste. Al representar el estereotipo no lo alaba, sino que lo critica.

El abuso es palpable en la novela y en la película. En una lucha que aparece en la novela, la narradora dice que Juan “soltó una blasfemia y le empezó a dar puñetazos en la cabeza” (Laforet 134) a Gloria. Según Ana María Fernández en su libro *Las mujeres en la imaginación colectiva*, hay una conexión fuerte entre el cuerpo femenino, la sexualidad y el poder. Explica que “en el terreno de la sexualidad, se desarrollan a menudo diversas formas de maltrato hacia la mujer. La coerción sexual y la cosificación del cuerpo de la mujer son aspectos de una sexualidad entendida como instrumento de poder.” (98) Juan y Antonio dominan a Gloria y a Pilar, y en sus relaciones los hombres les roban a las mujeres su dignidad, su identidad y su cuerpo. Al final Andrea cuenta cómo Gloria “rápidamente se quitó la blusa y me enseñó un gran cardenal sanguinolento en la espalda” (Laforet 304) a causa de un golpe de Juan. Juan usa continuamente términos como “zorra” y “sinvergüenza” y dice que Gloria tiene “sesos de conejo” y que le matará. En conjunto es una atmósfera destructiva psicológicamente para ella, pero no se va.

El uso de los colores en las obras da una dimensión nueva al mundo del abuso. En un momento en *Te doy mis ojos* en el museo Pilar explica los colores de un Kandinsky a un grupo de turistas. Ella habla del color blanco y dice que representa el silencio, y que el violeta es el miedo. La cámara se enfoca en el círculo enorme de violeta y púrpura en el cuadro, que parece un cardenal. Aparte de los documentos del hospital, es la imagen en la película que más se asemeja a una señal del abuso en su cuerpo. El espectador sabe que las manos de Antonio producen la sangre de Pilar a través de sus golpes, pero solo ven sus manos contra las páginas rojas de la libreta que usa para su terapia. En *Nada* después de una lucha y de que Juan baña a Gloria en una ducha fría, la pone en la cama. Andrea observa que “sus cabellos mojados resultaban oscuros y viscosos como sangre sobre la almohada.” (Laforet 135) El cabello hermoso y rojo se relaciona con la sangre fea del abuso. El abuso, ya sea visual o simbólico, aparece más fuerte con el uso de los colores.

Es muy interesante la forma en la cual Laforet utiliza el agua para reflejar el estado del cuerpo en la obra. Al llegar a la casa Andrea narra que “por las mañanas raspaba mi cuerpo bajo la ducha fría.” (72) La acción describe su disgusto con su situación, en la que trata de borrar sus experiencias, como marcas visibles, desde su cuerpo. Durante una pelea entre Gloria y Juan, Andrea entra en el baño, pero ella dice que el agua es “incapaz de refrescar mi carne ni de limpiarla,” (207) expresando otra vez la necesidad de borrar lo que experimenta. En la tercera parte después de que todo está revelado sobre el propósito que tiene Ena con Román, Ena y Andrea se abrazan en la calle. La narradora dice que “caían grandes gotas calientes y no nos movíamos. Ena pasó su brazo por mi hombro y oprimió su suave mejilla contra la mía. Parecían desbordadas todas nuestras reservas. Calmados los malos momentos.” (272) Es la primera vez que alguien toca a Andrea con ternura auténtica y positiva. Es un buen ejemplo también de cómo se notan los detalles de los movimientos y la forma en que todos se tocan. Después del suicidio de Román, Andrea va a bañarse:

el agua caía sobre mí azotándome y refrescándome. Las gotas resbalaban sobre mis hombros y el pecho, formaban canales en el vientre, barrían mis piernas. Arriba estaba Román tendido, sangriento, con la cara partida por el rictus de los que mueren condenados. La ducha seguía cayendo sobre mí, en frescas cataratas inagotables. (290)

En la escena, después de toda la agonía que había causado su tío, Andrea puede descansar; termina su lucha personal con él. La ducha actúa como un ritual que purifica la mente y el cuerpo de la muchacha. Su cuerpo, convertido en algo sucio por los esfuerzos de Román de destruirlo, necesita ser limpiado. También después del suicidio el cuerpo y el alma de Gloria están purificados por el agua, cuando ella le pide a Andrea una taza de

agua. (291) Los efectos del hombre necesitan ser borrados. Por fin, ella puede continuar su camino personal y descubrir su propia vida.

