Writing
ACROSS THE CURRICULUM

In the Disciplines and In the Workplace

2023

LONE STAR COLLEGE

LSC-MONTGOMERY

Introduction

- ## Purpose and Scope of the Journal

  Welcome to the eighteenth edition (Fall 2023) of our journal of student writing at Lone Star College-Montgomery: Writing Across the Curriculum (WAC), In the Disciplines (WID) and In the Workplace (Vol. XVIII). The purpose of the publication remains twofold: (1) to celebrate examples of discipline/field/profession-specific student writing from across the college, and (2) to provide students and faculty examples of such writing to use in the classroom.

- ## Organization of the Journal

  The journal is organized by program or discipline and within the latter, by genre or kind of writing important in the field. In this way, the journal showcases students using the same skills and producing the same kinds of writing that faculty and other professionals produce to communicate successfully. We ask the faculty member who submits the writing from his/her class to include a brief introduction to each piece highlighting how the student selection reflects the kind of communication and specific writing skills important in that field or endeavor. The writing included represents a great range of experience and skill on the part of the student-writers.

- ## Who Publishes the Journal?

  The journal is underwritten by a faculty group, Communication Across the Curriculum (CAC). CAC encourages interdisciplinary and cross-disciplinary faculty dialogue and curricular experiments. It also supports the college's Writing Across the Curriculum Initiative and sponsors the annual CAC Student Presentation Conference.

- ## Who Can Submit Work for Publication?

  We publish student writing from both academic and workforce programs in the college. The course instructors select and submit writing on behalf of their students for consideration by the journal. Nevertheless, we encourage students who are interested in getting their work published to let their instructors know and most importantly, to make their professors aware that they are interested

in revising and improving their work prior to possible submission by the instructor. It is the instructor, however, who decides whether to submit.

The instructor is the expert in the field. Therefore, the journal editors and advisors wish to emphasize that faculty who submit student writing accept responsibility for guiding the writer not only in the presentation of content but also in the process of revision, editing, and the correct use of the appropriate documentation style. Use of a particular documentation format is related to the discipline, the genre, and the preference of the instructor in each writing task.

■ We Wish to Thank

All the student writers and the faculty who submitted student work, and especially the journal editors, Professors Ron Heckelman (English), Julie Harless (Biology), Mark Whitten (Philosophy) and Nathan Zingleman (Coordinator, The Write Place) for putting it all together.

The writing consultants of The Write Place, the college's Writing Across the Curriculum-oriented writing center.

The organizers of the 2023 CAC Student Presentation Conference: Professors Melissa Dennis (English), Sunny Zhao (Speech Communication) and Mark Whitten (Philosophy).

■ Special Thanks

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■ Very Special Thanks

Julie Harless, Graphic Designer and Professor of Biology; April Jackson, Creative Services Manager, PR MarCom; Gabe Cedillo, Graphic Designer 1, PR MarCom; Mike Krall, Special Asst. to the President

Introduction

■ Call For Submissions, Vol. XIX (2023-2024)

We seek examples of discipline, field-specific and workplace writing for the nineteenth edition of the journal (Vol. XIX) to be published in the summer/ fall 2024. Faculty in all disciplines, professional and/or certificate and workplace programs across the college are invited to submit student writing. Students who would like to submit writing should let their instructor know of their interest. Students will then revise their work under the guidance of their instructors before their instructors submit the writing to the journal. Submissions must be submitted ELECTRONICALLY in Microsoft Word. No PDFs please. Use the one-step submission form at the following web address: https://lonestarcollege-montgomery.formstack.com/forms/wac_submission_form_copy

All completed submissions include: (1) An online submission form provided at the above link and completed by the instructor. (2) The faculty member's introductory paragraph included in the online form; and (3) a student release form signed by the student-writer. The release is a separate document from the online submission form and is available at the following: : https://lonestarcollege-montgomery.formstack.com/forms/student_release_to_publish_writing_copy

The brief introductory paragraph (150-word limit) written by the submitting instructor must include the name and number of the course but most importantly, an explanation of how the submission effectively illustrates a kind of writing, and/or writing skills important in that form of expression in the discipline, field or profession.

Both online forms are available at the CAC website: https://lscmontgomerycac.com/ Previous editions of the journal as flip books are also available at this site.

E-mail questions to: Ronald.J. Heckelman@LoneStar.edu
LSC-Montgomery Writing Across the Curriculum
Initiative and The WAC Journal,
c/o: LSC-Montgomery Dept. of English

DEADLINE FOR SUBMISSIONS: May 31, 2024

HOW SUBMISSIONS ARE SELECTED FOR PUBLICATION IN THE *WAC JOURNAL*

The faculty editors of the journal seek to present writing from as many academic disciplines and workplace programs as possible, limited only by the number of usable submissions and space available in the publication. As explained under "Purpose and Scope" and "Organization," the journal is organized first by discipline and then by genre. This is intended to show the variety of genres within a discipline or area, and to assist both faculty and students to use the selections as instructional models if desired.

Generally speaking, The WAC Journal does not include poetry, fiction, drama, photography and art per se. Additionally, it is not intended merely as a collection of assignments or "student writing." The writing published is intended to represent "real" discipline-linked expression and communication, akin to what is found within particular fields as well as professions. Most of the genres included are traditionally associated with specific disciplines; however, we also consider pieces that vary from the traditional forms. Submissions of mixed-genre and experimental writing are welcome.

The journal celebrates writing qua writing and we thus ask each faculty member who submits a piece to write an introduction to it. This introduction, as much as possible, presents the writing as an effective demonstration of discourse in a field and genre, and/or those notable cross-disciplinary skills useful for clear and precise communication. This introduction generally contributes significantly to the editors' and journal readers' understanding of the specific contributions the piece makes in illustrating communication style within a discipline. The faculty intro is not intended to be an introduction to the course or program of study per se.

The degree of revision required after a piece has been submitted is a factor in the selection process. To minimize editorial intervention after a submission has been received, the editors ask the submitting faculty to work with the writer very closely to revise and prepare the piece for submission and consideration. This includes but is not limited to fullness of citations where needed as well as consistent and appropriate documentation style.

A WAC Journal Submission Guide is available at the CAC website to assist both faculty and students with this process. The LSC-Montgomery writing center, The Write Place (G103) is also available for help with all writing matters.

The WAC Journal Online Selections

Some writing, especially that with a significant visual component, is available at the journal website.

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The Mimbres

Research Essay by

PENELOPE JAEGER

ARTS 2346: CERAMICS
In this paper Penelope discusses the Mimbres pottery culture. She discusses where and when they lived as well as the abstract motifs on the surface of the pots they made. Penelope also discusses the possible meanings of the designs they incorporated into the pottery and thought on why.

– Charles (Robby) Wood

In the beginning, the world was made up of a dark, empty void. Depending on which Southwestern peoples you focus on, the creation of the world as we know it today is traced back to different creators, who brought about oceans, forests, rivers, and mountains, and all of whom believed that this new world needed something more: man (Carr, 1989). Whether it was "Awonawilona, the Maker and container of All" (Carr, 1989), the Hurung Whuti, two goddesses, or Spider Women, fashioning people out of clay, what was uniform throughout all the creation and emergence myths of the region was that people were created in the underworld and taught a song before being sent into this world (Carr, 1989). Often credited with the material mankind was made from, clay was a special resource which many researchers, such as Dr. Pat Carr from the University of Texas at El Paso, believe was used in the form of bowls and plates for the painting of "folkloric illustration" (Brody, 2005). The

Mimbres were one such peoples and their remarkable ceramics have become increasingly popular since their rediscovery in the late 1800s by trespassing American settlers.

Mimbres Black-on-white bowl.

Spider Woman, "with her carrying basket and the two Little Twins on top" (Carr, 1989).

In the small Mimbres River valley in the American Southwest, a subculture within the larger Mogollon culture had formed and was thriving by 1000 CE. Aptly named the Mimbres, or sometimes the Mimbreños, from the Spanish word mimbres for "willow", which "grew abundantly along the banks of the Mimbres River" ("Mimbres.", 2019), their unique pottery quickly made a name for the people of this culture, yet they remain some of the "most poorly defined of all prehistoric southwestern groups" (Brody, 2005). They lived among the rough landscape of the Gila Mountains in pueblo-like adobe and masonry houses, each village "containing perhaps 200 people" (The Editors of Encyclopaedia Britannica.) and being most numerous closer to the Mimbres River valley. At the height of the Mimbres culture from about 1000 to 1200 CE (Carr, 1989), often referred to as the Classic Mimbres Period, this subset of the surrounding culture numbered as many as 5,000 (The Editors of Encyclopaedia Britannica.). One famous Mimbres village which demonstrates a classic settlement from this culture is the Swarts Ruin, where more "Mimbres painted pottery was recovered from… than from any other Mimbres site ever excavated" (Brody, 2005). The Swarts site is estimated to have been occupied for 225 years, from about the year 950 to 1175 CE, the last 100 years of which were within the Mimbres Phase (Brody, 2005). Three separate construction periods constituted the architectural Mimbres timeline, the Mangas Phase, the Three Circles Phase, and the Mimbres Phase, each having "older houses cleaned out, burned, and filled before new ones were built over them" (Brody, 2005). Their everyday lifestyle though, largely reflected and was common among those of other Puebloan cultures. Irrigation techniques allowed them to grow maize, beans, and squash in the arid environment, however most of their "territory was marginal for intensive agriculture" (Brody, 2005), so they hunted small game such as birds, rabbits, and deer in addition. Some scenes of hunts like these as well as important events like ceremonies are also depicted in their pottery (Brody, 2005).

Among the plateaus, mountains, and valleys of the Mimbres homelands, a "variety of clays are present… including occasional deposits of fine, white kaolin" (Brody, 2005), which provided many resources for the culture to master their ceramic artistry with. Processing the clay after having dug it up involved breaking up the clumps and having them soak in water for weeks, removing the impurities and readying them to be formed into loaves of clay Brody, 2005). "Most Mimbres potters used volcanic stone" (Brody, 2005) to temper their clay after kneading it to help with shrinkage and cracking. After all of this, potters could begin rolling out coils and forming their pots and bowls. The most common type of vessels

they made were bowls, alongside "small globular jars, ollas, and effigies" (Brody, 2005). For their paint, copper and iron in the ground or in streams was "sometimes ground into paint pigment, as was ochre dug out of hillsides" (Brody, 2005). The most famous kind of their pottery is called Mimbres Black-on- white for the contrast in the black paint on white background used to paint the bowls. (Brody, 2005). "Most Mimbres potters used volcanic stone" (Brody, 2005) to temper their clay after kneading it to help with shrinkage and cracking. After all of this, potters could begin rolling out coils and forming their pots and bowls. The most common type of vessels they made were bowls, alongside "small globular jars, ollas, and effigies" (Brody, 2005). For their paint, copper and iron in the ground or in streams was "sometimes ground into paint pigment, as was ochre dug out of hillsides" (Brody, 2005). The most famous kind of their pottery is called Mimbres Black- on- white for the contrast in the black paint on white background used to paint the bowls. (Brody, 2005).

Mimbres Black-on-white bowl.Rabbit (Brody, 2005).

Occasionally though, painters would add in a red-brown color (Brody, 2005). After allowing the pottery to dry out for a week or more and waiting for a day in which the weather was optimal, potters would build a kiln using wood for both the base and as fuel, as well as broken, already- fired pottery sherds to keep their vessels from touching (Brody, 2005). "Firing temperatures were not only high by modern ceramic standards" (Brody, 2005), but achieved well over the required temperatures needed to fire the clay. In addition to the stories and myths the Mimbres took inspiration from for the decoration they painted onto their pottery, they were also influenced by their surroundings and the animals living alongside them. Along with these pictorial designs, abstract patterns and geometric shapes are

also common to find on the pottery. It is believed that such paintings were "heavily influenced by Anasazi design styles" and "derived from Hohokam prototypes" (Brody, 2005), two separate, neighboring Southwestern tribes and cultures. No individual potter from the Mimbres is remembered to give credit to for their artistry, rather they are all considered anonymous, because despite archeologists' search for clues: "except for the pottery itself there is little evidence of their industry" (Brody, 2005). What can be found out without speculation, however, is that some of the ceramics were utilized as "containers for food, water, ritual objects" (Brody, 2005) and more. Their bowls had another specific use in burials, as the pottery itself would be "deliberately "killed" by striking a hole in the bottom with a pointed tool" (Brody, 2005) and left with the deceased with these killholes. In the Swarts site alone, thousands of such vessels were unearthed in the graves, and so many are found overall only in burials that it has been suggested that at least some of these bowls were painted for the express purpose of being buried with the dead (Brody, 2005).

As the Classic Mimbres Period drew to an end, the people dispersed from their larger villages into smaller communities, believed to have merged with or been absorbed into surrounding tribes such as the Anasazi (Brody, 2005). For a long time, this was considered the end or disappearance of the Mimbres people themselves, as their iconic pottery and designs changed, morphing to fit into a new cultural style. However, the people persisted, as tribes today such as the Hopi and Zuni, claim descent from and continue to share many traditions with the Mogollon subculture.

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ZHU KEROU: WOMEN AND KESI TEXTILES IN THE SONG DYNASTY

Research Paper by

ZOE GALLENO

ARTS 1303: ART HISTORY PREHISTORY TO GOTHIC

Zoe Galleno's research on Kesi textiles provides a critical examination of three pieces from court artist Zhu Kerou during China's Southern Song dynasty. By analyzing the formal and iconographic characteristics of these works, including changes to line, color, and composition, Zoe posits a chronological relationship between each textile that reflects both burgeoning artist freedom and a rejection of local gender norms. More specifically, Zoe contributes to scholarship on the experience of women artists in the male-dominated era of Confucian scholar painting by suggesting that Zhu Kerou's artistic development was a vital act of empowerment and resistance. Zoe argues that the increasing visibility of the artist's calligraphic seal (signature), coupled with a strong emphasis on implied lines and innovative spatial arrangements, illustrates the stylistic choices Zhu Kerou (and other Song women painters/ weavers) used to express their views through artistic production. The quality of her sources, rich philosophical context, and eloquent visual analysis lend credibility to Zoe's overall thesis and, in my mind, make this an excellent submission for the WAC journal.

Darren Longman

Abstract

This study examines the iconography and style of Kesi textiles produced by the renowned artist, Zhu Kerou, to understand how women interpreted the religious and social environment during the Song dynasty. Previous scholarship suggests that women's treatment affected their expression within society but fails to address how, despite oppressive measures, they still found a "voice" to communicate their views. To that end, such readings prevent a nuanced understanding of the complex gender dynamics within the era. To better understand these unique visions, Kesi textiles created by Zhu Kerou are analyzed based on their stylistic progression from works that reflect Confucian era paintings to a more unique and expressive style. First, Zhu's Kesi textile Ducklings on a Lotus Pond is examined by connecting the compositional harmony between animals and nature to Confucianism ideals. Next, an analysis of the artist's work, Bird and Flowers, manifests similar themes rooted in Confucianism. For example, the calligraphic seal containing Zhu's signature is less hidden in the work, thereby demonstrating the ways in which her works increasingly rejected by the male-dominated gender dynamics in the

Song dynasty. Lastly, an examination of the textile Butterfly and Camellia establishes a heightened vibrancy when compared to the other works–further differentiating the style from Confucian inspiration. The research conducted in this project suggests that innovative women such as Zhu Kerou, in the Song dynasty utilized their societal position as court weavers to redefine the gender-specific rules placed on painting/artistic expression. More specifically, the evolving process of weaving Kesi textiles led to unique and meaningful styles for artists like Zhu Kerou.

Introduction

Artistic representations from women of the Song dynasty–including Zhu Kerou–are key to understanding how women expressed themselves within the patriarchal system of the era. The definition of womanhood under Confucianism was heavily based on women's positions as weavers and how men interpreted religion, which they used to dictate women's lives. With the rise of male Confucianist scholars in the Song dynasty, who participated in activities like painting to document their religion and other cultural views, painting became a "masculine" activity.

Women who chose to paint in the Song dynasty were suppressed due to the alignment the activity had with men. To that end, innovative women like Zhu Kerou began weaving painting-like Kesi textiles, which redefined the societal creative landscape for women. Kesi textiles served as a creative outlet for women to produce artistic works that mimicked paintings while remaining under the expectations of womanhood within Song society.

Moreover, women artists in the period gradually found their own style while maintaining the religious and moral iconography found in Confucianist scholar paintings.

First, a brief review of the literature will be conducted to establish the scholarly work conducted on Kesi textiles, Confucianism, and their connections to the gender dynamics within Song society. The essay then further addresses Confucianism and textile production in the Song dynasty. This section helps elucidate the roots of the gendered notion behind weaving and the resulting effects on women. Third, Song paintings will be looked at in order to establish common motifs and stylistic choices seen throughout the paintings. After a contextual analysis of Song paintings,

Zhu's works will be investigated. Her works will undergo a dissection in which Song and Confucian inspiration will be highlighted–illustrating her developing style.

Literature Review

Throughout the Song dynasty, the topic of gender developed and remained interconnected within the cultural environment. The religious and social culture embedded within the dynasty led to unbalanced gender dynamics between men and women, which will be investigated through textiles. When observing Song dynasty Kesi textiles, gender dynamics are crucial to understanding how the culture defined visual culture. Case studies of innovative women like Zhu Kerou, coupled with analyses of gender divisions during the era, contribute to the topic by providing the necessary cultural context to understand the different styles of the period– including those seen in Kesi textiles.

Modern research on artworks and social practices from the ancient period vis-a-vis gender representation aids in identifying corresponding social ideas present in ancient societies, like the Song dynasty, and their effects on women. Historian Lamia Doumato suggests that the representation of men and women in art is unbalanced in the historical landscape. Although Doumato observes common elements utilized by artists of both genders, it is prevalent to note that both men and women represent their ideas on similar topics differently in art.[1] Thus, it can be concluded that while free expressionism is an essential aspect of art, upon relating to the common patriarchal standards within pre-modern eras, the differentiating ideas between men and women led to the suppression of women's art.

By analyzing Leonora Auslander's article, the gender-reliant norms of the era as expressed through textiles are further elucidated. Upon examining the textile industry's developmental stages, Auslander suggests that "the products themselves have been systematically used to construct gender"[2]

[1]Lamia Doumato, "The Literature of Women in Art." *Oxford Art Journal 3*, no. 1 (1980), 74. 2Leora Auslander, "Deploying Material Culture to Write the History of Gender and Sexuality: The

[2]Example of Clothing and Textiles." Clio. *Women, Gender, History, no.* 40 (2014), 157.

While male weavers did arise during the developmental era of the industry, they were viewed differently depending on their class and environment. Male weavers who held a "commoner" status weaved to show rebellion against marginalization as women who also rebelled against their own gender roles. With men placing themselves in leadership positions within the developing industry, they were seen as superior to women, as highlighted by Xavier Vigna et al. Women were often looked down on by men in the industry "who [were] still locked into the male breadwinner model."[3] Due to the overall gendered notion of femininity being a weaker and/or inferior quality compared to masculinity, women often faced mistreatment in the textile industry. The power imbalance highlighted by these sources also resulted from the shift in gender dynamics that occurred in the Song dynasty.

Beth English also argues that the historical practices in the textile industries assisted in shaping gender roles throughout time. English recognized that women consistently worked but that "women's labor, in this case, is not only cheap and flexible but also disposable."[4] In other words, women could partake in the industry, but they were seen as more replaceable than their male counterparts. Further, Francesca Bay posits that both genders in China were once seen as equals: "[T]he classic gender division of labor in China was encapsulated in the saying: 'men till women weave'".[5] Bray's observations set the basis for what China was like before the textile industry began to develop and overtake Song society because once industrialization occurred, men began to take over. The analysis of both sources assists in connecting ideas of the mistreatment of women in the industry through lower wages and the lack of career growth. English's source does highlight how women were pushed out of the innovative portion of the industry, but it is important to note they were still active

[3]Xavier Vigna, Michelle Zancarini-Fournel, and Siân Reynolds. "Gender History and Labour History: Intersections." *Clio. Women, Gender, History,* no. 38 (2013), 178.

[4]Beth English. "Global Women's Work: Historical Perspectives on the Textile and Garment Industries."*Journal of International Affairs* 67, no. 1 (2013), 76.

[5]Francesca Bray. "Textile Production and Gender Roles in China, 1000-1700." *Chinese Science,* no. 12 (1995), 115.

workers. Conversely, Bray assumes that women outright lost any place in the industry. Despite their differences, these sources elucidate how men replaced women's innovative role in the textile industry and the significant shift in gender dynamics that resulted.

Dorothy Ko argues that due to the firm roles set in place by gender stereotypes in the Song dynasty, women in the era challenged societal boundaries through their creations. For scholars to understand why women challenged their environment through innovation, it is essential to take the position of men into account. Weaving was viewed as a "feminine" pursuit, making painting a "masculine" activity. The gendered marginalization in the era led to the movement of women who challenged their environment through technological and artistic methods, which can be viewed in Zhu Kerou's Kesi textile works.

These modern analyses of gender and how it was defined throughout the dynasty demonstrate the bigger picture of women's representation and expression throughout the era. Although these contributions are rooted in various–even differentiating–perspectives, they all aid in contextualizing gender norms in the cultural environment of the Song dynasty. Analyzing these nuanced theories, such as the effects gender dynamics had on women's expression in ancient societies like the Song dynasty, offers a deeper understanding of the roots of the patriarchal artistic environment of which Zhou Kerou chose to reject and redefine.