Laforet y Bollaín usan la mirada para describir el abuso a través de la narración escrita y la lente de la cámara. El enfoque de las obras en el abuso no ocurriría sin el apoyo que provee la mirada. La identidad de las mujeres al igual que las de los hombres está construida por la fuerza de la mirada, la importancia de que el sujeto mira al objeto y cómo la mujer puede ser visible o invisible según el uso de la mirada.

V. La Mirada

La mirada está fuertemente conectada con la imagen del ojo. En su artículo “Freud and the Visual” Peter Benson escribe sobre las ideas de Freud, explicando que “Freud minimized the important role of eyes... declaring them simply to be substitutes for the genital organs.” (111) Vemos esta “substitución” en la historia de Edipo; porque él se ciega, se castra. El abuso que dirigen los hombres en las obras a las mujeres es una defensa por el miedo subconsciente de la castración, (Cixous 343) y por lo tanto les pegan en vez de castrarlas. Como un órgano sexual, el ojo es delicado y privado porque podemos interpretar el ojo como “a living mirror” (Braun 214) para mirar el alma. Con los ojos podemos observar y comunicarnos con la gente, podemos transmitir las emociones y examinar los ojos de otra persona, con una mirada muy íntima. Entonces, como el ojo, la mirada es muy personal, y depende de la perspectiva de la persona.

Laforet y Bollaín exploran la identidad femenina no solamente con imágenes de mujeres como objetos físicos, sino a través de las miradas de los hombres. Para estas mujeres la identidad se construye a partir de las opiniones de los demás. El poder de las miradas, más las de los hombres que las de otras mujeres, influye en las acciones de Andrea, Gloria y Pilar en formas fuertes. Hay muchos ejemplos de cómo la mujer es mirada y como mira a los hombres. La imagen del ojo simboliza la mirada en las obras. El espectador lee o ve que los ojos son descritos con lágrimas y rabia, ojos que están abiertos, cerrados, brillantes y como gatos. En casi todas las páginas de *Nada* hay más de una referencia a los ojos, y hay muchos momentos en que Andrea cierra sus ojos.

Los hombres representan una amenaza a la mirada femenina al igual que las mujeres amenazan la mirada masculina. Es evidente en *Nada*, como en esta y otras épocas en España, que el hombre es “el jefe de familia.”⁶ (Laforet 125) La figura siniestra de Román es un antagonista perfecto, con su cabello oscuro, ojos penetrantes, y manos vivas. Juan, claramente a través de su abuso a Gloria, como dice Vollendorf, “exposes the culturally configured attitudes toward the female body as the receptacle for masculine aggression and fear.” (280) Al pintar un cuadro de Gloria cuando ella está desnuda, él

dicta su imagen como si fuera un escultor que esculpe un objeto físico. Román se enfoca en Andrea, y en un momento cuando ella está asustada por él, observa que “los ojos de Román estaban sobre los míos.” (Laforet 95) En su artículo “Looks that Kill” Barry Jordan escribe que “For Andrea, the fact of being positioned as object of the look, especially by male eyes, quickly becomes associated with control, repression and lack of being.” (83) Román posee y reprime las vidas de todas las mujeres en la casa como la de su perro. Cuando Andrea empezó a despegar los dedos de Román de su brazo y cuando Gloria grita a Juan “no te tengo miedo, ¡cobarde!” (Laforet 254) durante una lucha, son actos de liberación física y mental del poder masculino. Cuando ella y su amiga Ena empiezan a aislarse de Román, poco después él se suicida.⁷ Según Barry Jordan, “through Roman’s grisly fate, Nada suggests that a woman’s gaze, as an object of male perception, is simultaneously feared and desired.” (94) Se transforman sus miedos en poder. Cuando Ena está liberándose de la fuerza de Román y Andrea entra en la habitación, ésta última explica que Román parece muy pálido, pero que Ena parece tranquila, fumando. (Laforet 266) Ena aparece en una posición sexual frente a Román, pero ella gana el control, casi jugando con el erotismo. Antes de que las chicas se vayan de la habitación él no mira a Andrea, sólo a Ena cuando habla porque se siente amenazado. (267) Después Andrea se siente cambiada, cuando la amenaza de su tío está rota. Cuando Andrea y las mujeres confrontan a los hombres y miran los ojos del otro, ellas amenazan la amenaza.