Song Paintings

Within the Song dynasty, paintings served to perpetuate religious and social beliefs that were reflected in the general public. The reflection of Confucian morals served to primarily support the production of paintings within the court. Many of the paintings produced can be traced back to the Confucian court painters whose works constructed the mainstream style commonly seen in most artworks being produced.[6] The composition of the paintings within the Southern Song dynasty reflected Confucian ideologies such as, "longevity [which was] seen as a proof of virtue, granted

[6]K. Murray, "Art-Historical Perspectives on the Song: Studies on Song Painting." *Journal of Song-Yuan Studies*, no. 24 (1994), 359.

by heaven to those who deserved it". [7] This reflection of longevity can be viewed in the paintings through the inclusion of decaying leaves within the composition (Fig. 1). The leaves reflect the inevitability of death but highlight the longevity of existence throughout the pathway toward death. The paintings often attempted to capture a moment in nature in an almost documentary way, but the style was both naturalistic and stylized.

Figure 1. *Zhu Kerou, Butterfly and Camellia* , 1127-1279, embroidered silk textile, Liaoning Provincial Museum, Shenyang. The New Historia. **https://historia.3.nftest.nl/ schema/zhu-kerou/.**

Confucianism and Textile Production in the Song Dynasty

In the Song Dynasty, textiles were an important commodity in society as they assisted in establishing social bonds and maintaining economic flow. The uses of the textiles included gifting for marriage or other social exchanges and ceremonies, serving as currency, and funerary mourning.[8] With women being placed at the forefront of textile production and management, their contributions served in establishing aspects of social

[7]*Jerome Silbergeld, "Chinese Concepts of Old Age and Their Role in Chinese Painting, Painting Theory, and Criticism." Art Journal 46, no. 2 (1987), 103.*

[8]*For the specifics on the plethora of uses for textiles read…Bray, Francesca. "Textile Production and Gender Roles in China, 1000-1700." Chinese Science, no. 12 (1995): 115–37.*

To view complete paper and color graphics, please visit:
http://LSCMontgomeryCAC.com/2023/Zoe-Galleno/

Far Wider Interest: Art, Drama, and Theatricality in the Photography of Lady Clementina Hawarden

Research Paper by

RACHEL
SCHNAKEN-
BERG

Abstract

This study analyzes the iconographic and stylistic elements of photographs by early albumen photographer Lady Clementina Hawarden. Although Hawarden was recognized by her contemporaries for photographic skill, her early demise and lack of documentation of artistic process has led to a disconnect of her images from their narrative and historical context. Previous research on Hawarden's imagery has investigated her use of lighting, emotion, and the eerie. However, through a visual analysis of two unnamed photos of her daughters, elements of Baroque chiaroscuro, combined with the technology of the photographic process, reveal a deep interest in art historical and emotive interest within

her process. "[T]hough they are portraits, undoubtedly they are also of far wider interest than any (p)ortraits can be--which we remember ever to have seen."[1] Early pictorialism and the experimental art-photography movement of the mid-19th century included several deservedly well-known artists—among them Julia Cameron, Oscar Rejlander, and Henry Peach Robinson. However, one lesser-known female amateur photographer stands out as a figure of interest. Lady Clementina Maude Hawarden (1822-1865) was a wife, mother of eight daughters and one son, and a devoted amateur photographer[2] Although the context of her images is lost, her oeuvre spans over eight hundred known images from a working period of about eight years. Most of these enigmatic and captivating images feature her daughters as models and incorporate direct lighting as both a compositional and emotive element. Hawarden's strong lighting and flair for the theatrical/Baroque distinguishes her images from contemporaries and grounds them in a tradition of female expression.

As a member of the British Photographic Society, Hawarden showed several portraits entitled "Study from Life" in the society's 1863 and 1864 exhibitions. The British Journal of Photography reported on the 1863 event, stating that Hawarden's portraits display "[g]raceful pose, delicate play of light in every gradation of half-tone, [and] fine chiaroscuro with unity of design."[3] They further claimed that her work "ranks second to none, whether professional or amateur, for artistic excellence in the productions exhibited" among the female exhibitors.[4] The praise given by the journal focuses on the lighting and design, including her unique compositions, and identifies the strong contrasting light and tone values of chiaroscuro technique as a laudable quality in her images. Hawarden's attention to the modeling of figures appears throughout her oeuvre, and many of her later works bring chiaroscuro to the forefront.

[1]"The Ninth Annual Exhibition of the Photographic Society (London)." T*he British Journal of Photography.* January 15, 1863.

[2]Suzanne Fagence Cooper, "Through the Looking-Glass: Photographs by Clementina, Lady Hawarden (1822–1865)." The British Art Journal.

[3]"The Ninth Annual Exhibition of the Photographic Society (London)," 31.

[4]"The Ninth Annual Exhibition of the Photographic Society (London)," 31.

Hawarden's use of photography as a medium served to blend new technology with an established art historical process of posing and lighting. In two unnamed photos, referred to by their Victoria and Albert Museum accession numbers, 379-1947 and 341-1947, the influence of Hawarden's art historical background and theatricality can be clearly seen. Figure 1 (379-1947)5 features two of her daughters, Florence Elizabeth and Clementina, in a pyramidal composition that references the geometric structure of

Figure 1. Clementina Hawarden, *Untitled – Florence Elizabeth and Clementina*, 1863-64. Albumen print, © Victoria and Albert Museum, London. Accession no. 379- 1947. https://collections. vam. ac.uk/item/O1047878/ photograph-clementina-lady-Classical art.

Classical art. Florence Elizabeth stands in the middle register with her back to the corner of a window. The light streaming behind her creates a sharply-contrasted diagonal stripe on the wall—an orthogonal line connecting her upward-turned face to that of Clementina stretched on the floor at her feet. Clementina's character wears a gauzy, Classical inspired gown that drapes from one shoulder (revealing her arms and shoulders) and a star diadem that crowns her head.6 The light falling on Clementina's face in 379-1947 creates a vivid chiaroscuro effect in the modeling of her features, introducing an illusion of harshness and melodrama to her youthful face. Conversely, Florence Elizabeth, who is dressed as a nun or saint, is positioned so that the light softly illuminates her features and lends her

[5]Hawarden, Clementina, Untitled – Florence Elizabeth and Clementina, 1863-64. Albumen print, Victoria and Albert Museum, accession no 379-1947.

[6]The gown Clementina wears is thin and draped around the figure from a rectangular piece of cloth, clearly referencing the chiton or peplos garments of Greco-Roman antiquity.

an even glow akin to the softly modeled portraits of the High Renaissance. This image displays Hawarden's strength and process as a student of the Classical as well as her unconventional use of natural light as an almost physical element in a photographic composition.

Hawarden also uses light as a frame for the subject and as a distinguishing factor for her doubled photographs. Figure 2 (Image 341-1947) features a teenaged Clementina wearing a fancy-dress costume with half-length slashed puff sleeves and a full pleated skirt, suggesting the dress of the 1660s, with a headdress and net veil that evokes the High

Figure 2. Clementina Hawarden, *Untitled – Clementina and Mirror*, 1863-64. Albumen print, © Victoria and Albert Museum, London. Accession no. 341-1947. https://collections.vam.ac.uk/ item/ O1048002/photograph-

Renaissance.7 The lighting and pose of this image, combined with the subject's costume, appear to intentionally evoke a Baroque aesthetic. In this image, Clementina poses with her back against a wall, almost touching a mirror that reflects her in a three-quarter profile. The "real" girl stands in the left-central register while her mirror-self is reflected opposite in the left register. Hawarden allows bold natural lighting to connect the highlighted portions of the faces, but due to the changes in the angle of illumination, both the "real" and the "mirrored" girl possess slightly different emotive expressions. With light streaming over her face and shoulders, features modeled in a soft gradation of tone, the "real" Clementina faces the viewer

7Clementina Hawarden*, Untitled – Clementina and Mirror*, 1863-64. Albumen print, Victoria and Albert Museum, accession no 341-1947.

 in three-quarter profile on the left register but directs her serene and resolute gaze toward a point past the right register. In the mirror, the image of Clementina takes on a more subtle expression: the lighting on her face creates sharp tenebrosity, and her expression is almost sorrowful. The image of the girl in the mirror appears in sharper focus than the "real" image on the left register, which adds an element of other-worldly allure to the confined space of the photograph.

One of the notable and recurring elements of Hawarden's photography is the prominently featured studio space that grounds her subjects in a contemporary setting. This artistic choice breaks away from conventions of commercial studio portrait photography of the time as well as those set by other art photographers. Her contemporaries in art photography carefully manipulated images, removing their models and studio spaces from reality by cutting and piecing together their photographs from many negatives.8 What remains of the studio is entirely transformed, according to the photographer's desire, into a "fictional space."9 These images, especially those by her peers in the British Photographic Society who exhibited works alongside her in 1863-64, would have been undoubtedly known to Hawarden. However, while her portraits also incorporate costumed characters and traditional art compositions, her images are recognizably set in her newly built London home, which included bare board floors, papered walls, and prominently featured windows. Scholar Suzanne Cooper asserts that by acknowledging the existence of the subjects' surroundings, Hawarden demonstrates an interest in the eerie.

8Daniel A Novak. "Photographic Fictions: Nineteenth-Century Photography and the Novel Form." NOVEL: A Forum on Fiction, 2010, 25.
9"Photographic Fictions," 25.

To view complete paper and color graphics, please visit:
http://LSCMontgomeryCAC.com/2023/Rachel-Schnakenberg/

Preparation and Testing of Yogurt

Lab Notebook Entry by

WINNIE AIDI

SCIT 1313: WORKPLACE MICROBIOLOGY
Scientists in every field must learn to keep detailed records of their work, whether it will be used for documenting patent applications, treating patients, or making commercial products. Winnie gives us an example of a detailed record of her preparation of yogurt. This reflects the type of record that would be used for industrial preparation. She has included the steps in preparation and also the safety/cleaning steps she took. Her analysis of results ties the outcomes of texture and taste to the biochemical processes that produce yogurt. Winnie gives us a very well-rounded view of the process and results.

Julie Harless

TABLE 1: SAFETY

Agent	Lactobacillus bulgaricus	Streptococcus thermophilus
Vaccine	N	N
Risk Group	1	1
Techniques	Aseptic Transfe	Aseptic Transfer
Splash Potential	N	N
Facility BSL	1	1
Work Practices BSL	1	1
Gloves	N	N
Safety Glasses	N	N
Lab Coat	N	N

Materials Required
- Bowl
- Stainless steel pot
- 16 ounces of whole milk
- 216 grams starter (Trader Joe's yogurt)
- 3 tablespoons full of homemade blueberry jam
- 1 tablespoon full of homemade strawberry jam
- Whisk
- Mason jar
- Thermometer

Procedure:

1. Pour the milk into a saucepan and heat it until it boils. (180°F or 82°C). To make it thicker, boil it over for an extended time.

2. Allow the milk to cool to approximately (110°F or 43°C).

3. Pour the milk into a bowl, not an aluminum one.

4. In a bowl, mix half of the milk and the yogurt. To ensure that there are no lumps, use a whisk. Then combine this with the remaining milk.

5. Transfer the mixture to a mason jar and cover it with a kitchen cloth for the mixture to breathe and store in a warm place (pantry-room temperature) for 36 hours. The longer you store the milk, the tarter it becomes.

6. After 36 hours, add the 3 tablespoons of homemade blueberry jam and 1 tablespoon of homemade strawberry jam to make it flavorful.

7. Put it in the fridge for a couple of hours to chill, and the yogurt is ready to be eaten.

Results

We did a taste testing in class for tartness, thickness, sweetness, and off-taste on a scale of 1-4 with 4 being the highest as indicated in the table below.

TABLE 2: CLASS EVALUATION OF HOMEMADE YOGURT

Student	Tartness (Acid conc.)	Thickness (Denaturation)	Sweetness (Remaining sugar)	Off Taste	Added Flavor
1	2	2	2	--	3
2	3	2	2	--	4
3	2	4	2	2	--
4	4	4	1	--	--
5	3	4	2	--	4
6	3	4	1	--	--
7	3	4	3	1	3

Tartness: Lactose (milk sugar content) is reduced to lactic acid during fermentation when bacteria act on milk protein to give yogurt its characteristic tart flavor.

Thickness: The heating of the milk denatures protein in the milk, allowing it to thicken once you've added the starter. During fermentation, the lactic acid also contributes to how thick your yogurt is.

Sweetness: Remaining sugar that has not been broken down during fermentation. Added sweeteners for flavor.

Off taste: It's due to microbial imbalance in your starter and or possible cross-contamination.

There were some fascinating options made of coconut milk instead of whole milk which turned out tasty and worth trying to make at home.

Conclusion:

My homemade whole milk yogurt tasted like my favorite store brands but was way cheaper. However, it was not as thick as it should have been, either because of the starter I used or because I should have boiled the milk for a longer period to denature the proteins. In a nutshell, it was a success! This is something I will do again.

Reference

Leboffe, M. J. and B. E. Pierce (2016) *Microbiology laboratory theory and application*, brief, 3rd edition, Morton Publishing, pp. 495- 497.

Soil Analysis Report

Technical Report by

WINNIE AIDI, AUTUMN CAKA, RANJIT INAMDAR, YIGIT KARAMAN,

CHASE MULLENS, CHRISTINE PORTNOY, AMBER SHAFFER

SCIT 1313: WORKPLACE MICROBIOLOGY
Technical reports are an essential type of scientific writing. Academic papers may be the most recognized form of the genre, but in the workplace, technical reports are the means by which companies communicate with their clients. The report must be tailored to the client's level of scientific sophistication, i.e. for technical personnel or for sales team.
In this report, students report their findings from soil tests for Professor Iyer, therefore they included the details of results and calculations reflecting her
deep understanding of the topic. They included both inconclusive findings and more interesting results with detailed analysis of their conclusions.

Julie Harless

To: Professor Iyer
From: SCIT 1313 class

Soil Analysis

A client [Professor Iyer] presented Lone Star College students in Workplace Microbiology with a persistent problem in her yard. The issue is a bare spot that does not support vegetation growth despite her efforts. She provided three samples: 1 bag labeled Bare Spot, 1 labeled Under Grass, and 1 labeled Compost. The samples were analyzed for the growth of different types of soil organisms and also analyzed with EcoPlates to determine the metabolic potential of the different soil communities.

We did not see significant differences in the number of bacteria, fungi, or actinomycetes between the different soil samples (Table 1). There did appear to be more actinomycetes than other microbes in all samples.

The Ecoplates did show differences between the bare spot, under grass

sample, and compost functional diversity measurement: The functional diversity in the three samples were 48.39% (bare spot), 80.65% (under grass), and 96.74 % (compost). Variation between samples (bacterial population's metabolic capacity) is approximately 32.26% between the bare spot and under grass ecosystem. Compost sample was consistently different from the grass samples.

Experimental Details

Soil organism enumeration:

Using each sample in a series of serial dilutions and different types of media; Nutrient, Glycerol yeast, and Sabouraud agar. We may be able to solve her current issue, or at least figure out what microbes may be affecting that specific area.

Each bag sample was weighed out to 1 g before placing into a milk flask with 50 ml of tap water and thoroughly mixed before pipetting 1 ml and 0.1 ml into appropriately labeled Petri dishes and each agar was poured, gently mixed, and left to solidify.

TABLE 1: MICROBIAL GROWTH

	Actinomycetes/ml	Bacteria/ml	Fungi/ml
Bare Spot	7×10^4	4.5×10^4	1.85×10^4
Under Grass	2×10^4	4×10^4	2.11×10^4
Compost	No results	1×10^4	4×10^4

Based the results above, actinomycetes cultured on glycerol yeast agar plates were the most abundant, followed by bacteria cultured on nutrient agar plates and fungi cultured on Sabouraud plates. The three major categories of soil microbes were present in the bare-spot soil sample, leaving us with unanswered questions on the type of microbes present and their interaction with one another. There is a high probability that the organisms do not release sufficient nutrients that favor vegetation growth which can be ascertained by doing comprehensive soil testing.

The bare spot had the highest number of actinomycetes, bacteria, and fungi. Since one laboratory cultivation approach cannot be used to show all

the physical and nutritional needs of any soil sample, including the species of microbes available, we also did an Eco plate experiment.

ECO Plate Test and Analysis

Eco Plates are multi-well test plates that quickly evaluate a bacterial population's metaboliPc capacity without lengthy and time-consuming reagent preparation. Purple coloring occurs when microorganisms can use the carbon source and begin to respire. The respiration of the community's cells reduces the concentration of a tetrazolium dye found in the carbon supply.

Note: Having worked with soil samples, spotting the purple color change to tell the carbon sources utilized as the soil settles in the well with a dark coloration is difficult.

TABLE 2: ECO PLATE RESULTS

Substrate	Bare Spot	Under Grass	Compost
1 Water	0	0	0
2 β-Methyl-D-Glucoside	2	3	3
3 D-Galactonic Acid γ-Lactone	1	1	3
4 L-Arginine	2	1	3
5 Pyruvic Acid Methyl Ester	0	0	2
6 D-Xylose	0	0	3
7 D-Galacturonic Acid	0	2	2
8 L-Asparagine	2	3	3
9 Tween 40	0	0	1
10 i-Erythritol	0	0	1
11 2-Hydroxy Benzoic Acid	0	0	3
12 L-Phenylalanine	2	2	2
13 Tween 80	3	2	3
14 D-Mannitol	1	2	3

15 4-Hydroxy Benzoic Acid	0	0	0
16 L-Serine	2	2	3
17 α-Cyclodextrin	1	2	2
18 N-Acetyl-D-Glucosamine	1	1	3
19 γ-Hydroxybutyric Acid	1	2	2
20 L-Threonine	0	2	1
21 Glycogen	1	3	3
22 D-Glucosaminic Acid	0	2	3
23 Itaconic Acid	0	1	2
24 Glycyl-L Glutamic Acid	0	1	3
25 D-Cellobiose	1	3	3
26 Glucose-1-Phosphate	0	1	2
27 α-Ketobutyric Acid	0	1	1
28 Phenyl ethylamine	0	1	3
29 α-D-Lactose	2	2	3
30 D, L-α-Glycerol Phosphate	0	1	2
31 D-Malic Acid	1	1	3
32 Putrescine	0	1	3
Total # of substrates used	15	25	30
% Functional Diversity	48.39	80.65	96.74
% Variation of Results within Sample	45.16	67.74	38.71

The functional diversity is a measure of how many different molecules the sample can metabolize.

%Functional diversity = 100 X (number of positive wells) /31.

Variation within the sample is a measure of the number of samples that had variation between matching wells.

% Variation of Results within Sample = 100* (i÷31) Similarity scores indicate how the different samples compare.

% Similarity (SSM) = 100* (a + d) ÷ (a + b + c + d)

*Water is not a carbon source.

a = Number of carbon sources used by both sample A and sample B

b = Number of carbon sources used by Sample B but not by Sample A

c = Number of carbon sources used by Sample A but not by Sample B

d = Number of carbon sources not used by bacteria in either sample

Bare Spot

%Functional diversity   = 100 X (15/31)

          = 48.39%

% Variation of Results within Sample = 100 x (14÷31)

          = 45.16%

% Similarity (SSM) Bare spot & under grass = 100* (15 + 6) ÷ (15 + 10 + 0 + 6)

          = 100 * (21 ÷ 31)

          = 67.74%

% Similarity (SSM) Bare Spot & Compost = 100* (15 + 1) ÷ (15 + 10 + 0 + 6)

          = 100 * (16 ÷ 31)

          = 51.61%

Under Grass

% functional diversity   = 100 X (25÷31)

          = 80.65%

% Variation of Results within Sample = 100 x (21÷31)

          = 67.74%

Compost

Functional diversity

% functional diversity = 100 X (25÷31)

          = 96.74%

% Variation of Results within Sample = 100 x (12÷31)

          = 38.71%

% Similarity (SSM) Under grass & Compost = 100* (25 + 1) ÷ (25 + 5 + 0 + 1)

          = 100 * (16 ÷ 31)

          = 51.61%

Based on previous results where we enumerated the soil organisms found in the samples, actinomycetes cultured on glycerol yeast agar plates were the most abundant, followed by bacteria cultured on nutrient agar plates and fungi cultured on Sabouraud plates. The three major categories of soil microbes were present in the bare-spot soil sample, prompting us to further do community-level profiling using Eco plates.

The functional diversity in the three samples turned out to be 48.39% (bare spot), 80.65% (under grass), and 96.74 (compost), whereas the variation of results (carbon sources in which the three replicates were not ALL positive or ALL negative) was 45.16% (bare spot), 67.74% (under grass) and 38.71% (compost). The percent similarity was the same for both bare spot and under grass in comparison to compost. However, the percent similarity for bare spot and under grass was 67.74%. This infers more soil testing is needed to establish which nutrients may be missing in the bare spot.

Conclusions

The soil environment varies from one area to another and from one period to another. Moisture, pH, temperature, gaseous oxygen content, and organic and inorganic soil composition are thus crucial in determining the specific microbial biodiversity of a particular sample.

We have used two laboratory approaches (enumeration of soil organisms and community-level physiological profiling) to analyze and narrow down the differences in the three soil samples. It turns out that there is a variation in the bacterial population's metabolic capacity - approximately 32.26% between the bare spot and under grass ecosystem.

Since our results are not conclusive on why the bare spot in Professor Iyer's backyard has not supported vegetation growth for the past 15 years, it would be ideal to do further tests on the soil samples.

Workplace Microbiology Team

Reference

Microbial community analysis with Ecoplates (2023). *Biolog,* https://www.biolog.com/products/community-analysis-microplates/ecoplate/

The Naked Truth: Exposing the Durability and Safety of Natural and Synthetic Textiles in Lab Clothing

Research Paper by

KENDALL
MCBRIDE

CHEM 1415H: GENERAL CHEMISTRY II (HONORS)
Scientists need to know how to write a research paper based on their research to communicate to the scientific community. What makes this a great research paper written by Kendall McBride is (1) she does a precise and through job laying out the literature review for her research; (2) she clearly outlines her methodology for her research; (3) she does a great job describing her results and includes fully labeled visual pictures; (4) she makes her paper reader-friendly with appropriate subheadings, and indents based on the proper formatting; (5) the research conducted is also a great example with pictures of why safety precautions are used in the laboratory.

—Crista M. Force

Abstract

 With an aim to evaluate the safety and durability of different textiles, this study exposed different clothing samples to acids, fire, and light with an effort to compare natural and synthetic textiles. By using polyester, rayon, Tencel Lyocell, linen, wool, spandex, nylon, and cotton the study is an effective comparative analysis of the different physical and chemical attributes of different textiles. The experiment illuminates the dangers of synthetic fibers when caught on fire, as those fibers have a tendency to melt and can cause major damage if melted near human skin. It also shows the lack of protection synthetic fibers have against acids that could also cause harm to human skin. The results of this research indicate the importance of paying attention to the clothing materials worn in a laboratory setting. When being exposed to dangerous environments, such as the lab, clothing material is typically a neglected factor in lab safety, however this research proves that wearing correct textiles is necessary for protection and safety in the lab and beyond.

 This research distinguishes the different types of materials used to

make clothing and identifies their reactions to light, fire, and acids to discern the safety, quality, and durability of different clothing textiles. These tests also identify the differences between natural and synthetic materials and the importance of knowing the difference in clothing. The results allow the researcher to contemplate safety measures regarding clothing materials within the lab. It analyzes the current lab safety guidelines with the knowledge of the dangers clothing material poses. With the purpose of examining the differences between natural and synthetic fibers and their relation to the laboratory safety, this study investigates the physical and chemical components of different fibers and their ability to protect the person wearing it.

This research examined eight different clothing samples with different textile composition. To begin, satin fabric that is 100% polyester was tested. Polyester is a synthetic material that makes up 52% of clothing and is derived from petroleum. It is also extremely harmful to the environment. Polyester releases toxins in its production, its production is highly energy intensive, it is considered non-biodegradable since its takes 200 years to decompose, and it releases 700,000 plastic microfibers per wash. It is a polymer, meaning the molecule structure consists chiefly of plastics; specifically polyester is a thermoplastic polymer.

Secondly, a skirt made of 100% Tencel Lyocell was tested. Tencel Lyocell is a semi-synthetic man-made fiber that is made from cellulosic materials primarily from Eucalyptus trees. It has the same manufacturing process of rayon but is more eco-friendly because of its use of natural materials and is 100% biodegradable.

Next, a 100% rayon shirt was used. Rayon is similar to Tencel Lyocell because it uses regenerated cellulose derived from wood pulp, however rayon can be produced from eucalyptus trees, bamboo, soy, or cotton. However, the process of producing rayon uses many chemicals that can be extremely toxic.

Additionally, the research used a 100% pima cotton shirt. Pima cotton is the highest quality cotton that is stronger, softer, and more colorfast than original cotton. It is a natural fiber that can also be referred to as gossypium barbadense that consists of 3% of the world's cotton production.

A 100% linen dress was also used. The dress was from the brand Amazhiyu, which is a sustainable and natural clothing brand. Linen is a

natural fiber made from flax plant that uses significantly less resources than cotton and polyester.

Also, 100% lambswool socks were used. Lambswool is renewable and natural that comes directly from lambs rather than sheep, making it much softer.

The research also uses two samples with a combination of textiles. The study used a sample of active wear that consists of 69% recycled polyester and 31% spandex, and tights that are made of 52% recycled nylon, 30% nylon, and 18% spandex. Nylon is a polymer derived from petroleum that was actually manufactured as a liquid, then dried to form nylon fibers. Spandex is a polymer, specifically called polyurethane, that is derived from petroleum and has similar characteristics to polyester and nylon.

The results of this research will be useful in analyzing safety precautions taken in the laboratory regarding clothing materials. Through analyzing numerous lab safety guidelines, the researcher noticed that the majority of sources did not mention any regulations in clothing material. Lab guidelines from Lone Star College, Princeton University, and Purdue University do not mention the risks of clothing material in their clothing safety guidelines. However, there were some guidelines, such as the Laboratory Attire in Research and Teaching Labs from Texas University at Austin, that did recommend wearing natural fabrics while dealing with fire in the lab. Although, this procedure is recommended but not regularly enforced or monitored in the lab.

Literature Review

"Acid's horrifying effects on human flesh and clothes revealed in shocking photos" (Farhoud, 2018) details a study by Professor Hal Sosabowski, of the University of Brighton regarding acids' effects on human flesh as well as clothing. The study seeks to understand the dangers of sulfuric acid, nitric acid, sodium hydroxide, and potassium hydroxide on human flesh, by using pork steaks to mimic human flesh, and jeans to experiment with clothing level of protection from acid. Although this source has a different overall research question and goal, it is very similar in methodology to this current study and can be used to direct the acid and base exposure testing that will be conducted.

"Thermochemical degradation of cotton fabric under mild conditions" (Cuiffo, et al., 2021) is a study that examines how the thermochemical degradation of cotton using acids and bases can be used to efficiently reuse cotton textiles. It closely examines how cotton reacts to different acids and bases with the goal of uncovering how cotton degradation can be utilized to change the woven interfiber structure that allows reuse that could contribute to sustainability within the fashion industry. This source contributes to the research by showing how cotton reacts to some acids and bases, which will be tested further in this research. By using the methodology and results provided by this source, the researcher will anticipate results of cotton exposure to certain acids and know what to observe to be able to apply results directly to the research question.

"Fibres and fires : The Role of Textiles in Fires" (Hammond and Stockham, 1937) seeks to identify how different textiles react to flames with the goal of finding safe fabric options for clothing, furniture, and more. The research found that synthetic fabrics will melt when caught in fire, resulting in major skin damage if being worn. In addition, natural plant fibers will readily catch fire and turn to ash, but animal derived fibers are difficult to ignite and burn. This source applies directly to the current research because the same comparative analysis of flame reactions of different fibers will occur. This source also identifies the natural and synthetic fibers and differentiates how the two groups react to fire, which will be a part of the current research as well. The current research will be greatly benefitted by utilizing the results and methodology of this source to conduct a comparative analysis flame resistance test.

"Understand Your Fibers" from the University of Georgia introduces information on different textiles. It presents a comprehensive list of fabrics along with their type, limitations, advantages, helpful facts, as well as clues to care for them. The source provides information on polyester, cotton, rayon, nylon, spandex, and wool which are all utilized in this experiment. It provides information, such as which fabrics are natural and synthetic and what they are composed of, that will be utilized in the comparison aspect of the results of the current research.

Methodology

The experiment began by obtaining old clothing that had different material compositions. For this experiment samples of 100% polyester, 100% pima cotton, 100% Tencel Lyocell, 100% rayon, 69% polyester and 31% spandex, 100% linen, 100% lambswool, and a sample with 52% recycled nylon, 30% nylon, ad 18% spandex. These samples were used to study the safety, durability, and quality of different fabrics through a light resistance test, flame resistance and burning tests, and exposure to acids and bases.

To begin the light resistance test, all 7 fabric samples were attached to a cardboard cutout. Each piece was 3 inches by 1 inch, making the cardboard cut out about 7 inches by 3 inches. This research used two samples for the light resistance test. This is a qualitative data experiment so detailed pictures of each fabric were taken before they were exposed to any light. A heat lamp, at 120 V and 150 W, was positioned 12 inches above the test samples. Test samples were left under the light for one month, rotating every week so each fabric is exposed to the same amount of light. After a month of continuous exposure, the samples were removed from under the light and detailed pictures taken to determine the effects of the light resistance test.

The fire test was conducted in a contained environment. One inch by 6 inch samples of each textile were used for this test. Materials' reactions to flame were recorded and observed. The fabric were held in the fire until it caught fire, then removed from flame. A stopwatch was used to time how long it took for the fabric to catch fire, then how long it took for the material to burn up and the fire to die out. If the material did not have a consistent flame, that was noted.

The experiment exposed the fabrics to a variety of acids and bases to test the durability of each. Fabrics were tested with 0.1 M, 6 M and concentrated HCl, H2SO4, HNO3, NaOH, acetic acid, boric acid, and pure acetone. Material was placed over a small beaker and secured with a rubber band. The data was primarily qualitative, and therefore video records were made of the entire experiment. Samples were tested by dropping single drops of the lowest concentration onto the fabric. Dropping and observing continued till either significant damage had occurred or until about 60 drops and no sign of damage. This process was repeated using 6M and concentrated acid and base on each fabric type.

Results

Fire

This experiment conducted three trials for the fire test. The first trial was purely observational and analyzed how each fabric reacted when exposed to fire. The polyester caught fire quickly and melted, forming a black liquid. The wool did not catch fire readily, after being held in the flame for over 10 minutes the wool never caught fire but did carbonate. Cotton, rayon, lyocell had similar reactions, both catching fire fairly quickly, rayon being a bit faster, and turning to ash. Spandex/nylon was similar to polyester and melted, but did not experience a drastic change in color as the polyester did. Linen caught fire fairly quickly and turned to ash, however the entire sample piece did not burn, instead a portion fell off and turned to ash, leaving about a quarter of the sample piece untouched.

The differing reactions of each fabric type made it difficult to attain data for the fire test; however, in trial 2 and 3 the experiment collected information regarding how long the fabric took to catch flame and how long the fabric burned for. Trial 2 used a blue flame bunsen burner, which indicates a much greater heat that the fabrics were being exposed too. In trial 2 polyester took less than a second to catch fire and 13 seconds to completely melt. Cotton took 2 seconds to catch fire and 37 to completely turn to ash. Rayon took three seconds to catch fire and 16 seconds to turn to ash. The spandex/nylon tights took less than a second to catch fire and 10 seconds to completely melt. Tencel lyocell took 3 seconds to catch fire and 20 seconds to turn to ash. Linen took 1 second to catch fire and 29 seconds to turn to ash. The polyester/spandex leggings took less than a second to catch fire but 54 seconds to melt completely. The wool caught fire but quickly distinguished itself, however when held consistently over the bunsen burner the wool changed textures in 99 seconds (Fig. 1).

Figure 1.

Trial 3 used a yellow flame bunsen burner to conduct the fire resistance test which is significantly less hot than the flame used in trial 2. Polyester took 4 seconds to catch fire and 68 seconds to completely melt. Wool never really caught on fire but changed textures after 620 seconds of consistent exposure to the flame. Cotton caught fire in 2 seconds and took 61 seconds to turn to ash. Rayon took 6 seconds to catch fire and 26 seconds to turn to ash. The nylon/spandex tights took 4 seconds to catch fire and 62 seconds to melt, however the entire sample did not burn, some fell off before the fire could reach the entire sample. Additionally, the nylon/spandex continued to burn after the sample melted and hit the surface. (Fig. 2)

Fig. 2

Tencel Lyocell took 6 seconds to catch fire and 81 seconds to turn to ash. Linen took 5 seconds to catch fire and 38 seconds to turn to ash, however about half of the sample fell off before the flame could consume the entire sample. The polyester/spandex leggings took 2 seconds to catch fire and 104 seconds to completely melt.

The experiment also used a pair of crocs in the fire resistance test to gain more results. The crocs produced the largest flame by far and melted into a black liquid that was extremely sticky and hard to clean off. In trial 2 it took 4 seconds to catch fire and 102 seconds to completely melt. In trial 3 the crocs took 3 seconds to catch fire and 227 seconds to completely melt.

Light

The light resistance test began at 2:04 PM March 20, 2023 and ended at 2:28 PM May 1, 2023. The sample would have been exposed to the heat lamp for 42 days, however the testing site was disturbed by an unknown

source in the process and was moved from the heat lamp. The time spent away from the light exposure is unknown, to account for all possible errors the research considers the test was removed for one week and accounts for 35 days of continuous exposure. Based on photos and qualitative analysis, the rayon had the most drastic fading (Fig. 3). Tencel Lycoell also had a noticeable change in color. Cotton, polyester/spandex, and linen had minor fading. Wool, polyester, and nylon/spandex had no noticeable change in coloration.

Fig. 3

Acid

This study also exposed the textiles to hydrochloric acid (HCl) in 0.1 M, 6 M, and at a concentrated molarity. Using over 60 drops 0.1 M of HCl linen did not absorb or drip any, polyester immediately absorbed and began dripping shortly after, rayon absorbed and began dripping after 15 drops, wool did not absorb or drip any, cotton had immediate absorption and began dripping after 8 drops, lyocell had immediate absorption and spreading but no dripping, nylon/spandex had no absorption or dripping, and polyester/spandex had immediate absorption and spreading but no dripping.

When exposed to over 60 drops of 6 M HCl linen experienced dripping and absorption, polyester absorbed, dripped, and spread, rayon absorbed and dripped with little spreading, cotton was visibly thinner and dripped and experienced little color change, wool abstained from absorption then at 20 drops the entire bubble of liquid fell through at once then continued to drip, lycocell experienced immediate absorption and spreading but little dripping, nylon/spandex experienced immediate dripping and some deterioration but did not break through the final layer of the textile, and

polyester/spandex experienced immediate absorption and spreading but little dripping.

When exposed to over 60 drops of concentrated HCl linen experienced dripping and absorption, polyester experienced dripping, absorption, and spreading, rayon experienced dripping and absorption, cotton experienced a significant color change and dripping, wool did not spread but was absorbed and experienced dripping, lyocell experienced absorption and dripping but little to no spreading, and polyester/spandex experienced immediate absorption and spreading but no dripping. Nylon/ polyester was only exposed to 6 drops because it experienced immediate deterioration and made a hole in the textile after only 6 drops and produced a black liquid around the hole. (Fig. 4).

Fig. 4

Conclusion

Analyzing the data provided by the experiment proved that polymer based clothing textiles pose severe dangers and limited protection. Polymer based fabrics melted when caught on fire which can be severely damaging to human skin. These fabrics also experienced the greatest absorption, dripping, and spreading when exposed to hydrochloric acid, providing very little protection. However, the polymer based fabrics experienced no fading when exposed to light resistance. Polymer based fabrics are much more color fast than natural based fabrics.

These results should be considered in a laboratory setting. Scientists in the lab are consistently exposed to fire, acids and other external factors that have the potential to harm a person. Wearing polymer based clothing in the lab poses an unnecessary risk to cause even more harm. To eliminate this danger clothing material should be monitored and regulated in the

laboratory. Primarily, in lab coats this should be enforced. The majority of lab coats are made of 100% cotton, however there are many made of polymer based materials. Lab coats should be consistently regulated to exclude all polymer based textiles in their composition to properly protect the scientist.

Regardless, everyone entering the lab should consider the textiles they are wearing. For optimal safety, natural based fabrics should be worn primarily in the laboratory. This study proves that wool is the safest textile option out of the eight and should be worn if accessible.

This research can also add to the conversation regarding the fast fashion industry. Clothing made of polymer based textiles are being produced at rapid rates within the fast fashion industry due to their cheap cost. The fast fashion industry prioritizes cost effectiveness over customer safety and satisfaction that puts customers in danger. This industry should be monitored with safe regulations to protect all customers.

This study demonstrates that polymer-based fabrics like nylon, spandex, and polyester are dangerous, provide unnecessary risks in the laboratory, and should be avoided through scientific experiments that test for fire resistance, light resistance, and acid exposure. For optimal safety, clothing made of natural fibers like cotton, wool, rayon, and linen should be prioritized.

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Trilogy: Three Poems of Rejection Towards Capital Punishment

Poems by

ALEX HOWARD

CRIJ 1301: INTRODUCTION TO CRIMINAL JUSTICE
Introduction to Criminal Justice students study the use of capital punishment in America. Using scholarly research methods, students develop an argument for or against the death penalty. For this assignment, students are asked to create persuasive pieces supporting their positions on the death penalty in America. Mr. Howard chose to present his thesis in the form of poetry. His arguments against capital punishment draw on the themes of retribution and redemption. His trilogy is a thoughtful and powerful observation on the death penalty in America today.

—Sarah Billingsley Chapman

Flesh Garden
Homeland of southern gospel and root rot
Soil of absolution and motherly repentance
Sons and daughters; reapers and rapist of another's kin
Their babies have done wrong; the orchids are burning down
Saving what is left of the family trees in the arboretum
Searching for the savior in the different species genes
The day of felling comes—who will meet the standards for your requiem?
Rinsing off the fallen crops as they match their labored breaths to the
     gavel's sound
Well, the court doesn't talk about what the daddy did to them when they
     were sixteen
No excuses now, there's no point of return unless there's a sacred sign
It's too late now, this garden of flesh has been growing for some time
May carries its sickening scythe; the harvest is fresh and rotten
They're sent off to the scourger of the condemned; his holy whip of grace
Seventh of June came the closing act of fate; cold, naked, and bloody like
     their birth
You've caught them now, a killer spiked to the ground—has it been a
     thrilling hunt for you?

Malevolence is churning in your stomach, are you itching for the taste of
    blood?
Formation of a captor in your red mouth, will nothing slow its chew but
    blood atonement?[1]
A sequence of violence -- a revelation upon the vile -- a circus of
    loathsome spectacles
Is it the soil or is it the soul?
Forgiveness is evil and blood is worthless when cold
You're even and they've paid their dues[2]
That heart of yours, do you promise it's no longer bruised and blue?
I could have sworn I heard it infected by a muse
Preaching that if this world is going to hell, it'll be because of them
Have you been inside your wounds?
It won't close so soon, so soon
But I won't blame you, it's not my place to blame you [3]

Dog Years

Little boy like a guard dog
Defending what he has even if it kills him
Junkyard townsfolk saying, "You don't second guess driving past a dead
    animal"
Guess making it by is better than being buried
Home like a dog pound
Bedsheets of filth, there's no washing out the smell
Backyard of tar, just a puppy stuck looking up at the stars
Well, he's one hard hitter for a teen; a real bad liar with guts
Falling down face first into the mud of violence and crime[4]
It's them or him, would you show pity if you had nothing to defend?
Turning nineteen and a killer; just a rottweiler now -- left all alone

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1   The World Medical Association, Inc. (2012). *White Paper on Ethical Issues Concerning Capital Punishment*. 84.

2   The World Medical Association, Inc. (2012). *White Paper on Ethical Issues Concerning Capital Punishment. 84.*

3   The World Medical Association, *White Paper on Ethical Issues Concerning Capital Punishment*. 84.

4   Grant, R. (2021). 'The White Side of the Fence:' Charlotta Bass and the Wesley Robert Wells Case, 1947-1954. *Media History*, 27, 529-531. doi:10.1080/13688804.2021.1947214.

All his transgressions catching up with him, another one that's going to get
    run over
You don't second guess driving past a dead animal, do you now?
They'll drag him in for his examination
Poking sticks at his body to see if it twitches
When he wakes up, he'll see chains and bars
It'll be a familiar taste -- ugly dogs don't leave the pound
Give it a few years, it'll all be over soon
They'll put him on a sterile table awaiting their procedure
Unwanted and exhausted, the only parents that'll remember him aren't his
    own
So, will you say it's okay if it eases the victim's pain?
Will you try to defend that it deters others from thinking the same?[5]
Are you going to say the wound is too deep, that it's too late to heal?
We are all in need of redemption or is it too late to change anyone now?
Do you really think death is how you fix hopeless desire?
Well, I promise, the knife won't maim the others as it did them [6]
Its legion, there's so many bodies piling up on this fire
Do you feel the burn?
Can you feel it still?

Living Grave

Giant red bricks with one long fence
Like hell with an agricultural spirit
Halls bellowing out their monologues of innocence
Tell me what it's like knowing how you are going to die
Tell me what it's like knowing you are dead before you've aged
Oh well, will you recant the cruelty, saying it doesn't live in solitude?
Don't you see it from Huntsville to Telford
There's something in the machine blocking the cogs
It's a long walk back home with a hunter on your shoulders
It's only so long till you see the dead end [7]
The world's a different breed when you're pushed down onto your knees

5   Block, W. E. (2015). The Death Penalty: Response to Ron Paul. *Criminal Justice Ethics,* 34(3),
     342. doi:10. 1080/0731129X.2015.1109786.

6   Block, The Death Penalty, 341-342.

7   Grant, 'The White Side of the Fence:,' 529-531.

So much darkness carving against your back, is there no way to cleanse it?[8]

Marked with a yellow tag and number; it's only so long till they line up the
shot

Failed attempt at rebirth, one terrible mechanic trying to repair, is death
really the toll to heal?