Andrea tiene una mirada atípica con su poder como narradora porque su deseo de huir es como una lucha contra la mirada. Aunque ella observa todo como debe hacerlo un narrador, dice “tenía ganas de apoyarme contra una pared con la cabeza entre los brazos, volver la espalda a todo y cerrar los ojos.” (Laforet 44) Ella se niega a ser testigo de las locuras de su familia, del abuso, de la rabia y de la desconexión completa que tienen ellos con la realidad. Barry Jordan escribe sobre la relación en *Nada* entre los ojos y la mirada, y explica que “the gaze becomes a metaphor for the body, an extension whereby the woman’s gaze must be barricaded by the eyelids.” (85-6) Para Andrea, cerrar los ojos es una forma de escape. Explica el miedo que Andrea tiene con los ojos, y dice que “Andrea develops a veritable phobia about eyes, wildly overreads different situations and experiences degrees of anxiety out of all proportion to the imagined threat posed.” (89) Su miedo de los ojos indica cómo se siente cuando es vista y juzgada por la mirada. Andrea quiere cerrar los ojos para borrar o desaparecer, demostrando el poder que tienen los demás sobre ella con la fuerza de sus miradas hacia ella.

Como Andrea quiere ser invisible, Pilar desea cambiar su posición y ser visible. Al fin de *Te doy mis ojos* Pilar le dice a su hermana, “Necesito verme,” y se va en una búsqueda de la identidad fuera de su marido. Desde el principio de su relación con Antonio

ella ha perdido la visión de sí misma, como ha perdido la visión en su ojo. Con el trabajo nuevo ella gana una posición más fuerte, literalmente más visible en el mundo porque habla frente a grupos de personas. La primera escena en que Pilar y su hijo huyen a la casa de Ana vemos que ella no sólo está asustada sino que se mueve como una persona que tiene miedo de todo. No puede hablar con Ana porque el miedo está sofocándola, y lleva las zapatillas en los pies porque no las ve. En cambio cuando ella está en el museo frente del grupo vemos la confianza que ha ganado. Habla fácilmente sobre los cuadros, sonriendo, con todo el terror de su cara convertido en una tranquilidad apacible. En vez de esconderse en casa con el miedo, ella trata de convertirse en un ser visible y poderoso.

Como una obsesión, en *Nada* Andera describe cuando la “encogió de hombros” y cuando le “cogió las manos,” con ejemplos de momentos en que es agarrada o empujada y muchas descripciones de las manos, sobretodo las manos de su tío Román. Como las manos representan contacto entre personas, la mirada representa la relación entre ellas. Ver nuestra reflexión en los ojos de otro es vernos a nosotros mismos a través de sus ojos. (Braun 217) Andrea ve que la gente la mira y que siempre es mirada por su familia, que ellos la juzgan. Aunque los ojos de su tía Angustias la afectan mucho al principio de la novela, son los ojos de su tío Román los que influyen mucho en ella. Una mirada, explica Barry Jordan, cambia el modo en que nos percibimos, y por lo tanto “the underlying sense of power and control over the female body accorded to male lines of sight.” (80) Andrea dice que será feliz si los ojos de Pons la encuentran bonita. (Laforet 223) A ella le importa mucho cómo la percibe la gente. En la narrativa Andrea siempre dice “levanté los ojos” o “bajé los ojos,” poniéndose en una posición inferior de los demás a través de su perspectiva. Construye una imagen de sí misma a través de las miradas de los demás.

El ojo, como un símbolo de la mirada en los mundos literarios y cinematográficos, aparece mucho en las obras. Bollaín usa una descripción física del ojo como Pardo Bazán para visualizar la mirada femenina en *Te doy mis ojos*. Ana, la hermana de Pilar, descubre en el cajón unos documentos del hospital que explican que “Pilar has loss of vision in one eye... she has indeed handed over her identity and sense of self to her husband.” (Levine 5) Al dar su cuerpo en trozos a Antonio, Pilar ha perdido la habilidad de verse a sí misma y de comprender la seriedad de su posición a causa de la violencia. La pérdida de la visión de Pilar presenta un paralelo enorme con Ildara en “Las medias rojas.” Después del abuso que narra en la historia un doctor le dice a Ildara, la víctima, que tiene un desprendimiento de la retina. (248) Esta consecuencia del abuso crea una comparación literal entre el ojo y la mirada, como la de *Te doy mis ojos*. Pilar e Ildara pierden sus identidades a través del abuso de su visión, y la visión de sí mismas. Al

final es claro que solo Pilar puede recuperar su subjetividad puesto que Ildara está condenada al encierro con su tío Clodio.