Don't you see it from Clemens to Connally

Is it skin or sin, which one will punishment choose? [9]

Equality at the close, is it the same for day of judgement? [10]

A burial site where the corpses are still alive

Digging up the graves, how many look the same?

Don't you see it from Dalhart to Hughes

Who will climb up the mountain to hear that sermon; it has been a while
don't you think?

Well, I guess, guilty conscious is more like a shrike

It seems to leave a thorn in most sides

Such a lasting impression on one's pride

For it will come back and eat them alive

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9   The World Medical Association, *White Paper on Ethical Issues Concerning Capital Punishment.* 84.

10   Grant, 'The White Side of the Fence:,' 525-538.

How to Tame Identity Language

Research Paper by

SOFIA

DURANGO

ENGL 1302: COMPOSITION AND RHETORIC II
A good research paper depends on a comprehensiveunderstanding of the topic; Sofia Durango demonstrates this skill in her essay on Gloria Anzaldua's "How to Tame a Wild Tongue." Sofia chose the text based on her own interest in the subject of language and identity, and she adds her insight to the ongoing scholarly conversation. She maintains a nice balance between her words and those of the scholars, which helps to establish her own credibility as a writer. Anzaldua's text covers a wide range of topics pertaining to identity, and Sofia effectively explores each issue that Anzaldua presents. Sofia's essay invites us to think more deeply about our experiences with language, culture, gender, and identity—experiences that occur in our day-today lives but are often overlooked. She takes Anzaldua's dense prose and makes it relatable to today's college reader.

–Chrisoula Gonzales

Gloria Anzaldúa was a self-proclaimed Chicana, lesbian, feminist poet who often spoke and wrote about the intersectionality of these identities inboth her artistic and academic work. In her book Borderlands/La Fro ntera: The New Mestiza (1987), Anzaldúa analyzes the borders that obstruct and form identity. "How to Tame a Wild Tongue" is the book's fifth chapter, in which she argues that language is an identity. Anzaldúa explores language's relationship to gender and multiculturalism, and she brings awareness to the issue of "linguistic terrorism."

Born in the Rio Grande Valley of South Texas in 1942, GloriaAnzaldúa experienced the ambiguity of the racial divide, which has persisted alongside multiculturalism from forced assimilation. Portraying her struggle to conjugate her American identity with her Mexican ethnicity (both Indigenous and Spanish), "How to Tame a Wild Tongue" highlights the harmful effects of suppressing a language and its development on people's identity. Specifically, Chicano culture is marked by historical oppression (i.e., repeated colonization of Indigenous peoples) and, in this case, silencing. A forced language, Spanish, became all that some knew. Still, it came under attack by another oppressor in Anglicized America, where

linguistic terrorism sought to destroy it and any synthesis of it with the English language.

Consequently, this oppression, rooted in racism and illusive nationalism, naturally leads to internalized racism and a survival mechanism of suppression. Additionally, Anzaldúa explores gender when she relates her experience with gendered language and expressions in Spanish and exposes misogynistic stereotypes surrounding speech, which often form the Chicana identity. Anzaldúa proves that until multiculturalism is accepted and embraced in language, there will always be a divide between each culture and within the peoples who embody an amalgamation of these.

Those within the Latino community profoundly endure gender norms. Most parents expect their children to uphold these norms. Womanhood, as often occurs in patriarchal cultures, is defined by restraint. Anzaldúa performs excellently at portraying this expectation of self-control communicated in everyday language. From terms describing girls as talkative gossipers and liars, to the censorship of girls who are not allowed to question their parents—as it shows a lack of respect to "talk back to one's mother or father"—Anzaldúa relates speech to girlhood by demonstrating that such characteristics define whether a girl is well raised (34).

Furthermore, these terms criticizing speech are only directed toward women, as Anzaldúa explains, "I've never heard them applied to men" (34). Therefore, as expressed in her interview with Ellie Hernández, "the Chicana has been socialized with negative attributes" (Herrera-Sobek 14). In "Gloria Anzaldúa: Place, Race, Language, and Sexuality in the Magic Valley," María Herrera-Sobek suggests that "the average Chicana is taught in her formative years to unleash tornado-like forces of self-flagellation and bitter invectives from relatives, friends, and society" (269). Additionally, Yvonne Yarbro-Bejarano's article "Gloria Anzaldúa's Borderlands/La Frontera: Cultural Studies, 'Difference,' and the Non-Unitary Subject," takes a look at the intersectionality of race and gender and deduces that the "material reality of multiple oppressions, […] and the embodied subjectivities produced in the texts of women of color allow for an understanding of 'gendered racial identities' or 'racialized gender identities'," concepts which, while briefly defined, are profoundly expressed in the book's chapter (Yarbro-

Bejarano 6). Likewise, grammatical constructs suppress female identity. Anzaldúa recalls the first time she heard the feminine plural "nosotras" spoken amongst two Latina women and feeling utterly "shocked" that there was such a term in the Chicano Spanish to refer to a group of women. Conclusively, language is male-centric; it silences women and places them in a marginal position while robbing them of their identity (Anzaldúa 35).

As a lesbian Chicana, Anzaldúa's experience of womanhood is intertwined with her experience of sexuality. Albeit Anzaldúa does not touch on her sexuality much (if at all) in this chapter, it is essential to note that her experience of gender and cultural ethnicity is distinct and perhaps more deeply felt; it is inherently queer. In her interview with Hernández, Anzaldúa clarifies, "here is where I talk about me, but I cannot represent others in the process," as it would reduce her identity to "essentialist labels" such as "Anzaldúa the angry Chicana, [or] Anzaldúa the queer," and not portray her as a whole (Hernández 14). Moreover, as Yarbro-Bejarano elaborates, "Anzaldúa rewrites lesbian identity as 'neither/nor,' introducing, with this move, a new notion of mestizaje that produces the queer as a third gender" (19). While the idea of a third gender may be outdated, and more innovative language has emerged to describe the spectrum of gender expression and identity, lesbianism's gender-non-conforming nature adds another layer of experienced oppression to the Chicana identity. Definitively, language is often the means of indoctrination. Early on, whether directly or indirectly, children are told how to present themselves in a heteronormative world. In her article, Herrera-Sobek relates her experience of hearing derogatory terms in Spanish for homosexual men in everyday conversation without understanding the sexual connotations of the words. Herrera-Sobek writes quite poignantly, "A curtain of silence enveloped nonheterosexuals," describing the shared experience of voicelessness repression, and suppression within the queer community, specifically in Latino patriarchal Catholicism, which sends this group a clear message of perceived offense (HerreraSobek 269, 270).

Furthermore, according to Herrera-Sobek, there has been the "erroneous perception that Chicanos/as were alingual" (268). Englishspeaking and Spanish-speaking Purists view Chicano Spanish as a mutilation of either language. Nonetheless, it is a border language that "developed aturally." Anzaldúa emphasizes this when she ponders,

"what recourse is left to [those living in between] but to create their own language?" Despite criticisms from purists, Anzaldúa argues that Chicano Spanish is a living language within itself and is "not incorrect" (35). By deeming her language as "both inappropriate according to the dominant norm and 'inappropriate' by it," critics view Anzaldúa's entire identity as such and invalidate it. Although different from the linguistic terrorism inflicted by Anglicized America, the tradition of silence is also imposed within the culture (Yarbro- Bejarano 21-2). Defining language as identity-making, Anzaldúa likens it to "a homeland" (36). However, within multiculturality, there is "a sense of homecoming as well as alienation" (41). In the interview with Hernández, Anzaldúa describes the experience further, stating, "It's the feeling that when you do cross over to the other world or community, and you return to the old world, you find that you don't belong anymore, but you don't entirely fit into the new place or identity either" (Hernández 14). Already an outsider in America, in adopting English vernacular to standard Spanish those who speak variations of both languages experience rejection from within the Latino community. Here comes a fear of not fitting in. While many become fluent in each dialect, from Chicano Spanish to Standard Mexican Spanish to English and any mix, others default to speaking only in English as they have "internalized the belief that we speak poor Spanish" (38). Even amongst Chicanas sharing the same dialect, they default to English to avoid appearing "agringadas" in front of others. Furthermore, not knowing any Spanish is viewed negatively in the Latino community Nevertheless, as Anzaldúa asserts, "a monolingual Chicana whose first language is English, or Spanish is just as much a Chicana as one who speaks several variants of Spanish" (38).

    Indirectly arguing for legitimating her natural tongue and those of others, Anzaldúa proves her code-switching and bilingualism practical and strategic. Although Borderlands served as a point of unity and understanding, with Anzaldúa attempting to make the text accessible to all, she "didn't want it to be assimilated so easily" (Hernández 13). By switching between English and Spanish, she hoped "the reader [would stop] and think." Therefore, her message became more penetrating and authoritative (13). Again, readers cannot interpret this text in isolation "from its conceptual community" and "universalizing the theory of mestiza" (Yarbro-

Bejarano 7). Although many Chicano activists used "indigenismo" for exclusionary purposes, such as the intercultural rejection mentioned in the paragraph above, Anzaldúa, as Yarbro-Bejarano analyzes, "invokes it in the construction of an inclusive" identity. As a "Chicana lesbian of working class," Anzaldúa does not and would not enjoy the privilege of exclusion (7, 12). If Anzaldúa were of any other origins, her sense of "mestizaje" might be different" (17). Thus, the language and how she writes about her identity would differ. Moreover, Anzaldúa explains that the term mestizo/a has varying meanings to Latino people. For instance, perhaps with exclusionary intent, the Ecuadorian government uses 'mestizo' to "impose a national identity on the Indigenous population" (Hernández 9). Coming up with the term 'new mestiza,' Anzaldúa distinguishes it from the idea that the mixture is purely biological, asserting that it "can also be cultural and intellectual" (Hernández 9).

Early in the chapter, Anzaldúa states, "Attacks on one's form of expression with the intent to censor are a violation of the First Amendment" (34). From an early age, Anzaldúa recounts her mother insisting on her speaking English and working on her accent, "mortified that [Anzaldúa] spoke English like a Mexican" (34). In university, she explains that "all Chicano students were required to take two speech classes [with the purpose] to get rid of our accents" (Anzaldúa 34). Nevertheless, the use of education to suppress freedom of expression did not begin in higher education. María Herrera-Sobek describes in the article "Gloria Anzaldúa: Place, Race, Language, and Sexuality in the Magic Valley" how the schools in the Rio Grande Valley were designed to "eradicate the Spanish language from Chicano children." These children "were made to feel like criminals," turning them into "conspirators" weary of teachers who "zealously monitored […] recess […] looking for any disobedient child who dared to utter a Spanish word while playing." Of course, the consequence of such would be punishment (Herrera-Sobek 268). Recalling some instances of punishment in "How to Tame a Wild Tongue," Anzaldúa narrates being punished with "three licks on the knuckles with a sharp ruler" for speaking Spanish at recess and "being sent to the corner […] for talking back to the Anglo teacher when all I was trying to do was tell her how to pronounce my name" (Anzaldúa 34). What could be most defining of one's identity than their allowance of a name and respect for the heritage

it carries?

As Herrera-Sobek expresses, schools punished children five to six years old for "uttering words in the only language we knew." Accordingly, "teachers became our adversaries," and school was not "a conducive environment for learning" (Herrera-Sobek 267-268). Anzaldúa repeatedly defines language as a form of identity used to describe people and give them a sense of community through communication. In her interview with Hernández, Anzaldúa asserts, "the dominant culture is taking in our art culture, literature, and music, but is not taking 'us' in" (Hernández 12). Pieced appropriation lacks the acceptance of identities as a whole. This phenomenon frequently occurs in the suppression of language. Rejection and suppression of a people's way of communicating foster the rejection within, as children become secretive out of fear of punishment, parents refrain from teaching their children their native tongue, and those who speak it feel unsafe to do so even amongst themselves. Anzaldúa likens ethnic identity to linguistic identity. Linguistic identity, in this case, linguistic mestizaje cannot be viewed separately from every other aspect of culture. Language is how people name their dishes, how they write their songs, and how they tell their history. "Wild tongues can't be tamed," Anzaldúa writes, "they can only be cut out" (Anzaldúa 34, 39).

Language has long been used to suppress minority groups, particularly colonized peoples. Anzaldúa uses the term "linguistic terrorism" to define this attack. From children being afraid to speak at school or becoming conspirators to not be caught speaking the only language they truly know, to criticism received from both the dominant culture and peers for having an accent or not knowing a language in its standard form, the silencing of Chicano people is unmistakable. Furthermore, the normative expectations and censoring of women and queer people within the community add a layer of complexity and oppression to the racialized identity. While shared amongst people and relatable within and beyond, Anzaldúa's language experience is intimately distinct because of these factors. Multiculturalism is inherently complex. Some Chicanas' experiences will be different from Anzaldúa's.

Nevertheless, in this, she proves that the freedom to express oneself authentically, using the words that most appropriately define them, in whichever language or combination of that feels most natural, is

foundational to identity; it is identity. "How to Tame a Wild Tongue" by Gloria Anzaldúa depicts her individual language experience through the lens of gender, multiculturalism, and the attack on identity, which is linguisticvterrorism. In her own words, "I am my language." Therefore, "If you wantvto really hurt me, talk badly about my language" (Anzaldúa 39). Anzaldúa concludes that without language, the basis to relate and understand social concepts would not exist; identity would not exist.

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The Odyssey: Vengeance, Ethics, and Order

Research Essay by
GABRIELLA
FERNANDEZ

ENGL 2332: WORLD LITERATURE I (ANCIENT WORLD TO THE SIXTEENTH CENTURY)

Gabriella insightfully explores the motif of vengeance in Homer's The Odyssey. This nuanced topic prompts her to reflect on the historical and mythological contexts of the classical text. She develops her thesis by suggesting that we consider the theme of god vs. man, and she argues that the motivations of the gods are often determined haphazardly, much to the dismay of the mortal world.

Gabriella focuses on two of the epic's central heroes—Odysseus and Telemachus. It is the attention Gabriella pays to the less frequently discussed hero, Odysseus's son, that makes her essay especially remarkable. She finds that Telemachus' coming-of-age story only begins when he seeks out vengeance against the suitors in his home, and it is this seemingly innocent motivation that drives Homer's plot forward. Gabriella encourages contemporary readers to separate the character from the motivations of his patron god in order to better assess his value as a hero.

–Chrisoula Gonzales

"Revenge, the sweetest morsel to the mouth that ever was cooked in hell." This quote, by the Scottish novelist Walter Scott, speaks to the nature of vengeance and retaliation found in art, culture, and history across the globe, regardless of time. Revenge is a common theme that extends back to ancient literature and continues today in modern art. In stories where vengeance is a factor, debates continuously emerge to juxtapose the righteousness of vengeance with the immorality of vengeance. As a result, scholars and historians continue to analyze vengeance in ancient literature. For instance, the theme of vengeance is prevalent in Greek myths and writings; such is the case with Homer's classic epic, *The Odyssey*. Following the Greek epic hero, Odysseus, Homer transports the audience into a setting where the need for revenge is palpable, and order must somehow be restored. Throughout the hero's journey, family members, enemies, and gods seek retaliation and justice that align with their ideas of proper order and fruitful peace. The subject of revenge, the main theme of *The Odyssey,* moves the story forward. Ironically, it is also the cause of order, through the different perspectives of the characters.

From the beginning of the epic, Telemachus, Odysseus' son, longs for the end of the invasion of the suitors in his household. He is clearly bothered by these men who abuse his palace's resources and plague his mother's peace. Notably, the prince repeatedly says that if his father were here, then the suitors would run off (I. 96-101). Nonetheless, his wishful thinking soon develops into a promise with the arrival of Athena, who disguises herself as Mentes. The goddess of wisdom creates a picture of the revengeful scene that would commence once the hero returns home.She states, "... how he'd lay hands on all these brazen suitors! If only he would appear, now, at his house's outer gates and take his stand … If only that Odysseus sported with these suitors, a blood wedding, a quick death would take the lot!" (I. 297-308). Telemachus' coming-of-age story, the *Telemacheia*, begins with Athena and the quest for revenge, and it showcases the maturity of Odysseus' son, who has, thus far, navigated life as a prince without the guidance of his kingly father (Jones 196). His hatred for the suitors and the prospect of vengeance motivate the prince to act and seek out his father, whose return promises the overdue death of the suitors.Telemachus needs his father because Odysseus would, through bloodshed and anger, restore order to the palace and uphold Telemachus as the worthy prince of Ithaca.

Additionally, the theme of vengeance is not only revealed in the conversations and monologues of the characters, but it also exists in symbols and signs from the gods, who prove that revenge is imminent and bears their divine approval. Frequently, through omens, dreams, and prophecies, birds appear as symbols, often describing the positions of the epic heroes and predicting the results of the fight against the suitors. Throughout the story, the audience encounters various interpretations of such signs. One of the most critical signs is received by Penelope, the wife of Odysseus and queen of Ithaca. She dreams of an eagle killing twenty geese she has in her palace, which vividly foreshadows the arrival of Odysseus and the death of the suitors that plague her home (XIX. 606-9). Likewise, other characters, such as Helen, Halitherses, Amphinomus, and Theoclymenus, have visions related to birds of prey (eagle, vulture, etc.) killing weaker birds (dove, goose). The stronger birds represent Odysseus and his power, while the weaker birds represent the suitors and traitors who do not stand a chance against the mighty hero. The gods send these signs and symbols, proving that revenge is inevitable and, more importantly,

supported by divine authority. According to Rood, "The birds of the Odyssey underscore the rightness of Odysseus' revenge by imbuing it with the presence of the divine" (10). The bird imagery and the gods' continual praise of revenge stories come together perfectly when Odysseus returns to kill the suitors; god and man share the same goal here, and they cooperate to achieve it. This is exemplified when Odysseus effortlessly strings his bow, which sounds like a swallow's cry, and Zeus cracks the sky with thunder (XXI. 457-62). This divine support for Odysseus' revenge helps him reestablish perfect order in their family, property, status, growth, and identity.

Indeed, the gods in *The Odyssey* believe in justice and order; however, the idea that divine justice is generally positive is false. Many vengeful and "justified" actions the gods commit benefit their ideals and perspectives, which are not always benevolent or moralistic. For instance, Poseidon's revenge against the Phaeacians is unusually cruel and disconcerting. The Phaeacians, who are totally devoted to Poseidon, take care of Odysseus and offer him guidance while he is a guest on their land. Unbeknownst to them, Odysseus had been declared an enemy of Poseidon. Overcome with wrath and indignation, the god of the sea decides, with Zeus' permission, to surround Phaeacia's port island with mountainous rocks and destroy their ships (XIII. 181-7). Why is Zeus, the patron god of strangers and foreigners, allo wed to punish an entire island of people for simply attending to a guest? Zeus wants to maintain order by granting gods the autonomyto control what belongs to them. Allan claims that "Zeus's collaboration may appear vindictive, but [it] embodies a basic feature of his maintenance of divine order, since even Zeus cannot constantly interfere in other gods' spheres of influence. Thus, a god's decision to exercise authority in their own sphere may take precedence over Zeus's general protection of the helpless and vulnerable" (19). Though this makes some sense from the gods' point of view, it does not entirely excuse the unfair punishment of the Phaeacians. Their only crime was treating a visitor with kindness, a common, respectful practice in Ancient Greece and a recurring theme in The Odyssey. Their generosity would typically never be punishable, but thePhaeacians become victims of divine revenge due to their lack of knowledge about this one guest. In the end, the gods pursue their interests

and are willing to bring catastrophe on the mortal world to enforce their version of order. If something challenges or insults the gods' beliefs, they will respond in vengeance.

Undoubtedly, acts of vengeance do not always lead to total greatness and stability the way they do for Odysseus and Telemachus. The death of the suitors, even though Homer implies it is just, is still tragic, as it almost brought about a civil war (Allan 600). The suitors' families wanted to avenge the deaths of their lost sons and brothers, and Odysseus was ready to take them on; however, Zeus and Athena intervened immediately (XXIV. 579-85). Again, the gods do this because they prefer Odysseus, whose lineage stems from Zeus, and it is part of their plan to protect him and bring him back to his palace to govern Ithaca. The suitors' families arrived, ready to take arms and keep the cycle of revenge going. Ultimately, it took a divine intervention from Athena to stop the cycle.

The goal of revenge is to make a specific conclusion, an ideal structure, that benefits and pacifies the avenger. Throughout *The Odyssey*, the critical reader consumes the different acts of vengeance, and she manages to analyze the intentions of both god and man. Homer uses this theme to move the plot forward for Odysseus and Telemachus, while also humanizing them and helping the audience sympathize with them along the way. Their mutual hatred for the suitors leads them to reestablish a sense of order that was missing in Ithaca for nearly 20 years. The gods support their battles and grant Odysseus the security and strength he needs to be deemed an epic hero; his show of strength, alongside his son, Telemachus, would be sung by the bards in the halls of other great kings. All characters do notreceive this treatment, as vengeance is often wrought arbitrarily and by a vast mix of emotions. As all-powerful beings, the gods follow their own interests and a special kind of order; they choose to be vengeful and cruel when insulted or ignored. In the end, people can become vengeful to gain something back (emotional peace, cruel retribution, or even proper justice). However, if *The Odyssey* teaches readers anything, it is the notion that seeking revenge is like dealing with fire. While it can bring warmth to a house, it can also burn it to ashes.

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My Soul is Song

Narrative Essay by
MACKENZIE
HOFFMAN

ENGL 1301: COMPOSITION AND RHETORIC I

IMany writers underestimate the power of a good story in academic writing. Narrative essays allow a writer to convey a message while telling a story that illustrates said message. In her essay, "My Soul is Song", Mackenzie Hoffman demonstrates her ability to mix beautiful and expressive storytelling with a simple message: You cannot lose what is in your soul. She draws the reader in with her vivid descriptions and colorful analogies. Her eloquence allows her to show her reader the moments she experiences and her detailed language invites them on that journey with her. It is an excellent example of narrative writing and I hope you enjoy it as much as I did.

–Stacey Percival-Zimmerman

'When the seams burst and the traps ensnare…'

I was seven years old when I first joined my elementary school choir. I joined because my mom wanted me to make friends in an after-school club. As I got older and was given the freedom to choose what classes I wanted to take in school, I found myself sticking beside choir. For twelve years, I stood alongside my peers and sang out to audiences of anywhere from four people to eight hundred and fifty.

In my final year of high school, I began to plan for my future career and found that choir was not my focal point as it had been for my entire life. I found passion somewhere else, within medicine. I planned to focus my studies in college on my required classes to go to Optometry school and found little to no room for choral studies. I was devastated by the feeling of leaving behind something that had made me who I was.

With the end of the year quickly approaching, my choir director handed out our final piece; The song was titled 'Your Soul is Song' by Jake Runestad. As I flipped through the pages, I felt tears pricking at the corners of my eyes. This was the last piece I would ever sing for an audience like this. The last piece I was going to bask in with my fellow musicians. This was the song my director chose for our final symphony.

The piece was relatively 'easy' for the skillset of my choir, and I often found myself wondering why on earth my director had chosen this for our final flourish into the world.

That being said, we gagged at the thought of stomaching the same 74 measures poured down our throats time after time. We memorized the song in a week. What more was there to do? We poured over dynamics and 'pockets' in which we should hold our note just a bit longer. We were taking time to perfect things that ordinarily would have been just fine for a concert.

For any other piece, it would've been exciting to perfect it for 6 weeks. For ANY other piece, it would've been life-changing to speak to the actual composer. None of us were too elated to be doing either of those things. We talked to Jake Runestad himself, and he actually said he was PROUD of the musical choices we were making. Our director had allotted all this time for practice and had us speak with the composer, so obviously, this song was important. That being said, we just couldn't figure out what was so special.

'When your body breaks…'

In an instant, it was the week of our performance. I didn't feel ready. Was it because I didn't know the music? No, it was because I knew this was the end of all things choir. I was still grappling with the idea that I was going to leave something I had put so much of my soul into 'behind'. I

didn't want to pursue a music career; it just wasn't for me. At the same time, I couldn't shake the thought that I had spent so long putting my blood, sweat, and tears into music for seemingly nothing.

As we climbed the stage, I felt my stomach drop and my face turned to ice. I had been nervous about concerts and performances before, but this time it was different. It was worse.

Everything that I had done, everything that I had learned, I wanted to show off one last time. I wanted to feel the music that I was buzzing in the air around me. I made a silent promise to focus as much as possible and really listen to the lyrics this time.

'And the light flees…"

The blinding lights on the stage sparkled in the dewdrop-adorned eyes of the choir. I felt powerful and joined with my peers, as I always did when

I sang, but I couldn't help but feel devastated that I was feeling this for the last time. Who was I going to be when I left this behind? Would I still be the same version of myself that I had been working towards for the last twelve years?

'*Sing then…*'

My director raises her arms. I breathe in, and we begin small. The audience almost has to lean in to hear us. We want them to hear us. As we pour every ounce of life and energy into the story we tell, it's almost as if the walls of the auditorium smile at us for finally filling up its grandiose space. The light melody of the sopranos interlocks fingers with the boy's smooth tenor line. The alto harmony stands strong beside the basses' triumphant notes. It was beautiful; it was euphony . . . and before we knew it, it was over.

I stepped off the stage with the weight of my last performance, the weight of my final song, heavy on my bones. Everything I had put towards this passion for the last twelve years was wrapped neatly with a bow.

'*For then your soul is song!*'

As I looked at the audience, I realized why my director picked this song. I knew in that instant why this song was so important. I thought to myself hard about Runestad's words. "Your soul is song", but what if you leave your song behind? What if I left music behind? Well, I thought, I cannot change my soul or what it's made of. If my soul is song, if I have spent 12 years cultivating a skill that ends up being useless to me in the future, I will still carry it with me every single day. Even when I head off to pursue medicine, I will carry every choir lesson; I will carry each and every song I have performed with me.

I smiled at the audience through a river of tears. My soul *is* song.

The Impacts of English Language Learning Students on Texas Public Schools

Research Paper by
COOPER ROBBINS

GOVTH 2306: TEXAS GOVERNMENT (HONORS)
Investigating the impact of English Language Learners on Texas public schools, Cooper Robbins' data-driven research paper demonstrates the power of evidence over politicized narrative. Exemplifying the research format, this superb essay incorporates a detailed review of the scholarly literature, an analysis of federal and state data, and qualitative primary data collection via a personal interview with CISD's Director of Bilingual and ESL Programs. The final paper is underpinned by a semester-long series of challenging—often frustrating—steps, starting with topic identification, extensive research, topic reformulation, annotated bibliographies, a formal review of the scholarly literature (drafted, redrafted, and redrafted again), identification of potential interviewees, submission of a detailed research plan, CITI certification, IRB completion, requests for interview, interview denials/non-responses, further requests for interview, interview completion, interview transcription, and, eventually, the integration of these processes into a professional research paper. Built of these robust foundations, Cooper's essay showcases the end-to-end research process.

–Fiona Ross

Home to 30 million people, Texas is one of six majority-minority states, with Hispanics constituting a plurality of 40.2 percent of the population as of 2021 (Texas Demographic Center). While natural increases (birth-death ratios) and net domestic migration account for close to 80 percent of this change over the past decade, Texas also has one of the highest immigration rates in the country, attracting both authorized and unauthorized individuals from across the globe (Texas Demographic Center). Without question, the state benefits significantly from the cultural enrichment, dynamic workforce, and younger population profile that accompanies diversity, yet it must also educate a growing number of English Language Learners (ELL). Over 20 percent of Texas' 5.5 million K-12 students are ELL, a 36.3 percent increase over the past decade, and over 60 percent of the total student body is economically disadvantaged (TEA, "Enrollment").

Moreover, while the demand for specialized language tuition increases,

the quality of the state's education has consistently ranked amongst the lowest in the nation, placing tenth from last in a 2023 study (McCann).

The impact of immigration, particularly unauthorized immigration, on public K-12 education has been politicized to the detriment of serious analysis. To garner a more sophisticated understanding of the impact of ELL students on Texas' public education system, this study draws on a rich variety of academic sources, including a primary interview with Gilberto Lozano, the Director of Bilingual and ESL Programs at Conroe Independent School District, the ninth largest ISD in the state and one that has experienced a rapid growth in ELL students. The paper opens with a scholarly literature review, providing a broad contextualization of the state's minority population, an analysis of the impacts of ELL students in public schools, and a discussion of limited programmatic solutions. The review explores the role key agencies and legislations, focusing on the Texas Education Agency and Federal assistance through Title III, Part A. Together, the primary and secondary data indicate that Texas' high population of ELL students constitutes a complex, multidimensional educational challenge.However, there is no evidence they exert negative impacts on native students in terms of either resources or the wider learning environment. On the contrary, incumbent students appear to benefit, academically and culturally, from the inclusion of immigrant learners.

Literature Review

Texas must educate 1.1 million ELL students, 89 percent of who are Hispanic (Unidos). Over 75 percent of all Latino K-12 students and 85% of all ELL students are economically disadvantaged (Unidos). Consequently, Hispanic ELL students typically confront layers of disadvantage, and their sizeable numbers are likely to impact the state's public education system in significant ways.

Research by Margarita Pivovarova and Jeanne Powers investigates strains on incumbent students created by influxes of immigrant children. Drawing on quantitative evidence, the authors contest politicized "claims by elected officials that immigrants consume a large share of social benefits." They conclude, "there is no direct evidence that the increased share of immigrant students in the U.S. has negatively affected the educational

outcomes of third-plus generation students." More specifically, Pivovarova and Powers contend, "Once we controlled for race, gender, socio-economic status, and school contextual factors, the achievement gap between first-generation students and their second- and third-generation peers disappeared." Anti- immigrant arguments about competition over scarce educational resources and detrimental peer effects are not substantiated by Pivovarova and Powers' data.

Cross-national studies examining the impacts of high immigration on native students produce varied results. Peter Jensen's review of international research finds that while large influxes of immigrants can strain educational resources in many countries and lower test scores of native students, "Increased immigration to the US has a small but positive net effect on the high school completion rate of native children." Similarly, David N. Figlio and Umut Özek's study on the impact of refugees on incumbent students found, "little evidence that a sizable influx of refugees has short-term negative consequences on native students" (19). Daniel L. Duke and Martha Jacobson likewise observe overall positive spillover effects for native students, noting "a small positive net effect on the high school completion rate of native students." While Jennifer Hunt concluded, "natives' probability of completing 12 years of education is increased by immigration," within this overarching trend, there are differences within subgroups (25). Black students' probability of completion is slightly higher when compared to non-Hispanic whites. However, native Hispanic students' chances of success are slightly diminished by immigration (Hunt 26). The results of these studies show little evidence for politicized narratives that immigrant students negatively impact native students although deeper research into subgroup effects is warranted in Texas given that 53% of Texas school children are Hispanic (TEA, "Enrollment").

With an understanding of the general impact of immigrant populations on public education, it is important to subset ELLs and independently evaluate their influence on schools. This is not a simple task. Suzanne Lane and Brian Leventhal note how ELL testing modifications can render accurate comparison difficult. The nature of the modifications, such as shortening reading passages or adjusting the content being tested, may impact the construct being examined for the sake of the accommodation. That said, several researchers have attempted to isolate important variables.

Welton and Williams established that there is a higher likelihood that students with developing English competency will drop out of high school. However, correlation is not causation, and the authors' additional research offers more diversified and nuanced results. Ainhoa Fennol's research on the disparity of test scores between native and migrant students reveals that although there is difficulty in separating language barriers from other socioeconomic obstacles, English proficiency exerts profound influences on test performance. It is worth noting that applied mathematics showed no such deviation in results (11).

Julia Shaftel's research analyzes the impact of linguistic characteristics in mathematics and their impacts on ELL students and those with disabilities. Her findings show, "ELL groups were not disproportionately affected by language characteristics in these test items" (105). Mathematics exist as a comparatively mechanical subject; therefore, variations in test performances within an ELL sample clearly signify, as Fennol stated, that educational achievement has more nuanced contributors than linguistics alone. Overall, the research shows that English language competency affects general educational outcomes, if not all subject competencies, although linguistic barriers cannot be designated as solely responsible given measurement difficulties and reinforcing barriers to success.

The 1982 Supreme Court ruling in *Plyler v. Doe* ensures the provision of public education for all students. However, this base requirement does not necessarily ensure equal opportunity. Immigrants are disproportionately likely to live in large, under-performing, urban school districts, where the ELL experience is magnified by variables affecting struggling public schools more generally. Daniel L. Duke and Martha Jacobson address the issue of size in public schools. Texas educates 5.5 million children, something that affects the adaptive capacity of educational systems. As Duke and Jacobson state, "it is more difficult to change the course of a low-performing high school of 2,000 students and 125 teachers than it is to raise performance at an elementary school of 500 students and 30 teachers" (34). Renovations or improvements to a school system grow directly more comprehensive and expensive in response to size. Beyond physical size, large, complex systems also prove problematic for implementing modifications. For example, "Changes that might be supported by some departments often are opposed by others," depending on the area of study (35). In conjunction with the

impact of size on education, a deficit in accountability within institutions negatively influences the quality of education.

Researchers Anjale Welton and Montrischa Williams observe how limited requirements to maintain accountability for high-minority schools inevitably restrict progress and "de-empathize college rigor and readiness" (182). This disadvantage is correlated with increased dropout rates, leading to the popularized label of "dropout factories" (Pandolfo 2011). It is noteworthy that students attending high-minority schools who are "Black, Latina/o and/or English Language Learners" are particularly adversely affected by high-stakes exams that serve as entry barriers to higher education (181). Institutional responses often exacerbate the problem with "punitive school reform labels and school closure practices" (Welton and Williams 183).

Deficits in accountability have historically been a serious issue in Texas's major metropolitan areas where ELL students are concentrated. An audit of schools within the Houston Independent School District showed that "of the 5,500 students who left these schools during the 2000-2001 academic year, 3,000 were dropouts misclassified as transfers to boost the district's graduation" (Thurston et al. 324). Texas has implemented a menu of initiatives to help correct low-performing high schools, including supplemental programs to support disadvantaged and ELL students. Jacqueline R. Stillisano and her associates highlight the example of GO Centers which aim to facilitate a school culture oriented towards graduation and the pursuit of higher education. The authors "noted a high degree of student-use of the enhanced GO Centers and very positive attitudes towards [their] importance…in building a school culture that encourages students to attend college" (299).

Another successful program includes the Early College High School system. This was created in "an effort to bridge the gap between secondary and postsecondary education and create greater access to high quality postsecondary education for all students" (Woodcock and Beal 56). Accounts of the program taken by JoDee Baker Woodcock and Heather Olson Beal reveal that students willing to work hard and improve their academic situation typically had positive reviews of the ECHS (64-71). While supplemental programs oriented towards student success are a potentially powerful solution for both ELL and native students trapped in

low-performing schools, more encompassing interventions are needed to change systematic inequities in outcomes.

Analysis

Collectively, the scholarly literature indicates that while ELL students, as well as general immigrant populations, do not inherently create negative impacts for incumbent students, they are more likely on an individual level to underperform and have an increased probability of exiting public high school prior to graduation. After evaluating this dynamic and institutional responses through reports from the Department of Education and the Texas Education Agency, the following analysis offers key findings from a semi- formal interview with CISD's ESL Specialist Gilberto Lozano. Together, the evidence elucidates the confluence of influences—legislative, financial, and cultural—impacting ELL student performance in Texas.

Education Trends for ELL Students From 2009 To 2017

Reports from the Department of Education indicate that while recent performance trends amongst ELL students[1] have experienced a net growth, much remains to be done regarding educational attainment for these students. For example, Texas was ranked third for positive educational growth amongst grade four ELL students from 2009 to 2017, specifically regarding mathematics. This national placement indicates a comparatively large measure of success for bilingual and ESL programs in the state.

However, while Texas achieved a 7.4 percent positive change (from 19.9 percent to 27.3 percent), 72.7 percent of these ELL students did not meet state requirements for mathematical proficiency in 2017. Grade 8 students showed even poorer performance, with a net change of 1.3 percent from 5.7 percent to 7 percent. These statistics indicate that a staggering 93 percent of grade 8 ELL students did not meet state requirements for mathematical aptitude. Unsurprisingly, ELL underperformance in reading is dramatic across the state. Grade 4 ELL students experienced an increase in reading proficiency of 3.7 percent from 2009 to 2017. However, this uplift only

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[1]This briefing from the Department of Education and other selections refers to the students as ELs (short for English Learners). For consistency, they will continue to be referred to as ELL students.

improved outcomes from 8.1 percent to 11.8 percent. Grade 8 students had a similar 3.8 percent change from 0.8 percent to 4.6 percent proficiency in English. In total, a monumental deficit of 88.2 percent and 95.4 percent was recorded for the two sampled grades in 2017. Collectively, statistics from the Department of Education indicate that while the educational attainment of ELL students in Texas is experiencing a positive change, the numbers remain deeply concerning.

On a secondary level, graduation rates reveal a similar development, yet remain well below their native-born peers. Texas ELL students from 2015-2016 graduated from high school within four years at a rate of 73.7 percent, even when accounting for transfers (Department of Education). While this trend indicates a 0.4 percent increase from the 2014-2015 school year, it is still a notable 16.7 percent beneath the four-year graduation rate of non-ELL students. Overall, for every non-ELL student, nearly three ELL students do not complete high school in four years. Although Texas outperformed the 66.9 percent high school completion average achieved by all fifty states combined, 1.1 million students—over 20 percent of the entire K-12 student body—is a significant number to leave behind.

Texas Education Agency Protocols for ELL Students

The Texas Educational Agency oversees ELL student placement, instruction, and overall integration into educational institutions, and one out of every five ELL students in the United States are educated under their jurisdiction (TEA, "Generation 26" 8). While 90% of non-English speakers in the state speak Spanish, there are over 120 languages spoken in Texas public schools (TEA, "English Learners in Texas Fact Sheet"). To address the educational needs of these students, the Every Student Succeeds Act requires active measurements in place to appropriately undergo "EL identification…placement in program services…monitoring of language acquisition…reclassification of English learners as English proficient…[and] post classification monitoring" (TEA, "Generation 26" 12).

The process for identification demonstrates a thorough, nondiscriminatory process for all students that incorporates the household language of individuals and appropriate steps to take based on parental

consent. Testing is undergone if the home language is not English, at which point scoring demonstrates the ability of the student to integrate into General Education Classrooms or the need for further monitoring and instruction (TEA, "Generation 26" 13). Upon necessary placement, individual students are then monitored in their progression of English competency until a reclassification is deemed necessary.

Beyond comprehensive identification, classes to address recognized needs provide a variety of instructional measures to best accommodate different students, each with varying levels of participation. Bilingual Education Programs, whose goal is to develop true bilingual competency, had a 45.7 participation rate in the 2019-2020 school year (TEA, "Generation 26" 25). English as a Second Language programs, which incorporate a student's native language as a gateway to English competency, yielded a 50.1 percent participation rate in the same school year. Apart from Alternative Language Programs and a complete lack of provided services due to parental denial, which bore a net 15.1 percent, Bilingual and ESL programs are the most popular. The data on outcomes, however, is not altogether promising. Writing for Rice University's Kinder Institute, Lizzy Cashiola and Dan Potter note the significant increase in the number of ELLs being reclassified as LTELS (long-term English learners who have failed to gain proficiency within five years). As Figure 1 shows, these students are growing at a significant rate and, according to Cashiola and Potter, are "particularly at risk for multiple negative educational outcomes,

Figure 1. Percent of first-graders as English learners remained stable, while the percent becoming LTELs increased

The percent of ELs who become LTELs has almost doubled.

ELs becoming LTELs

ELs in first grade

The percent of first-graders entering Texas public schools as ELs has remained stable since 2000-01.

School Year English Learners Began First Grade

Source: Texas Public Education Information Management System (PEIMS) data, enrollment data, 2001-1 through 2019-20 school years.

including lower scores on state and national tests, greater risk of dropping out of high school, and a significantly lower likelihood of attending college. Potential explanations for the declining effectiveness of English proficiency programs in Texas include budget cuts, reclassification policies, and the inability to recruit bilingual teachers (Cashiola and Potter).

Supplemental Assistance from Federal Sources

Beyond the protocols of the Texas Education Agency, Federal assistance has a significant budgetary impact on ELL programs. Specifically, Title III, Part A is a crucial legislative contribution to Federal assistance for ELL students. As a broad summary:

> Title III is a part of the Elementary and Secondary Education Act of 1965 (ESEA), as amended by the Every Student Succeeds Act of 2015 (ESSA). The purpose of Title III, Part A is to help ensure that English learners (ELs) attain English proficiency and meet state academic standards. Generally, Part A of Title III provides federal funding to assist state educational agencies (SEAs) and local educational agencies (LEAs) in accomplishing this (Office of English Language Acquisition 1).

This act provides supplementary funding designated for the educational attainment of ELL students, thereby ensuring that native students are not deprived of resources. Overall, the programs established by Title III, Part A yield a 96.5 percent rate of national participation by ELL students, demonstrating a generally successful uptake (Office of English Language Acquisition 2). Within Texas specifically, 99.8 percent of the identified ELL students participated in these programs during the 2015-2016 school year. Given these numbers, Title III, Part A is widely considered a critical asset in assisting ELL students without diminishing resources for native, English-speaking students.

Interview with Gilberto Lozano

To further understand Texas' growing ELL student body and institutional responses, a semi-formal interview was conducted with the

Head of Bilingual and ESL Programs for the Conroe Independent School District: Gilberto Lozano. CISD is the ninth largest district in the state, incorporating 67,490 students, 38.5 percent of who are Hispanic with 17.2 percent enrolled in bilingual and ELL programs during the 2021-2022 school year (The Texas Tribune). While the ISD received a B accountability rating from the state in 2022, it boasts a 96.5% graduation rate and several high performing schools. Compared to the state average of 60.7 percent, 40.5 percent of CISD students are economically disadvantaged and 41.2 percent are considered at-risk of dropping out, compared to 53.3 percent statewide. The graduation rate for Hispanic students (95.9 percent) is just 1 percent below the 96.9 percent of White students. In terms of college-readiness, 21.3 percent of Hispanic students take AP/IB courses, compared to 29.3 percent of Whites and a significant 62.7 percent of Asians (The Texas Tribune). While there are significant variations within the ISD, overall, it does not face the breadth or depth of challenges experienced by high-minority, urban schools. That said, the TEA flags CISD as a fast-growing district (5.23 percent growth rate), and it has experienced a notable increment in ELL students (TEA, "2020-2021 Fast Growth Districts").