VI. Conclusión

Laforet y Bollaín, como Zayas y Pardo Bazán, cuentan las historias de mujeres abusadas desde la mirada de sus protagonistas. Sin embargo, no visualizan el tema del abuso femenino como fuente de entretenimiento. Las escenas gráficas y sangrientas sirven para pintar la realidad de las mujeres en España y cómo viven bajo la cultura. Jacqueline Cruz reporta en 2005 que en Madrid fueron “setenta mujeres asesinadas en el año 2003 a manos de sus parejas o ex parejas,” (67) y Linda Gould Levine escribe que “the Spanish Parliament approved in 2005 new legislation guaranteeing increased penalization for acts of violence against women, a political victory that confirms that the stories of invisible women have indeed become more visible.” (22) Las autoras y directoras españolas, con sus representaciones de mujeres luchando por su propia voz e identidad contra el abuso, han contribuido a cambiar la sociedad. Claro que el problema del abuso femenino no desaparecerá en un día para otro, pero se ha creado una representación feminista.

Los siglos en que escribieron Zayas y Pardo Bazán presentaron obstáculos y estigmas grandes para las autoras en general. Ahora en la escritura y en el cine de los siglos XX y XXI las autoras y directoras describen cualquier tema perverso o universal. La escritura ha cambiado a partir de esfuerzos anteriores de autoras del siglo de oro y del romanticismo y naturalismo quienes alteraron el camino de la escritura española. Sin la influencia de María de Zayas no inexistiría la fuerza receptiva de Carmen Laforet, ni la de Iciar Bollaín sin Emilia Pardo Bazán. Las exploraciones de Zayas y Pardo Bazán acerca de la vida española conectadas con el abuso y la mirada le abrieron el camino a la escritura descarnada, desgarradora y sangrienta que producen las autoras en las décadas actuales.

Zayas, Pardo Bazán y Laforet escriben y Bollaín dirige películas para sí mismas, pero también para que la gente sea más consciente del mundo en que vive, aun cuando no viva en España necesariamente. Escriben para describir la sociedad de la época, y es evidente que la cultura española siempre ha incluido el problema del abuso femenino. En una entrevista con Marie-Lise Cazarian Gautier, Laforet evade la sugerencia de que en *Nada* aparece una perspectiva nueva sobre las mujeres y se refiere al papel de los escritores en general; “perhaps this was because after the Civil War everybody was writing symbolically, while I wrote an ordinary book about life in Barcelona in the 1940s...I just wanted to show what Barcelona was like soon after the end of the war.” (153) La novela provee una descripción palpable de Barcelona que aparece después de la

Guerra Civil bajo la dictadura de Francisco Franco, pero incluye a su vez las escenas vívidas del abuso y momentos en que las mujeres son fragmentadas y objetivadas. *Te doy mis ojos* tiene elementos feministas, enfocados en la forma en que Bollaín expresa la situación y representa los cuerpos callados de las víctimas de abuso doméstico. Hélène Cixous escribe “write your self. Your body must be heard.” (338) Indica la necesidad humana de expresarse, y *Nada* y *Te doy mis ojos*, en este sentido, son gritos fuertes que anuncian el poder del cuerpo femenino y la necesidad de liberarse.

Efectivamente incorporan la exploración de la mujer en el espacio masculino, del sofoco en la ciudad, y los efectos del cruce del miedo y deseo en la identidad de la mujer. Su identidad, aunque fragmentada, es construida a través de las opiniones de los hombres hasta que la pueden liberarse e identificarse. Las imágenes del abuso de las mujeres que proveen Laforet y Bollaín, al igual que las de Zayas y Pardo Bazán, avanzan en su importancia por medio del uso de los colores y el agua. El uso del ojo provee una comprensión de las miradas complejas de los personajes, que la identidad total de las mujeres es una combinación de todos estos elementos. Me interesan mucho *Nada* y *Te doy mis ojos*, dos obras de la España contemporánea, no sólo por el uso de la mirada, sino por el desarrollo personal de las protagonistas a través de los acontecimientos en las obras. Laforet y Bollaín, a través de los ojos abusados de sus personajes femeninos, han creado oportunidades nuevas para dar voz a la mujer y liberarse del abuso.

VII. Agradecimientos

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VIII. Notas

¹No hay mucha información sobre la vida de María de Zayas, ni se sabe si era soltera o casada. Terminó su vida en un convento, algo típico para muchas mujeres de su época, al igual que en “La fuerza del amor” Laura tiene la opción de irse a un convento en vez de casarse otra vez, y que en *Nada* la tía Angustias se va a un convento.

²Después de la época medieval, hubo una distinción más radical entre hombres y mujeres en España que en el resto de Europa. (Kirkpatrick 59) En la mitad del siglo XIX en

España, “the new tack was even more intimidating to respectable middle-class ladies, for it implied that women who wrote were immoral.” (88) Ser escritora, escribir y publicar su opinión era entonces una decisión poderosa y peligrosa para su posición. Si una mujer decidía ser escritora, había limitaciones en su material literario. Como describe Kirkpatrick, el poder de las tradiciones religiosas y misóginas produjeron una reacción negativa en las autoras y las obligaron a conformarse a modelos de mujeres estereotípicas. (89)

³ El guión original de la película es diferente al producto final. En el guión Bollaín incluye en el final una escena donde Pilar está en un museo en Madrid, hablando tranquilamente sobre un cuadro de Adán y Eva con un grupo de turistas.

⁴ Es irónico que normalmente hacer el amor con otro significa fortalecer la identidad sexual, pero al acostarse con un hombre abusivo, la mujer destruye su identidad.

⁵ Lo que dice Gloria se relaciona con lo que escribe Jane M. Ussher en su libro *The Psychology of the Female Body* sobre la imagen que tenían las mujeres de la Inglaterra Victoriana sobre sí mismas, que el cuerpo femenino es “largely constructed in a derogatory light with the potential for debilitation emphasized, resulting in many women having a negative self-image.” (Ussher 13) Sus inseguridades están llenas de todos los sentimientos antiguos de que la mujer es inepta y solamente sirve para ser madre o ser bella, como una musa.

⁶ Vemos la misma noción en la película *¿Qué he hecho yo para merecer esto?* (1984) de Pedro Almodóvar, cuando el hijo adolescente vuelve a casa para cuidar a su madre, y declara que la casa necesita un hombre. (Levine 19)

⁷ Después de la escena chocante en el balcón, Pilar decide dejar a su marido finalmente. Antonio intenta suicidarse con cuchillos y tenedores lavados, y “his failed and pathetic suicide attempt has no effect on his wife.” (Levine 16) Ninguno de los dos hombres quiere vivir sin poder ejercer un control sobre la mujer.

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Female Representations of Science

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Though men have long tried to construct a scientific realm completely dominated by men, the attempts have failed. Women's presence in science has undoubtedly fluctuated depending on religious revolution and repression by the opposite sex. However, the female visual presence has never ceased to exist. There are long traditions of the female as science, especially among mythology. When women managed to work their way back into science, literal images of women in the scientific world appear. Though largely under represented and often left unacknowledged for scientific accomplishments, feminine scientific images and their persistence prove the long history of female influences on science.

Francis Bacon was the first scientist to declare that the goal of science was the control and domination of nature (1). Thus Bacon was the first to articulate science as the domination of the female. He sees that the male scientist should overcome nature through strength and aggression. To Bacon, a man should spread the power of the human race over the universe (1). Bacon also submits to the archetype of nature as female.

Here is a slight contradiction—Bacon believes that man must obey nature in order to command her (1). He admits that the scientist must admit to some of the feminine aspects that science tries to overcome. According to Keller, Bacon suggests to master and manipulate nature is necessary to dominate her (1). Bacon's metaphor of man's mastery over nature denies the feminine as subject and calls for the dominance of the female sex. Ultimately, Bacon's beliefs support an image of a female nature that is to be discovered and conquered.

Alchemy differs from Baconian science since rather than dominating nature, true alchemists were seeking to understand the nature of process and of life (2). Alchemy was the dominant science until it gave birth to modern day chemistry. The long prevalence of alchemy is part of why female imagery has survived male science. Alchemy rose to save science from complete stagnancy during the time of Claudius Ptolemy (AD 85-165). Alchemy's goal is to combine metals in a way to produce gold.

¹ Written under the direction of Dr. Maria Gelabert (Chemistry) for the honors course *Women in the History of Science*

Not surprisingly, the theoretical and practical bases of western alchemy and modern chemistry were laid down by Maria the Jewess (1).