In line with the broad consensus of the scholarly literature, Lozano chose not to identify a singular identifiable problem for ELL students in his district, saying, "I can't identify one particular thing that I can say like we're lacking curriculum, lacking funding" (Personal Communication). Despite having "definitely seen an influx of a large number of immigrant students coming into our district…the effects of it have not tremendously impacted our district in the sense of resources, staff or anything like that."

One reason Lozano provides for a mitigated impact is Title III funding for ELL students, stating that, "The Federal government provides federal funds, Title III bilingual funds, that are specifically allocated for these particular students. They also provide immigrant funds specifically for immigrant students." This supplementation from the Federal government not only increases the resources provided for students with limited English competency, but also preserves the resources required to properly educate other students. Lozano reinforces this point when he contends, "resource wise, it's almost like they're separated per se, so you don't borrow from one thing to give to another. So, therefore, students don't have less resources because of immigrants." This effectively reduces negative impacts,

considering that ELL students require unique resources, as stipulated by the Every Student Succeeds Act, to achieve satisfactory educational attainment.

Lozano explains the importance of how educational resources are distributed to avoid problematic overlapping. For example, secondaryELL stud ents are placed in sheltered classrooms that allow them to remain focused on the specialized curriculum designed to achieve true bilingualism. He reinforces the inaccuracy of "a stigma that is classified out there with bilingual students, that bilingual education is more of a second-class education." Not only does he maintain that ELL standards are academically rigorous, he also notes how immigrant students culturally enrich native students when he states, "a beautiful thing that happens in this tapestry" of cultures interconnected throughout Texas Public Schools.

Although ELL students do not drain the budget or resources dedicated to native students, they still demonstrate lower educational attainment then their non-ELL counterparts on key measures. Lozano attributes this to is the linguistic barrier needed to translate skills between teachers and fellow students, even if the skills have already been developed. Lozano offers a hypothetical example:

> If [a student] took physics in Russia, we want to make sure we give them credit for physics in the US. Because in terms of language development, they have the skills. They know physics, they just don't know the language. So, building on that is critical, whether it be extracurricular or whether it be academic.

This deficit in communication is critical in educational settings and although it may vary from student to student based on English fluency, there is a consistent effect felt across the body of ELL students that requires linguistic instruction and reinforcement. In addendum, Lozano adds, "I've seen a lot of second language learners that do better than our monolingual kids, kids who have been here since Pre-K and know the language." While there is an individual component to particular outcomes, the quantitative data suggests the CISD's ELL students do incur communication deficits with respect to conveying predeveloped skills and learning new ones.

In addition to communication challenges, the varied and sometimes limited educational backgrounds of students is a deterrent to educational

attainment. Lozano specifically cites Title I campuses, of which CISD has 18 out of 34 elementary and four out of nine intermediate schools, where, "students…from impoverished communities in Central America and Mexico… come to us, with very… little schooling." Such circumstances provide a unique challenge because they require both bilingual and academic instruction when the student is already at a substantial disadvantage compared to students who have received consistent schooling throughout their childhood. Students from these environments are more likely to drop out and seek work. Lozano states that although not in large numbers, "we see kids come in and they drop out because their focus is not education. Their focus is more going to work and start making money." Inadequate early years preparation and a cultural emphasis on work over education are much harder to combat than simply providing additional linguistic support. Individual and cultural barriers compound the mechanics of language in immeasurable and significant ways. It is noteworthy that Lozano did not identify any contagion effects that might negatively impact native students' commitment to education.

To view complete paper please visit:
http://LSCMontgomeryCAC.com/2023/Cooper-Robbins/

Group Applications Paper: A Group with a Purpose

Essay by
MERCEDES FUSTER

DAAC 2354: DYNAMICS OF GROUP COUNSELING

The focus of this assignment was to have the students plan a group to achieve an expected goal, a common activity within the discipline. The project was to focus on the following points.

1. Select a group type: Educational, Discussion, Growth or Experiential, Counseling, Task/Work group, Support or Self Help
2. Determine how many sessions would be required.
3. What are some of the characteristics of individuals in the group?
4 .Is the group homogeneous or heterogeneous?
5. What is the purpose of the group?
6. How to you inform the group of meetings, policies or other information?
7. Is this an open or closed group?

Mercedes describes the importance to her of helping children with cancer and their families. As an English as a Second Language student, Mercedes did well in explaining her concept of the group, its goals and the first few meetings

—Leanne K. Crowe

This project has really touched my life and my soul. I will describe briefly the characteristics and activities of a group with a particular goal that I created. In addition, I will describe the background that motivated the decision to do this. I was a volunteer for many years in Monterrey, Mexico for a foundation which helps children with cancer. They assist with treatment, medical testing, analysis, food, medicine, equipment and all necessities for the families. The cases which this foundation accepts are all low-income families. The Foundation is called Una Sonrisa Mas. While volunteering there I had the honor to help many beautiful boys and girls in their fight. Some won, some others lost, but they did not fight alone.

At this moment in my life, I feel very grateful and very blessed to be studying in the United States. Many other Latin women in the local area also feel the need to share their time and their blessings with others, especially boys and girls struggling with cancer under very difficult conditions.

I proposed to these women that we create a group where we could plan fun activities but also benefit others less fortunate. The main focus of this group would be to promote community and help children with cancer at Texas Children's Hospital. We "adopted" several families with children being treated there. We were able to provide for their Christmas dinner and gifts with a value of $500 USD per family.

In addition to this, we have also sent donations to Una Sonrisa Mas in Mexico to help low-income families with their cancer treatment. The families with sick children in Mexico receive little support from the government or sponsors.

I used WhatsApp to invite volunteers to form an organizing group or steering committee to manage the different fundraising events which we wanted to hold. This small group's purpose was to brainstorm ideas and select the possible activities we might plan and make real. There would be different fundraising events. To plan these, this group would hold eight meetings, each in a different home hosted by a member of the group.

I chose the planning group members according to their personalities, skill sets and networking capabilities within the Latin community. We were heterogeneous because every woman and family represented a whole world distinct from others. We were also homogeneous because only Latin women were invited to be in this group, and all discussions were conducted in Spanish. Even the music we listened to at the meetings was Latin.

The first thing I want to describe is the initial planning meeting which was held at my home. We were able to develop some good ideas. Initially, we identified those who could coordinate events and brainstormed ideas for activities that would be easy to set up. We first came up with the idea of a lecture meeting. This would mean bringing in a speaker on a topic of interest and we would charge an admission fee as the fundraiser.

Some women already were members of a reading club and knew the authors of some books. Some of the authors that they contacted expressed a desire to sign books or give a talk to help the fundraising. We set the date for the planning meeting to be held at my house to review the details. We sat around the table and started telling one by one what this project meant to each of us and why it was so important to support this cause. Each member knew someone close to them that had passed away from cancer,

and this only increased our emotional commitment.

We rapidly brainstormed ideas. To get started, we used a sentence completion exercise: "If I could make a wish come true, it would be . . ." The answers were beautiful. Only two people answered with a personal wish. The rest expressed a wish for something beyond a personal interest or desire. That is how we as a group made progress and enabled everyone to feel they were part of the organization of the event. In addition, each member accepted responsibility for a particular task such as organizing the food, contacting the author, setting up chairs, microphones and decorations, sending out invitations and collecting the donations.

Our first event was a lecture from a recognized Mexican writer, Guillermo Arriaga. One of our group members knew him, so she invited him to give a talk and he was kind enough not to accept a fee. We invited people to attend in order to raise funds for Una Sonrisa Mas, which in English means One Smile More.

We planned a second event soon afterwards. We were very motivated and excited not only because of our charitable goal but also the season. Thanksgiving and Christmas traditionally symbolize a time of increased generosity, and this further enhanced our excitement.

The second meeting to plan an event was held at another member's home.

After this meeting, we sent pictures and an invitation to the second event and we were gratified with a high acceptance rate. At the meeting, we used another sentence completion exercise to build unity within the group. Everyone answered the following question: "How can we improve our relationship with others starting at home and with family and friends?" We each described a specific activity. The answers were amazing. We were very inspired. The comfort level of all skyrocketed. This second meeting lasted two hours and set the stage for our second event.

Another fundraiser we planned was a card game. This time husbands were not invited. We played a game called "Canasta". We donated funds directly to a link provided by Una Sonrisa Mas and it was "discretional." That is, no one knew how much each person donated. The funds were directed to help a single child with treatment. Everyone had a wonderful time.

We saved the best for last. For the final event, the supervisory group invited all Latin families to come on December 9th to a Posada. That is a name given to the parties organized in December before Christmas. For this event, we presented live Hispanic music, dinner, mariachis and drinks. We even arranged for waiters to assist during the event. We rented La Tranquila Ranch for a day. We sold tickets during the entire month of November and attracted approximately 300 people. A ticket/donation cost $90 USD per person. The benefits went to Texas Children's Hospital.

Figure 1

We are all very gratified because we can say we have accomplished our goal of working as a group and helping others. Moreover, the group has been growing. We are becoming well known among the members of many other Latin women's groups and families in the Woodlands area. Moreover, it has been an honor to lead this group.

This is definitely something I would love to keep on doing. However, in order to make a living while engaged in this kind of work, I would still need to have an opportunity to earn a personal income. Nevertheless, the

Figure 2.

idea of creating a group with a purpose of helping those in need fills my heart with warmth and my life with joy. Last but not least, I am including here the invitation to our final fundraising event and a photo of when we presented our donation check on December 9th.

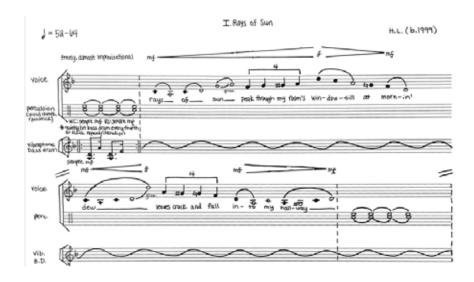# Weathering Emotions (I: Rays of Sun; II: Night Terrors; III: Stormy Evening)

Original Music Composition (for Voice, Wind Chimes, Rain Stick, Vibraphone, and Bass Drum) by

HANNAH FAITH LINDLEY

MUSI 1191: PRIVATE APPLIED MUSIC: COMPOSITION

In this original work, Hannah's composition reflects techniques and stylings of the avant grade of the twenty-first century while using traditional musical forms from the baroque era. Aleatoric in composition, the work is organized by the evocative emotional journey featuring poetry / lyrics written by the composer herself. Formally, each movement within the work can both stand alone or be performed in sequence thanks to the formal schemes that were borrowed from the seventeenth century, all while still maintaining a lack of harmonic closure. Even with the advantages of modern technology, Hannah decided that composing this work by hand would be the most effective way of translating her artistic expression in print, so no software was utilized.

–Martin Quiroga Jr.

To hear the performance, go to:
https://youtu.be/GccTSAXXJto?t=1367
Or use the following QR code:

To view complete score, please visit:

http://LSCMontgomeryCAC.com/2023/
Hannah-Faith-Lindley/

Leadership Characteristics

Essay by

DULCEY GALLUP JOHNSON

NURS 4457: LEADERSHIP & MANAGEMENT
The natural progression for registered nurses (RN) in the clinical setting is to gain experience at the bedside and at some point, move into a leadership role, like charge nurse, unit manager, director of education, and even chief nursing officer. The first step in preparing for a lead ership role is to explore the characteristics and traits of a leader. Dulcey explores the development of a leader, citing that because we are vulnerable from birth onward, we look to others to guide and lead us on life's journey. Dulcey suggests that as our life's journey continues, we slowly begin to practice some of these tenets of leadership and, at some point, we come into our own, and begin to lead others. She writes of characteristics of leaders, describing the Great Man Theory, including its attributes and drawbacks. Dulcey relates the traits that apply to nursing leaders and how one's own strengths and weaknesses impact our leadership style. Finally, Dulcey discusses how she incorporates the transformational style of leadership to her role as a registered nurse in the clinical setting.

–Julie Kendall

Characteristics of an Effective Leader

To understand what characteristics make up an effective leader, a look at why leaders are necessary in the first place needs to be explored. From the time we exit the womb our vulnerability begins. We seek leadership for survival at this very basic level for nourishment, warmth, safety, and comfort. As we progress through life, leadership is necessary for us to achieve basic autonomy as we are challenged with the desire to manage our own activities of daily living. Early in life, a leader may be a parent, guardian, teacher, or someone we trust, who has more experience than we do and shows us what we may be capable of doing one day. They plant the seed that becomes a dream, aspiration, or a goal. In turn, we mimic them and practice new skills like tying our shoes, making a bed, or pouring milk in a glass so that we can achieve the goal of being able to own the statement, I did it all by myself.

Why would that same process not be true as we become adults? Are we

not still seeking goals, learning new things to be excited about and trying out new skills as we move through life? Leaders are a necessary part of our growth, survival, and process across the lifespan. In essence, we, as humans, seek leadership for growth and at some point, we lead others. The type of leaders we are exposed to impact how we lead, thus, contributing to the successes or failures of those who choose to follow us. So, what characteristics do successful leaders possess? Are they born with it, or is it something learned? What type of leadership style and characteristics do I identify with, and who inspired me? What style attracts me and keeps me motivated? Exploring these questions will help others, including myself, gain perspective on the importance of effective leadership.

The characteristics that make up an effective leader vary, why is this? Are people naturally equipped with the DNA recipe for leadership? The Great Man Theory and Trait theories of the early 20th century would suggest this is true. The consensus of this theory model is that leaders are born with all the attributes needed for leadership, and that others are born to follow, insinuating that these persons possess less or none of the traits necessary to take command or lead, (Marquis & Huston, p.44, 2020). This theory fails to identify what contributing factors helped to shape great leaders, it does not take into consideration the learning environment that influenced the leader, nor does it explore the context of events that created the need for leadership in the first place.

Many past and current leaders possess qualities that are associated with leadership. They may be creative, intelligent, personable, charismatic, resilient, energetic, decisive, and risk-takers. These attributes may be inherited, but more importantly, they can also be learned. Our exposure to different leadership styles, study of behaviors, and learning about leadership and management helps us to hone some of the most important attributes associated with leadership. These are critical thinking, strategic planning, communication, interpersonal skills, tact, judgment, emotional intelligence, and adaptability (Marquis & Huston, p. 44, 2021). When learned and developed, these characteristic skills take leadership to another level and allow for a diverse, stimulating, and quality producing atmosphere that is needed for long-term successes.

The nursing industry has evolved over the last century and so have

leadership styles. Understanding one's own strengths, weaknesses and leadership style helps nurses navigate the healthcare industry. It also assists nurses with career planning and identifying the environment that they will flourish in. Nursing programs that include leadership training prepare students to continue to develop, drive, and execute a successful professional nursing industry for the future. Therefore, as a professional nurse, understanding my personal leadership style and what type of leadership environments I flourish in impact all whom I encounter including, staff, educators, leaders, physicians, patients, and the community.

My Leadership Style

"Always lead from the front. It is very hard to be effective if you try and lead from behind", These are the words of my father Edward F. Gallup, perhaps one of the most influential people in my life. He also taught me about the march of the Lemmings at a very early age, instilling the knowledge of the burden of the responsibility of leading others; it must always be for the benefit of the many and the future. He would challenge me to know my sources and ensure that the information I have is credible. My favorite and most resourceful piece of information that I received from him is to ask what if and why, not only on the subject, but why to myself. What are my motives, what do I hope to gain, and sometimes, why am I trying to avoid this? This was helpful for me as a child and is still relevant today. It instilled a moral code in me, he would often say, "always use your powers for good".

I feel that the nursing profession incorporates all of his teachings, perhaps that is why I gravitate to it. Trust, empathy, inclusiveness, individualization, responsibility, continued education, and advocacy. These are all summarized in the nursing code of ethics as defined by the seven principles: beneficence, nonmaleficence, justice, accountability, autonomy, fidelity, and veracity and these principles are what drives the nine provisions defined in the code of ethics, (ANA, 2017). I also believe that these relate directly to leadership styles. Effective leadership has also been shown to be directly related to emotional intelligence, in the nursing profession nurses with higher communication skills often posses higher emotional intelligence according to one study. A data analysis of 253 nurses was used to review a demographic survey type questionnaire with a reliability of 90%. The

conclusion showed that nurses who were trained on communication skills had a higher score on the emotional intelligence tests than those who weren't. These findings support that there is a direct correlation between effective communication and emotional intelligence, which in turn, leads to better patient outcomes, higher quality performance and overall job satisfaction, (Raeissi, et al., 2019)

The leadership style survey, by The Foundation of Nursing Leadership, concluded that I use Transformational leadership most often, with strengths in inspirational motivation, idealized influence, and individual consideration. This style incorporates modeling, with a focus on exploring opportunities, sharing the vision, being transparent, and enabling the autonomy of others while focusing on the positivity of the objectives or goals, (Dean, 2021). I learned that this leadership style also flows well with the transactional leadership approach, my second highest score in the survey where I favor contingent reward as a method to drive performance. I feel that these scores do validate my tendencies and reinforce my democratic approach to leadership where my preference is to include the team in certain decision-making, goal setting, and outcome strategies. I enjoy having a say in what is going on, therefore I believe others value having the opportunity to step forward as well. As a leader, this allows for transparency, and team development. My personal goal is that the team can function without me.

My Preferred Style of Leadership in the Workplace

Time and experience in the nursing industry has afforded me the opportunity to work under, with, and alongside many different leaders. My most preferred is the Transformational leadership model overall, Research indicates that there is a direct correlation between leaders who are ethical and practice moral courage, especially in nursing. One cross sectioned, descriptive study's findings that involved 178 baccalaureate nurses over two years showed that nurses' conscientiousness is heightened when nurse leaders use ethical principles to drive performance while sharing the vision and allowing for nurses to have input and shared governance. Outcomes improved and the nurses' own view of moral courage and accountability increased at the front line (Pakizekho & Barkhordari-Sharifabad, 2022). This is true of Transformational leadership.

I have found that the most effective leaders that I have worked for

utilize all of the leadership styles, primarily transformational. In the hospital setting, situations arise where authoritarian, situational and contingency, and interactional leadership is necessary, this occurs during codes, disasters, and even pandemics. High stress and high stake changes require leaders to be able to collectively encourage and drive the needed outcomes. It may be essential for a leader to influence other leaders outside the facility and may include other industries, governments, or community members to those inside the facility like internal departmental leaders and all the way down to front line workers. The approach used must match the audience it is intended for in order to be effective. It is my personal belief that leadership is effective only when there is a culture of trust, and the primary leadership is full-range, which utilizes inspiration, influence, inclusiveness, reward methods to set standards, and those standards are modeled by the leaders (Marquis & Huston, p. 50, 2021).

Conclusion

Leaders are shapers, they influence, drive, inspire and direct our own course and visions. During a lifetime, people will ultimately partake in both the leader and the follower roles. Those with aspirations to lead have the duty to learn leadership skills, know their moral standings, and be able to ethically inspire others on a vision. As nurses, we also have the duty to understand, explore, and educate ourselves on leadership and management theories and styles. One of the most important roles of a nurse is to precept others who are learning to become nurses. How we model ourselves, our profession, our standards are what others will mimic and so on. As nursing leaders we develop a healthy working culture of integrity and honesty by developing and sharing a vision, supporting our teams, advocating for their needs, admitting our mistakes, and sharing our experiences (Henrikson, 2005). Developing effective leadership skills that include relational/ transformational and resonant leadership characteristics, where the focus is on nurses, as well as the business, with effort to make them a priority helps to promote individual and collective confidence, trust, and accountability (Cope, 2017). Transformational leadership styles tend to maintain higher retention rates by having more experienced nurses on the force, yielding better outcomes, which in turn, leads to overall nursing satisfaction while attracting new nurses with higher autonomy and moral

integrity, (Abd-EL, et al., 2021).

The future of our industry rests in our own personal abilities to lead and train others, therefore it is imperative that we carefully select who we will follow, whether it be a small practice, clinic, or huge healthcare organization because our work environment molds us and influences both our personal and professional values. We have taken an oath to do no harm, to serve others with respect and dignity, and to provide up to date evidence-based care to our communities. This is also true of how we should care for each other and effective leadership is how we accomplish the sustainability of our profession for generations to come.

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Nurse Retention

Research paper by

ANGEL SIMON

NURS 4457: LEADERSHIP & MANAGEMENT

Nurses are faced with many multifaceted issues throughout the profession of nursing, regardless of the type of health care organization in which they are employed. Nurse leaders must understand and analyze the complexities of current issues and draw on leadership and management skills to navigate sensitive situations, considering the social, ethical, cultural, and financial aspects of plausible solutions. One of these issues is nurse retention. Even before the onset of COVID-19,the profession faced a shortage of nurses, and now we are in our third year of the pandemic. High turnover rates of new nurses and keeping experienced qualified nursing staff are constant challenges to maintain quality patient care and appropriate staffing. Angel examines and analyzes factors affecting this issue, like nurse-to-patient ratios, patient satisfaction, quality of care, and the delivery of safe care. She highlights a plan for nurse leaders to manage the situation, including measuring quality and outcomes, providing real-life examples.