Maria believed that metals were living beings, male or female, and their products the result of combining the two in sexual generation (1). Alchemy sought to unite male and female aspects, rather than raising the male sex above the female. Alchemists envied and actually revered female's procreative powers (1). Alchemists also see the equality of both sexes before god, believing that the image of god was engraved in woman just as in man (1).

Another famous woman of alchemy, Cleopatra, placed the imagery of conception, birth, and the renewal and transformation of life into the literature of alchemy (1). This influence and presence of female alchemists allow for the image of a female science. The advancements made by Maria the Jewess, mostly her laboratory equipment, combined with the fact alchemy predated modern science, contributed to a feminine image of science.

Females that were allowed to practice science in the ancient world contributed to a female representation of science. Though later restricted, science's beginnings included women, explaining why there are many female representations of science. The first women gatherers were the first botanists. Females have long been attributed with food gathering, a job that requires a concept of time; they also learned to relate astronomical event to changing seasons which affected their plant products (2). These women were the developers of scientific equipment which they designed to help gather, prepare, and preserve food (2).

The first written records of science began in Egypt from c. 2778-2263 BC. Aganice, a relative of the legendary King Sesostris, attempted to predict the future by studying the constellations and using globes (2). In Egypt, educated women worked as doctors and surgeons; both of these fields were established prior to 3000 BC. Gynecology was the specialty of women scientists beginning c. 2500 BC.

Another ancient culture that accorded women some status were the Sumerians. In this society, women often worked in the important perfume industry; their substances were used in medicine. These female chemists developed many chemical techniques including distillation, extraction, and sublimation (2). Around 500 BC Greek science began with the Pythagoreans. This movement brought women into the mainstream of developing natural philosophy and mathematics (2). Since all members wrote under the name Pythagoras it is impossible to give individual recognition, but there were at least 28 women who were a part of the Pythagoreans (2).

As women were pushed out of their scientific professions, a male dominated science began to grow. Women “found themselves increasingly restricted to the practice of midwifery, a pattern that is repeated throughout history until finally, in the nineteenth century, women lost even that foothold” (2). However, the presence of women in the earliest history of science solidified female imagery of science.

Because of early female advancements in science and the obvious fact that women were yet to be suppressed from science, cultures were willing to accept women in science; there are many examples from ancient cultures and mythologies. Pallas Athena, the patroness of Athens, symbolized wisdom and her symbol was the owl. Since women ruled the gathering part of basic societies, it is fitting that Athena was attributed with inventing the plough and the bridle. In an Acropolis marble bas-relief of Athena, where she appears to be mourning, she seems to represent alchemy since through her image, the “matriarchal character of the Minoan goddess is brought into relation with the patriarchal ideals of Aryan and Dorian Greece, and their consequent fusion transforms them both” (3).

In contrast, she also fits Baconian science metaphors. She manages to overcome Poseidon many times winning precedence over Attica, the country of the Athenians. When Poseidon provides the horse, Athena manages to bridle it and build the chariot; Poseidon rules the waves, but it is Athena that constructs the ship that rides them (3). Keller shows Bacon’s awareness of Athena, otherwise known in Rome as Minerva, by stating that non-Baconian sciences “rape Minerva instead of winning her over” (1).

The mythological story of Perseus slaying Medusa is also pertinent. Perseus is only able to slay the snake headed monster by Athena’s gift, the shield. In this myth, Athena represents wisdom. Many other men had failed to conquer Medusa, lacking the wisdom to avoid her stare. The death of Medusa represents the conquering of the unknown, a feat unattainable without Athena’s help. Perseus presented Medusa’s head to Athena, whose shield bears the image, scaring her enemies.

There are two different images of Athena; the first of her with shield and helmet as the goddess of war, (8) and the second wreathed or in some way clothed with snakes (3). The two images represent a dichotomy (an alchemic ideal) where the images join to form one Pallas Athena. An image of Athena painted on a cup shows her helmeted figure with a cape of snakes. Athena looks to be at war; she has a large athletic stride, helmet on, with snakes leading toward battle. The snakes, representing Medusa, also represent the unknown. Since the Medusa image was used to instill fear, it is easy to see how Athena conquered man’s fear of the unknown. This ability to rule over the unknown, combined with the fact she is a female who has the wisdom to conquer the unknown (also

represented by a female Medusa) causes fear in her enemies who were likely to be male soldiers.

Another ancient myth is that of the Sphinx, a female image who represents reason (4). The sphinx was a monster that had the body of a lion, with the head, breast, and arms of a woman. This monster knew the answer to the riddle it asked all who passed. Those who failed were thrown from the rock which she lived.

Oedipus answered the riddle correctly causing the sphinx to throw herself from her rock and perishing. Here, reason is housed by a woman and foiled by a man. The sphinx myth suggests that the woman who has reason is a monster. When a woman conquers reason she is to be feared, and when her secret is revealed she dies.

The sphinx has similar connotations in Francisco de Goya's allegorical depiction called *Science*. *Science* is the fourth tondo of Goya's tempera-on-canvas paintings of Commune, Agriculture and Industry, completed for a Madrid palace (5). The work is a circular canvas depicting a beautiful woman among a globe and telescope. In the background is a tree, likely representing knowledge, and an old man, likely an old scholar. On either side of this round canvas are two mythical sphinxes.

The fact that Charles Yriate, who categorized Goya's work in 1867, "did not consider [the sphinxes] to be works by the master," (5) is not important. The mere placement of the sphinxes is enough. Their beauty and symbolic representation of reason show man's conquest over science, and the monstrous unknown he must struggle to overcome.

Women were persecuted as witches because men feared female scientific advancement (1). In the 17th century numbers of women began to be prosecuted for witchcraft. These women, branded as witches, often had affiliations with alchemy. The fear was that these witches were gaining "improper knowledge" reaching past the "domain of proper knowledge" (1). Joseph Glanvill, author of *Some Philosophical Considerations Touching Witchcraft and Witches, 1666*, believed that alchemy suggested "symbolic equality of women before God" (1).

Once again, women represent the unknown. These witches supposedly were able to reach past accepted forms of knowledge and understand an unaccepted realm of knowledge. The persecutions of female witches by men resorts back to male fears of a dominant scientific woman. Female witches represented "dangers against which reason and the new science promised protection" (1). Resultantly, "in the ideological system that emerged and prevailed, science was a purely male and chaste venture, seeking dominion over, rather than commingling with a female nature" (1).

During the Enlightenment, women once again began to find their way into the long male dominated scientific realm. Portraits of female scientists began to place real women in the scientific realm. Jacques Louis David, a famous neo-classical painter, depicted Marie Paulze-Lavoisier and her husband in, *Marie Paulze-Lavoisier with Antoine Lavoisier in their laboratory, 1788*. She studied with David, explaining the admiration he shows for her in the painting. Lavoisier was essential in helping her husband's work in chemistry, causing the rise of the new chemistry. Marie leans over her husband, gazing directly at the viewer. Her husband, sitting at a desk with scientific equipment, looks up to his wife. Marie's importance is shown by her figure dominating the composition thus showing the reliance of her husband on Marie.

Madame de Pompadour, though not a scientist, assisted the growth of the Enlightenment by becoming the protector of the *Encyclopedie*, one of the great intellectual undertakings of the eighteenth century (6). The *Encyclopedie* was a multi-volume illustrated encyclopedia that encompassed all contemporary knowledge, from philosophy and literature to astronomy and technology (6). In *Portrait of Madame de Pompadour, 1755*, by Maurice Quentin de la Tour, Madame de Pompadour depicts the perfect Enlightenment woman. She holds sheet music while sitting elegantly at a table covered in books and a globe, with a portfolio at her feet.

More current perceptions of science indicate the male attempt to keep women out of science. In 1957, Margaret Mead and colleague Rhoda Metraux conducted studies to discover American high school students not only predominantly see scientists as male, but as a male willing to "neglect his body for his mind" (7). The male scientist "neglects his family [and] pays no attention to his wife" (7); also "a scientist should not marry" (7).

This view continued into the 1980s. A collection of 165 drawings done by secondary school children showed that "only two girls in the group drew a female scientist [and] none of the boys did" (1). These results show a mindset that has maintained through the centuries causing a male dominated science. The images are not of women since women are rarely credited with actually practicing science, but are credited instead with the more abstract qualities of science, mostly reason, wisdom, and medicine.

Images of women as science have managed to prevail despite the fluctuation of female participation in science. Whether acknowledged as scientists or represented only as objects to be overcome, it is clear women have impacted science. Even when men have largely kept women out of the scientific realm, women have managed through images, to keep their scientific presence known. Female depictions of science have

survived because of women's beginnings in science and the impossibility of males to completely deny the female.

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