–Julie Kendall

Any nurse in healthcare when asked about their biggest concern on their unit would say, "Nurse retention." Keeping nurses from leaving to other professions is the most identifiable and significant healthcare challenge that impacts everyone from the time the patient enters through the door to the time they leave. Nurses consist of 50% of the total healthcare workforce (Pressley & Garside, 2023). Nurses totaled 29.9 million in 2020 with position vacancies totaling 5.9 million; this is expected to increase by 2030 to over 9 million (Pressley & Garside, 2023). As one can imagine, the number of patients a nurse juggles with patient ratios increases with nurse retention failure, patient and nurse satisfaction decreases, safety is compromised, and quality diminishes (Pressley & Garside, 2023).

History of the Nurse Retention Problem

American's failure to retain nurses is not a new problem. In the 1930's, many nurses were unemployed during the Great Depression and hospitals had many options for employees, but by 1936 shortages started

appearing (Whelan, 2020). The triggers for these shortages were an increase in hospital usage by the general population, hospital layout changes, an increase in complex care, and reduction in a nurse's individual hours; this was compounded by hospital administrators blaming nurses for the retention failures and claiming that nurses were refusing to work (Whelan, 2020).

Implementations started occurring during the 1940's during WWII with the entry of LPN's and nurse aides as well as the Cadet Nurse Corps program, but after the war efforts to correct the shortage declined with preference for LPN's and aides and utilizing nurses as supervisors (Whelan, 2020). Documentation started appearing in 1947 about insufficient nurse incomes and poor working conditions, but the idea of increasing wages was ignored until the 1960's when the passage of Medicare and Medicaid legislation triggered better salaries, which not surprisingly stimulated more nurses to join or rejoin the workforce increasing retention (Whelan, 2020).

Nurse Retention Today

Nursing shortages continued from the 1960's through today, and our current healthcare workforce struggles to retain nursing staff. Nursing turnover has been increasing for years with the national average turnover rate being 8.8%-37.0% depending on location or specialty (Haddad et al., 2023). Employment opportunities are projected to grow faster than all other U.S. occupations (Haddad et al., 2023). Healthcare can't afford to lose a single nurse to another profession, yet one of six nurses is expected to retire in the next 10 years (Pressley & Garside, 2023). Hiring new nurses at the equivalent rates of turnover is not statistically feasible; retaining current nurses is essential to maintaining the current safety and quality of our healthcare system (Pressley & Garside, 2023).

The cost of failure to retain nurses is steep; teamwork coordination and learning decreases, patient ratios increase, nurses experience negative mental health impacts and job satisfaction, unit-acquired pressure ulcers increase, and medical errors increase (Bae, 2022). The financial cost is between $20,000 to $80,000 per nurse with training a replacement constituting 45% to 88% of the cost value (Bae, 2022). Patients and nurses bear the brunt of these systemic costly failures.

There is an evident need for change in the healthcare workforce

to overcome nurse retention failure, but where will this change come from? The presence of support from colleagues and supervisors, adequate communication, harmonious relationships, and supportive andunderstanding training environments are major factors in nurse retention (Mulisa, 2022). Considering these factors, leadership plays a significant role in nurse retention outcomes. Charge nurses, directors, administrators, and tenured nurses all have a responsibility to improve and provide support to their colleagues and facilitate an environment that retains nurses.

Review of the Literature

There is a vast amount of research on the topic of nurse retention reasons and nurse retentions strategies and considering that healthcare is hanging on by a nursing retention thread, it's no surprise that there is a significant amount of recent research on the subject. A Nursing Open review by Pressley and Garside in 2023 describes how to safeguard nurse retention and describes determinants of nurse's intentions to stay in the profession. The review covers thirty-four studies examining nurse job satisfaction and commitments to their healthcare organizations including environmental, social, and cultural individual factors (Pressley & Garside, 2023). Another article by Haddad et al. (2023) explains the current nursing shortage with statistics and projections on the future, reasons, clinical significances, and interprofessional team interventions for nursing and allied health. Their highlights on areas of concern include social, ethical, and cultural aspects describing aging populations, aging workforce, nurse burnout, career vs family, and violence in the healthcare setting (Haddad et al., 2023).

Bae (2022) reviewed 9,041 articles before including 16 in a financial review of nursing turnover costs. In her article she examines the noneconomic and economic nurse turnover impacts in hospitals, as well as nurse staffing and outcomes, patient outcomes, and workgroup processes (Bae, 2022). Dura and Hammound (2022) in Nursing Management describe identifying effective retention strategies for front-line nurses from the perspective of healthcare leaders. Three themes that they discuss are job satisfaction, financial compensation, and effective communication, but the interesting part is they describe strategies involving points competitions

for recognition, stoplight strategies and reports, bonuses, incentives for preceptors, tuition reimbursements, interviews to stay, and shout-outs boards (Duru & Hammound, 2022).

An enormous collaboration by Mulisa et al. (2022) describes why nurses leave the profession and reveals their findings from the nurses with the willingness to stay (Mulisa et al., 2022). They had 349 nurse participants in the study with a 100% response rate (Mulisa, 2022). They found the willingness of a nurse to stay in the profession involves salary increase, frequent training, initiating nurse support, and encouraging a sense of self-calling for the profession. The article also discusses a "harmonious" relationship that should exist between nurses, stakeholders, and the government when working with healthcare facilities (Mulisa et al., 2022).

Improving Nurse Retention

So, what can nurse leaders do differently to improve nursing ?Pressley and Garside1 state that "Job satisfaction was identified as the principal positive factor that ultimately influences retention."1 Things that impact nurse job satisfaction are positive working relationships, trust in managers, teamworking, respect-based relationships, leaders who foster caring work environments (Pressley & Garside, 2023). Here is a true example: A nurse who frequently steps in and picks up shifts and has a record of working 16 days in a row during COVID-19 has requested paid time off; the nurse manager reviews the schedule and notices that the unit would be short on the days if the request were granted; the nurse manager denies the request. The nurse is angry that all their hard work prior is disregarded and quits; now the unit is shorter than before, and now there are multiple days where the ICU nurses must cope with 1:3 staff ratios.

This true story illustrates the impact leadership has on nurse retention. Leaders need to be on constant alert for excellence and be aware of major team players in the nursing environment. Flexibility should be given for time-off requests and scheduling exceptions. If a nurse wants to take time off, it should be approved. If a nurse wants to work consistent days of the week, it should be approved. Tenured staff should get the most scheduling flexibility with new hires filling in scheduling gaps. Callouts (calling in sick) and illnesses should be handled graciously without complaining from management. Hospitals are short on nurses, but flexibility will enhance

retention and improve staffing levels. Understanding and compassionate nurse leaders who are gracious about coping-time and family life will see job satisfaction increase and with it more nurses will flock to be employed and retained under great management. The Chief Nursing Officer of Cleveland Clinic Medina Hospital, Julie Fetto, MBA, BSN, RN, NE-BC said in an article published March 10th, 2023 (Cleveland Clinic 2023), "As the healthcare industry continues to evolve in complexity, now more than ever it is incumbent upon us to innovate and embrace flexibility to address the needs of our caregivers, working toward the goal of attracting and retaining them." The Cleveland Clinic nursing leaders created the Nursing Workforce Flexibility taskforce offering staggered shifts, flexible shift lengths, team scheduling, and split RN positions. The Director of Nursing Operations at the Cleveland Clinic, Dusty Burke, MSN, RN, C-EFM, says. "There is not a one-size-fits-all approach. Each caregiver is unique, and each nursing unit has unique needs" (Cleveland Clinic 2023),

Another example illustrates the level of frustration nurses face in the clinical setting: A nurse had worked many years on night shift but began to feel adverse health effects and approached the nurse manager about the need to move to dayshift. The nurse manager said that there were no current positions available, and the nurse would have to wait because nightshift needed a tenured nurse, but the facility was still hiring new grads for dayshift. The nurse quit and moved to another facility that offered dayshift, and the unit lost a tenured nurse with experience to a competitor because it was not willing to be flexible. Two weeks later two tenured day-shift positions opened on the unit. The Chief Nursing Officer of Cleveland Clinic Medina Hospital, Julie Fetto, MBA, BSN, RN, NE-BC stated in an article published March 10th, 2023 (Cleveland Clinic 2023), "As the healthcare industry continues to evolve in complexity, now more than ever it is incumbent upon us to innovate and embrace flexibility to address the needs of our caregivers, working toward the goal of attracting and retaining them."

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has unique needs" (Cleveland Clinic, 2023). Flexibility with employees needs to be prioritized. In an environment where other facilities and organizations are quick to hire, retention requires indvidualized care of nurses and tailoring to priorities and needs. Supervisory support and flexible work hours develop trust and improve employee commitment and retention (Dousin et al., 2021).

Solutions

Both the prior examples come from my workplaces, but currently, leadership has not addressed the lack of scheduling flexibility stemming from these examples although yearly evaluation surveys are done to assess job satisfaction. To measure the direct quality of this approach, job satisfaction surveys should be completed quarterly, and there should be an available anonymous drop box, email address, and website to submit scheduling grievances to allow employees the freedom to inform leadership without being concerned about retaliation. Outcomes would be measured by comparison to last year's staff turnover rates. Also, with scheduling and leadership flexibility, there should be an increase in experienced new hires that are looking for a better place of employment. Recruiting efforts should begin to ease and there should be less need for expensive new hire bonuses and raises.

Improving a nurse's quality of life can be far more significant than even a raise. For example: there was a nurse who was very aware that they were underpaid at their facility, but really enjoyed the culture and company of the nurses they worked with; one day a new doctor came on the unit that created a negative bullying work environment that impacted many nurses on staff and many nurses quit because of that doctor, but this nurse didn't want to quit, so they addressed the bullying with nurse management, but management defended the doctor and did not support the nurse. The nurse was able to find a new job with a significant pay increase. Had nurse management committed to improving this nurse's quality of life by eliminating bullying behavior, the nurse would have been retained regardless of available increases in pay elsewhere.

Nursing leaders often experience being on the receiving end of a phone call where a nurse is calling out for a shift for illness or emergency. Nurses on the floor can hear these conversations and the response after

the leader hangs up the phone. Unfortunately, callouts are often heavily negatively regarded, and nurse leaders will often interrogate the caller and make impolite comments about the person calling out after hanging up the phone. Most hospitals have policies that require two phone calls: one to nurse management and one to the hospital administrator. Nursing leaders need to exercise their emotional intelligence and cooperativeness in understanding that calling-out is often difficult for the individual both emotionally and financially. The use of tact and emotional balance/control are required to continue supporting the nurse even when they are a burden on the facility. For example: a charge nurse was complaining on the unit about a nurse who had been out of work for months due to a back injury and multiple surgeries; the impression this gave to the staff was that their worth was only valued if they were fully able-bodied, and that the organization did not care for them personally. Caring nurse leaders who excel in job satisfaction will carrying additional skills like critical thinking, able to enlist cooperation, social participation, interpersonal skills, adaptability, skilled communicator, be personable, diplomatic, and resilient (Marquis & Huston, 2021).

Nurse leaders can ensure loyalty toward the organization, which translates to lower rates of nurse turnover when they work diligently to promote self-scheduling and accommodate reasonable requests for time off. The population of nurses is aging with one-third at retirement age in the next 10-15 years (Haddad et al., 2023). If accommodations are not made to ease the work environment and provide greater flexibility for illness and family, these nurses will not be retained. In addition, nursing work is getting more difficult due to the baby boom generation aging and surviving longer with long-term illnesses straining an already tight workforce; increased job satisfaction is essential to prevent burnout and climbing turnover rates (Haddad et al., 2023). The majority of nurses are female with childbearing years and family care-taking responsibilities; this often requires a cut back from working, but not if scheduling accommodations can be made and work can be flexible and leaders can be considerate about nurses individualized requirements. Violence and verbal abuse are common for healthcare workers all over the world, being able to take time away for mental health and disconnect from the workplace is necessary for adequate recuperation; flexibility for callouts and illnesses will rebuild the emotional

and physical toll from these experiences and retain these nurses who are subject to abuse (Haddad et al., 2023). This is the impact of this project.

The impact of this solution to the profession and organization when nurse leaders don't have to chase down and beg nurses to work because they have more than enough staff to handle callouts is nurses are not overworked, stressed, and irritable, decreasing medical errors and saving millions in legal costs (Bae, 2022). Patient satisfaction increases as patient needs are met timely with a sense of urgency. Unit-acquired pressure injuries decrease saving millions of dollars in patient care because there is adequate staffing to ensure turning every two hours costs (Bae, 2022). Instead of nurse leaders worrying about lawsuits and barely getting by the focus can return to the patient and what can enhance patient care. Adequate staffing means more time for training and learning to increase job satisfaction and improving nurse judgment and clinical outcomes.

Allowing nurses scheduling freedom may concern nurse leaders already consumed by the struggle to staff adequately on regular days and might wonder how they will manage to adequately staff on the weekend if nurses are not required to work weekends and get extensive flexibility.

The "weekend effect" which consists of a 15% chance of death for patients admitted over the weekend is often attributed to reductions in weekend staff. However, research on the "weekend effect" has shown that this effect is more likely impacted by acute myocardial infarction patients being less likely to receive primary intensive treatments, and the solution to the weekend effect may be to reimburse hospitals based on the appropriateness of treatment decisions rather than one just the completion of the procedures themselves (Duru & Hammond, 2022). There is also a misunderstanding that the majority of employees would prefer to work solely during the week and not on the weekend. A nurse recently explained that the weekends are best for her so she can pick her children up from school during the week and her husband watches them on the weekend when she works, so she prefers weekend only scheduling. Considering that nurses are primarily female, if they have a working spouse and children like this nurse, they might prefer to remain off on weekdays. Weekend financial incentives can also be offered to incentivize additional weekend staffing and being effective leaders by looking for nurses with preferences to work weekends.

Approving all requested paid time off sounds risky to nurse leaders because how will they go about maintaining staff levels at already depleted rates, but if nurses are asking for time off, they likely are beginning to show signs of burnout. Research shows that excessive workload, physical and mental exhaustion, impatient, isolation, suppressing emotions, and monotonous work cause a feeling of emptiness, heartlessness, detachment, and cynicism which strongly correlate with frequency of taking sick leave and do not correlate with job satisfaction (Becker, 2007). Nurses that experience burnout exhibit indifference towards patients and the result is safety incidents: falls, medication errors, and negative impacts to patient safety management activities. (Becker, 2007). There is concern that allowing these nurses to take time off to recharge will increase patient workloads for the remaining staff, but allowing time to recharge and shifting the workload is far better than the alternative; the likelihood of a nurse leaving increases 12% with burnout (Kowalczuk, K. et al., 2020).

Conclusion

As shown in the examples, failure to accommodate staff increases the likelihood of nurses leaving, and this can no longer be acceptable in any way. Healthcare safety and quality depend solely on retaining the current nursing workforce. Nurse leadership and management are keys to change this dynamic and provide the necessary support and flexibility that will improve staffing levels and patient care. Many Fortune 500 companies and organizations promote work/life balance and are flexible with employees and their needs to increase retention and job satisfaction; why are we not doing the same in healthcare? Nursing is known to be a martyr's job; flexible scheduling and full staffing removes this stigma and opens the door for anyone who loves learning in a fast-paced environment and will inspire new generations of excited nurses ready to save lives and live full lives as well.

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Studying to Avoid Stress and Burnout: A Study Guide for Studying

Study Guide and Oral
Presentation by
SAYLOR BOSS

PSYC 2308: CHILD GROWTH AND DEVEOPMENT
Papers, quizzes, exams, and presentations are a few of the demands paced upon students each semester. These assignments lead some students to feel overwhelmed with stress and may lead to experiencing burnout. In this paper, Saylor Boss not only explains how stress leads to burnout, but outlines the importance of cognitive restructuring, a technique used to help individuals appraise stressful situations. Saylor also outlines several study techniques that help students prepare for college success.

–Marla Moreno-Jordan

What is stress and how does it lead to burnout?

Before speaking about effective studying, it is necessary to discuss stress and burnout. Burnout is a natural consequence of focusing only on studying and academic expectations. It is important to be aware of stress and its effects to avoid burnout. In psychology, stress generally refers to two things: 1) the psychological perception of a threat, and 2) the body's psychological/physiological response to the perceived threat (Psychology Today, n.d.). A great example of this process is the fight-or-flight response. If you are hiking on a trail and come across a hungry grizzly bear, you have perceived a threat. In response to this threat, you can either fight the bear or flee from it. Many processes occur during fight-or-flight. First, you will get tunnel vision (Psychology Today, n.d.). When you see the bear, you won't be thinking about what you're wearing to school tomorrow. You're only prioritizing the hungry bear in front of you. Second, your body will release cortisol and adrenaline; and start metabolizing glucose, your body's main source of energy (Psychology Today, n.d.). These will provide strength and energy to either fight the bear or flee. As a result of cortisol and adrenaline, you will experience elevated blood pressure, heart rate increase, and perspiration (Psychology Today, n.d.). In singular, short-term situations this stress response is beneficial to preserving your well-being (Psychology Today, n.d.). But imagine if you are constantly experiencing this stress response. If you go hiking every day and consistently run into

hungry grizzly bears, the stress response will overwhelm and wear you out (Psychology Today, n.d.). Eventually, you'll be too tired to fight or run away, and you may just let the bear eat you. This loss of motivation from prolonged feelings of stress is known as burnout, something many college students are at risk for (University of the People, n.d.).

How do college students experience stress and burnout?

College is a stressful time for college students since there are new responsibilities, people, environments, et cetera. The stressors I want to emphasize, though, are the fear of academic failure and the pressure to achieve academic excellence (Bhujade, 2017). The number of students who experience stress (among other psychological illnesses) to a degree of psychological disorder is highly variable, ranging from 2-50% depending on the student population (Bhujade, 2017). And, if one randomly examined students' well-being, she would find that one in every ten students experience a psychological disorder severe enough to merit professional help (Bhujade, 2017). As mentioned before, stress has negative consequences. But the stress itself isn't inherently negative. Studies have shown that experiencing reasonable amounts of academic stress provides a sense of challenge (something that is difficult but can be overcome), competency, and an increased capacity to learn (Bhujade, 2017). It is only when students are overwhelmed with stress that it leads to burnout. When students perceive high amounts of academic stress, it causes them to feel a foreboding sense of loss and hopelessness (Bhujade, 2017). Like in the bear example, these students are going to get tunnel vision regarding their academic obligations. They will think that struggling over their assignments and endless studying is the only way to achieve academic excellence. If they choose to address their obligations, the stress is all-consuming. On the other hand, if they flee from their obligations – if they procrastinate and avoid doing their work – this will only result in more stress. Ultimately, prolonged academic stress and constant studying lead to academic burnout (University of the People, n.d.).

Gregor Samsa: A Literary Example Of What Burnout Is, How It Feels, And A Lesson On How To Avoid It.

Academic burnout is characterized by feelings of overwhelming exhaustion, cynicism, detachment, inefficacy, and lack of accomplishment (University of the People, n.d.). In my opinion, a great example of what burnout feels like is from a novel by Franz Kafka called *The Metamorphosis.* (Harvard, n.d.). This novel follows a traveling salesman, Gregor Samsa, who works tirelessly to support his family (SparkNotes, 2023). Upon waking up late for work one day, Gregor finds himself transformed into a giant insect (He is overwhelmed with exhaustion) (Harvard, n.d.). So, he experiences physical alienation and detachment from his own life (SparkNotes, 2023). He becomes cynical because his family is unwilling to help him overcome his predicament (SparkNotes, 2023). He feels a sense of inefficacy because even though he's going through a distressing life-altering event, he must still fulfill never-ending work and family obligations (Harvard, n.d.; SparkNotes, 2023). He also feels a lack of accomplishment because he can't be a good salesman as an insect (Harvard, n.d.; SparkNotes, 2023)). Before this change, Gregor didn't enjoy his role as the main provider for his family (Harvard, n.d.). So, he must continue an unenjoyable life while experiencing these symptoms. In the end, Gregor ends up dying- which isn't far off from reality. Studies have shown a strong correlation between burnout and suicidal ideation (Hewitt, 2020). The message of this novel is to show how easy it is to lose one's identity to a world of ever-present, never-ending obligations (Harvard, n.d.). What we can take away from Gregor's unfortunate experience is the importance of a work-life balance and positive coping mechanisms.

Increasing Self-Efficacy: The Importance of a School-Life Balance/ Cognitive Restructuring

Self-efficacy is an individual's belief about their capability to perform a specific task, and it is an accurate predictor of performance (Heslin & Klehe, 2006). Therefore, it is vital students have high efficacy regarding their ability to do well in school. There are many ways to increase self-efficacy, but I am going to focus on maintaining a school-life balance and cognitive restructuring. A school-life balance is a way of managing one's time to optimize academic functioning (John Hopkins University, n.d.). This

means spending enough time on academics to succeed, but not so much that one has no personal time (John Hopkins University, n.d.). Students who prioritize a school-life balance report more happiness since they finish assignments while having leisure time. And they are less likely to experience academic burnout (Chansaengsee, 2017; John Hopkins University, n.d.). Finding effective/time-efficient study methods is an easy way to decrease time spent on academics, thereby allowing a school-life balance, and increased self-efficacy (Park & Sprung, 2014).

Cognitive restructuring is a form of cognitive behavioral therapy which involves changing dysfunctional cognition (Thinking) to alleviate irrational thoughts, emotional distress, and mental illness (Crum, 2021). Cognitive restructuring involves identifying negative thoughts and reframing them in a more positive manner, and it proves highly effective in preventing/treating burnout (Psychology Today, 2023; Ghasemi, 2021). For example, when one is studying for an exam, one may begin thinking there is an impossible amount of material to get through. Reframing this thought as "there's a lot of material to get through, but I pay attention in class, do well on assignments, and know what study methods work for me" helps alleviate the stress associated with studying. Alleviating this stress makes the task more approachable, thus improving students' self-efficacy.

Effective study techniques: What are they?

Effective study techniques are those which are time-efficient and increase productivity, comprehension, and memorization. The techniques I will be discussing today are the Pomodoro Method, active recall/spaced repetition, the Feynman Technique, and colored notetaking. I will also discuss two mistakes to avoid when studying: passive reading/writing and familiarity V. Recollection Error.

1) *Study Technique: The Pomodoro Method*

The Pomodoro method is not a way of studying material, but a way of managing one's time. This method consists of studying in intervals; a period of study followed by a period of rest (Cirillo, 2006). All that is needed for this method is a timer and paper. The primary goal of the Pomodoro method is to increase productivity by reducing anxiety, enhancing focus, increasing awareness of decisions, boosting motivation, bolstering determination, refining estimation, improving the study process,

and strengthening the determination to keep applying oneself (Cirillo, 2006). This method was founded upon three key elements: seeing time in a different way, better use of the mind, and the employment of easy-to-use, unobtrusive tools (Cirillo, 2006). The first step of the Pomodoro method is to create a list of obligations in order from most to least important (Cirillo, 2006). Importance can be measured by deadlines, intensity (length), or subject. After this step, one can begin studying in intervals in a quiet area free of distractions (Cirillo, 2006). The traditional Pomodoro is an interval of working for 25-30 minutes and resting for 5 minutes (Cirillo, 2006). There are variations, though, such as 45:15, 57:17, and 60:20. If one's attention is dwindling, she can work in decreasing intervals. For example, 60:10, 50:10, 40:10, et cetera. Students should repeat the interval as many times as necessary to accomplish goals (Cirillo, 2006). It's important to remember the brain is a muscle. Like any muscle, if one wants to get stronger, she cannot begin training with heavy weights. She must build her strength gradually. Bearing this in mind, it may be difficult in the beginning to use this method for longer intervals/periods of time. Thus, it is best to start with smaller intervals and gradually increase over time to prevent burnout (Cirillo, 2006).

2) *Study Technique: Active Recall and Spaced Repetition*

Active recall and spaced repetition are extremely effective for memorizing large quantities of information because it utilizes short-term (working) and long-term memory (Marinelli et al., 2022). Short-term memory is information one must actively attend to, the information will fade once one stops (Personal communication; Dr. Boulier). Long-term memory is information that has been encoded from short-term memory (Personal communication; Dr. Boulier). This method is best used for subjects involving many terms/definitions/equations such as biology/psychology/chemistry/physics et cetera.

This study method is most used and praised by medical students who describe the first two years of medical school as being waterboarded with information (Marinelli et al., 2022). It may sound complicated, but it's quite simple. In fact, you've likely used it before as the traditional way of practicing this technique is with flashcards, but it can also be practiced by recalling information from lectures/textbooks/notes. A popular application is quizlet. Although, a less popular but more effective application (in

my experience) is the program, Anki. Active recall involves intentionally retrieving previously learned material through open-ended questions (Marinelli et al., 2022). Whereas spaced repetition entails repeated exposure to learned material over successive iterations (Marinelli et al., 2022). Both activities stimulate short-term memory, and repeated exposure encodes information into long-term memory (Personal communication; Dr. Boulier).

3) *Study Technique: The Feynman Technique*

The Feynman Technique is a learning strategy used to simplify complex information (Reyes et al., 2021). Studies conclude students who apply this technique receive higher test scores and learning gains (Reyes et al., 2021). This technique involves reviewing material, simplifying it, and 'teaching' it to others (Xiaofei et al., 2021). For example, I used this method to memorize the digestion of carbohydrates, fats, and proteins. I reviewed it by reading my notes and text. I then taught the processes to my dogs. Afterward, I would check my notes to see if I missed any details and continue teaching until I leave no information out. Using this method, I was able to accurately recite the processes on the exam.

4) *Study Technique: Colored Notetaking*

Colored notetaking is not an actual study technique. But it is helpful when writing/reviewing notes. Although, it is important to note one should not rely on this as their sole study method. It is merely something to benefit memory. This method involves taking notes using colored ink or paper, and it can be applied to one's preferred study technique (Singg & Mull, 2017). A study done on college students showed a significant interaction between the background color of paper and sex regarding word recall (Singg & Mull, 2017). This study concluded females were more likely to remember words on cool-colored paper (blue/purple) (Singg & Mull, 2017). Whereas males were more likely to remember words on warm-colored paper (yellow/red) (Singg & Mull, 2017).

Mistakes to Avoid: Passive Reading and Writing

Have you ever been reading a book and realized you do not remember

the past five pages because you weren't paying attention? That is passive reading- a mistake made by many students. It is a costly mistake, too, since it takes a lot of time to read textbooks and rewrite notes. When these activities are done passively, no information is encoded, therefore the student wastes time (Sun, 2020). Active reading, however, is simply defined as reading with questions in mind and searching for answers (Sun 2020). Reading this way keeps the student intellectually active since the student is actively searching the text for information, thus the student reads faster and learns more (Sun, 2020). To read actively, one should stop every few paragraphs and ask themselves "what is the main idea of what I just read?" or "How does this relate to material learned in class?" or "Is there anything I don't understand?" (Sun, 2020). One can also read actively by annotating the text. Annotating includes writing the main message/your own thought about the text in the margins (Sun, 2020).

Rewriting notes/texts is an age-old study technique, but many students may passively write while they are reading (Glenn, 2009). Actively rewriting notes is a form of active recall (Glenn, 2009). Studies have shown that active recall is the best way to inscribe information into long-term memory (Glenn, 2009). Students should read a page of notes, hide them, and write/ recite all recallable information (Glenn, 2009). This can be repeated until all information is recalled (Glenn, 2009).

Mistakes to Avoid: Familiarity Versus Recollection Error

When identifying sections of notes to study, it is easy to mistake familiarity of a topic with understanding (Hockley & Consoli, 1999). For example, when reviewing notes, students may skip a topic because they remember learning it in class, but the student cannot recall any of the information. Distinguishing familiarity and recollection is important since studies conclude recalling information is better than recognizing information (Hockley & Consoli, 1999). One can avoid this mistake by quickly recalling the main idea of a topic while reviewing notes to identify if it needs to be reviewed (Hockley & Consoli, 1999).

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The Use of Artificial Intelligence (AI) in Medical Imaging

Research Paper by
SURAJ BASNET

RADR 2309: RADIOGRAPHIC IMAGING EQUIPMENT
In his research paper, Suraj Basnet relies on his knowledge and experience as a student radiographer to explore the impact of AI in different areas of medical imaging. Following his introduction in which he defines and describes artificial intelligence, he proceeds to differentiate between AI, machine learning, and deep learning. He then proceeds to describe the use of artificial intelligence in cardiovascular and musculoskeletal, as well as other medical imaging modalities. Suraj's strong sense of organization and his attention to detail as he discusses the use of AI in distinct sections of medical imaging makes this an excellent example of writing that is common in the field of medicine, but specifically in medical imaging.

–Joe Garza

Abstract

The rapid development in the fields of Artificial Intelligence (AI) and Machine Learning (ML) has brought improvements and innovations towards the automation of various mundane day to day tasks. The application of AI and ML has shown tremendous potential in improving every aspect of diagnostic medical imaging, be it patient care, image acquisition and analysis or reduction in patient dose. The goal of this study is to discuss the benefits of AI use in different areas and modalities of diagnostic medical imaging, their current application, and concerns against wider use. Studies show the use of artificial intelligence has reduced the time for obtaining diagnostic medical images across all modalities and has allowed for faster treatment initiation. The efficiency in image analysis was comparable to that of humans. Lack of common operational standards, interoperability, and communication among types of AI models and algorithms based on small sample sizes causing differential diagnosis, transparency, and security issues are main concerns against wider adoption.

Introduction

Artificial Intelligence (AI) is the presence of human intelligence in machines providing them with the ability to mimic human actions. AI is continuously evolving and has made rapid strides in mimicking human

activities. Artificial intelligence is weak or strong based on whether it focuses on a simple or complex job. AI used in medical imaging is strong; AI with algorithms designed to excel in recognizing complex patterns in diagnostic images. It can provide automated quantitative assessment of the images. Healthcare and medicine are increasingly becoming data intensive. Integration of artificial intelligence into clinical workflow as a tool to assist the physician will help in faster and more accurate reproducible image assessment. Desire for improved efficiency in clinical care has been the primary driver behind the rapid advancement of artificial intelligence.

The purpose of this paper is to increase awareness on the rising use of AI in medical imaging, its impact on the profession, and to discuss the pros and cons of AI in imaging. A detail explanation of the process by which AI works is beyond the scope of this paper.

AI and Algorithm

Algorithm is a set of well-defined instructions that function as a pathway to achieve end results from an established initial situation. Algorithms are analogous to human brain and nerve signals. Having a proper algorithm is essential for artificial intelligence to be efficient. With a proper algorithm, AI performs complex tasks of quickly analyzing massive amounts of data and recognizing patterns, efficiently assessing the radiographic images, and detecting pathology without subjective bias. Machine learning (ML) is the process by which an AI performs the complex tasks by learning from experience. Deep learning (DL) is a subfield of ML where AI can learn from supervised or unsupervised tasks. Convolutional neural network (CNN) is a class of DL which provides AI with the ability to detect and classify distinct features, pattern recognition and detection of anomalies. Larger sample datasets directly contribute to better-trained CNNs and more capable AI.

Application in Cardiovascular Imaging

Cardiovascular diseases are the most common cause of deaths globally. AI in the modality of cardiac imaging assists in solutions ranging from image acquisition, reconstruction, and diagnosis. AI use has decreased the reconstruction time for cardiac MRI and has helped the cardiologists with automated pathology classification in electrocardiography. AI models

developed from twelve studies for automated image analysis in Invasive Coronary Angioplasty (ICA) for frame selection, segmentation, lesion assessment, and functional assessment of coronary flow (Molenaar et al.). Even though only three AI models were externally verified, they showed moderate to satisfactory performance.

The ability of artificial intelligence to identify relevant structures is crucial for detecting, localizing, and classifying coronary lesions. The coronary arteries are three-dimensional (3-D) structures captured in two- dimensional (2-D) images that result in overlap, foreshortening, and difficulty in assessing true 3-D stenosis grade (Molenaar et al.). Use of low-dose radiation along with heart motions and overlapping tissues causes blur and low signal-to-noise ratio. This issue makes it prone to subjective interpretation and causes delay in diagnosis and treatment. Most studies on automated ICA image analysis have trained algorithms to automatically segment coronary arteries in coronary angiography with 98% recognition accuracy and 85% sensitivity (Molenaar et al.). AI could also grow from training in real-time coronary stenoses detection which would help in identification of lesions that may otherwise have gone unnoticed. This would allow accurate and faster diagnosis and treatment planning. Due to smaller sample sizes of images, there is the risk of algorithmic bias. This issue could be resolved by subgroup analysis on a larger image sample.

Application in Neural Imaging

One of the applications of artificial intelligence in neural imaging is the detection of neurodegeneration through image analysis. AI can automatically measure biomarkers of Alzheimer's disease and rate of brain atrophy. AI-based CT scan assessments allow the automated lesion segmentation of hemorrhagic infarcts, or automated detection and quantification of hemorrhagic expansion (Nagamine et al.). Artificial intelligence is also able to detect early warning signs of ischemia on CT images. AI is used as a tool in traumatic brain injury (TBI) to lessen the impact of secondary brain injury by controlling intracranial pressure. In 2019 researchers from Finland developed an algorithm that could predict 30-day mortality for TBI patients with 80% accuracy based on variables such as intracranial pressure, arterial pressure, and motor and eye movement components of Glasgow Coma Scale (Raj et al.).

Application in Musculoskeletal Imaging

Use of artificial intelligence on Musculoskeletal imaging ranges from assessing the appropriateness of imaging orders to helping predict the patient's risk of fracture. Use of AI has improved image quality, noise reduction, and diagnostic accuracy (Gyftopoulos et al.). A study proposed is for AI to reduce the image acquisition time in MRI by developing the algorithm to separate targeted image content from the aliasing artifacts. Early studies have shown promising results when comparing image quality and diagnostic accuracy of an AI accelerated knee MRI to conventional MRI up to four times (Wang et al.). Similar principles are used to acquire quality images on CT scans efficiently, while decreasing the patient dose. In one study performed, more than 90% of radiologists found that the quality of low-radiation-dose CT images produced in part with the use of AI was equal to or greater than that of CT images obtained using standard radiation doses (Cross et al.). The most common use of artificial intelligence in MSK injuries is the pattern detection and image interpretation. TAI algorithms are used to diagnose fractures, bone age and strength, and various pathologies (Gyftopoulos et al.). AI detected and localized, with 95.7% accuracy, thoracic and lumbar spine fractures (Burns et al.).

Application on Oncology Imaging

Cancer is the second common cause of death globally with early detection being the key to saving the life of the affected individual. AI algorithms annotate skin lesions (including melanoma) as precisely as dermatologists (Shimizu & Nakayama). The accuracy with which AI is able interpret mammograms for breast cancer screening is increasing as well. In a study conducted on artificial intelligence use for pathological slides analysis, AI detected thirteen types of cancers including breast, lung, and colorectal cancer (Shimizu & Nakayama). AI could also map out potential cancer cells and determine likelihood if the cells were cancerous.

Another important use of artificial intelligence in Oncology is in the field of genomic sequencing to detect any mutation leading to suppression of Tumor Necrosis Factor (TNF) or formation of oncogene. AI can quickly sequence the genome in the tumor sample and classify each

mutation with clinical phenotypes (Shimizu & Nakayama). This leads to efficient phenotyping and removing the possibility of human error allows us to develop personalized treatment.

Pros and Cons of AI in Medical Imaging

Use of artificial intelligence has dramatically increased the efficiency in medical care, as well as in medical imaging. Shorter image acquisition times, efficient detection of anomalies, reduction on patient dose while acquiring better quality images, and the ability to develop personalized treatment are some benefits of AI. Artificial intelligence lacks subjective bias, as opposed to humans, which ensures comparable results each time. It has enabled us to obtain comparable diagnostic images with lesser patient doses and reduces the chances of repeat exams. This is in accordance with the principles of ALARA. Less time acquiring the image means more time available to provide best quality patient care.

The efficiency of artificial intelligence is dependent on its algorithm. A written algorithm requires an enormous collection of sample images to train the AI in detection of patterns and anomalies. Since use of artificial intelligence in medical imaging is recent, the algorithms developed are based on smaller sample sizes. This creates the possibility of skewed results and may not be efficient in use with different subtypes of population. AI and algorithms are not currently regulated by a central agency, allowing hospitals around the world to use different types of artificial intelligence. This leads to the issue no common operational standards, interoperability, and communication among diverse types of AI. This also causes differential diagnosis and transparency, as well as security issues surrounding the algorithms.

Discussion

The use of artificial intelligence and machine learning has shown great promise in transforming every medical imaging modality. It allows for a more streamlined process of obtaining biographical information and archiving images after acquisition. In different studies usage of AI has constantly reduced imaging acquisition and produced shorter diagnostic times across multiple imaging modalities like X-ray, MRI, and CT. The ability to detect and localize anomalies, categorize pathologies, reduce

noisy images and patient dose has improved diagnosis time. This has allowed more time for quality patient care and rapid personalized treatment plans, while ensuring no harm to the patient from increased radiation dose. AI has reduced repeat exams, false positives, and misdiagnosis that usually occur due to subjective bias on the part of the radiologist. Even with the rapid development of algorithms, with a small sample size artificial intelligence has shown efficiency comparable to humans. Efficiency will improve once sample images used are large enough to develop better algorithms and better regulations are in place to standardize it.

Summary/Conclusion

AI has the potential to dramatically improve every aspect in medical imaging from image assessment to image interpretation and diagnosis. It allows for faster, efficient, and comparable image acquisition while reducing the patient dose. It allows for better imaging and tissue mapping when there is risk of tissue overlaps or blur from motion. It also reduces image interpretation and diagnosis time allowing for faster and more personalized treatment. A professionally written algorithm eliminates the possibility of subjective bias or misdiagnosis. We are still at the preliminary stages of artificial intelligence use in medical imaging and algorithms written with smaller sample sizes. There is a need for larger sample sizes and standardization of algorithms to achieve comparable results across all modalities. Privacy and security issues will resolve across the board once AI regulation allows for interoperability and communication across various locations. Artificial intelligence will eventually take over laborious and time-consuming tasks in medical imaging allowing time for technologists to properly care for patients during their treatment.

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Shining American Traits Displayed by my Family

Speech Transcript by
ZACHARY SMITH

SPCH 1315: PUBLIC SPEAKING
Informative speech, a dominant speech genre, aims at bringing new information to the audience through verbal descriptions and sometimes visuals and demonstrations. In this informative speech, Zach took the audience to a travel through US history by digging out touching stories of veterans in his family and their precious pictures. He grabbed attention and built his credibility by powerful quotes and personal connection to the speech topic, followed by telling three individuals' stories in an organized structure, and left the audience with a question that enhanced the theme in the end. His speech is not only informative, but also inspiring and thought-provoking. What a good reminder of important American traits!

–Shuang Zhao

As you may agree, American culture is a melting pot of diversity, and today I wanted to inform you all not of the culture itself, but the traits of Courage, Sacrifice, and Protection displayed by Americans, specifically veterans in my family who have displayed said traits. My family lineage has individuals from every generation that have fought in every war dating back to the Revolutionary War in America. With that being said, I wanted to focus on the three members I found the most interesting, who fought in the Civil War, World War 1, and World War II. A few great quotes that many may feel summarizing these traits are as follows:

Courage is what it takes to stand up and speak; courage is also what it takes to sit down and listen." –*Winston Churchill*

"We sleep peaceably in our beds at night only because rough men stand ready to do violence on our behalf." –*George Orwell*

"I have long believed that sacrifice is the pinnacle of patriotism and the heart of America." –*Bob Riley*

The first ancestor I would like to focus on is Van Buren Smith, my fifth Great Grandfather. He was born in 1834 and died in 1938. Van Buren

Smith served as a General in the Confederate Forces and after the war became one of the original Texas Rangers. Van Buren engaged in many battles during the war but swore an oath after to protect the citizens of Texas regardless of what race, social status, or gender they were. Van Buren lived to be 103 years old and died at his daughters homestead peacefully.

The next ancestor I would like to focus on is my Great Uncle Buck C. Catchings-Smith. He was born on July 4th, 1895 and died on January 17th, 1978. Buck served as a Private First Class overseas during World War I. Buck displayed resilience in the face of adversity in many crucial battles in France during the Meuse-Argonne Offensive in 1918. According to the United States Military Archives, "The Meuse-Argonne Offensive was the largest operations of the American Expeditionary Forces (AEF) in World War I, with over a million American soldiers participating. It was also the deadliest campaign in American history, resulting in over 26,000 soldiers being killed in action (KIA) and over 120,000 total casualties." (Government Archives, April 4th, 2023). I ask you all to imagine the fear he had to overcome at just 23 years old going into battle to protect his family back home in the United States and his brothers alongside him.

The last ancestor I would like to focus on is my Great Grandfather Henry "Nicholas" Smith. He served overseas in World War II in Africa, Normandy, and Rhineland Central Europe. The nickname "Nicholas" was derived from "Nicolaos" which translates to "people of victory". This was given to him by citizens his platoon saved while overseas after a battle. He was highly decorated during his time in the military and sacrificed time with his family back home in the United States to help others in need. The sacrifice is shown in a letter sent home to his mother stating that "I wish this war would hurry and I think it will be a long, long time the way it is looking to me." He also mentioned in the letter "That letter from Pearl sure was a letter, it sounds like the truth to me…she sure did turn out to be nothing." The letter from Pearl was a letter from his fiancé at the time stating that she could not handle him being gone to war and it was taking a toll on her mentally, so she had to leave him. Below are photos of Henry "Nick" Smith, the letter to his mother, and a photo taken with Pearl before leaving to Europe.

The photos that are shown are a few of the many that he took while on duty overseas in Africa, Normandy, and Rhineland Central Europe. The top left photo was taken in Africa. The photos of the planes were shot in Normandy. And the rest of the photos shown were taken in Rhineland Central Europe. An amazing piece of American History and culture.

In conclusion, American culture is a melting pot of diversity, but has many unique traits associated with it that are shown by many American people, whether that be protecting the citizens of Texas as a Texas Ranger, running into battle courageously at 23 years old during the Meuse-Argonne Offensive, or sacrificing what you truly love for the greater good. I ask you all today one final question. Do you display these traits that my ancestors held so dear to their hearts?

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To view transcript with all images, please visit:

Http://LSCMontgomeryCAC.com/2023/Zachary-Smith/

Visual Communications and Other Online Selections

This online section includes writing with a significant visual component and reflects the increasing importance of visual rhetoric in and across disciplines, as well as generally in contemporary culture. The instructor introductions to the pieces may be found in the pages of the print version of the journal. We expect this part of the journal to continue to expand as the importance of the visual aspect of texts continues to evolve.

To view past journals visit:
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