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WSU Administration 2

Letter from LaWanda Holt-Fields, Director
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Otero, Foltz, & Lorenzo, 2006; Schweitzer, Ng, Lyons, & Kuron, 2011). Men were referred to as breadwinners because they were the primary sources of income while women were labeled homemakers since they were responsible for the maintenance of the home and rearing of the children (Schweitzer, et al., 2011). Yet, in today's culture, more women than ever are obtaining higher education

An Examination of Career Choices and Constraints

and desires. Hypothesis one states this premise:

strongly agree, agree, disagree, and strongly disagree. However, two of the Likert Scale questions pertained to a specific gender. For instance, a question directed at females asked them to assess how comfortable they felt pursuing a degree in a more typically male-dominated program. A similar question assessing the comfort level of men pursuing a degree in a more typically female-dominated program was also asked.

The thirteen questions in the second section of the questionnaire focused on careers. Three questions in this section were categorical. Eight questions employed a Likert Scale with the following response categories: strongly agree, agree, disagree, strongly disagree, and not applicable (NA). One yes/no question was asked followed by one contingency question. This particular question asked respondents to assess whether one gender was more dedicated to family needs than the other. The contingency question then asked respondents to identify the particular gender that was more dedicated to family needs.

The third section of the questionnaire was about family life; nineteen questions related to this sub-area were asked. Eleven questions utilized a four point Likert Scale like the one used in the first section. Two of the Likert Scale questions also had "not applicable" as an

participants since this group has experience balancing their education and work with their family life; moreover, there was a separate section on the survey for parents. Researchers were unable to obtain this type of participant in large numbers from a general education course. Additionally, because we selected participants from a gender course, the respondents were previously exposed to similar topics, such as gender roles, relationships, work, family relations, and education. This prior knowledge may have influenced responses. Moreover, researchers limited the project by focusing solely on heterosexual normative relationships. In the future, we would explore other types of relationships. Ideally, the researchers would have preferred a longer questionnaire to better assess personal aspirations. Time constraints limited the research project, as it took longer than anticipated to receive approval from the IRB.

Results

Univariate Analysis

Mode: Gender. This univariate analysis focused on gender because the research was centered on gender differences. Since gender is a nominal variable, researchers determined the mode. The questionnaire gave respondents three gender options: female, male, and neither. The mode indicates that women were represented in greater numbers as they represented 60.4% of respondents. Likewise, males represented 38.3% and individuals claiming neither gender accounted for 1.3% of the sample. These percentages equate to 145 females, 92 males, and 3 belonging to neither category (see appendices for table 1 and fig. 1).

Media: Hypotheses. Three separate questions from the survey were analyzed and formulated into hypotheses. Researchers analyzed the following statement: "My employer is flexible with my family obligations (i.e., sickness,

respondents “strongly agreed” with the statement, which accounts for 14.2% of the sample. Forty-two respondents “disagreed” with the statement, which represents 17.5% of the sample. Three respondents “strongly disagreed” with the statement; this equals 1.3% of the sample. Lastly, 63 respondents indicated that the statement was not applicable to them, which represented 26.3% of the sample (see appendices for table 4 and fig. 4).

Bivariate Analysis

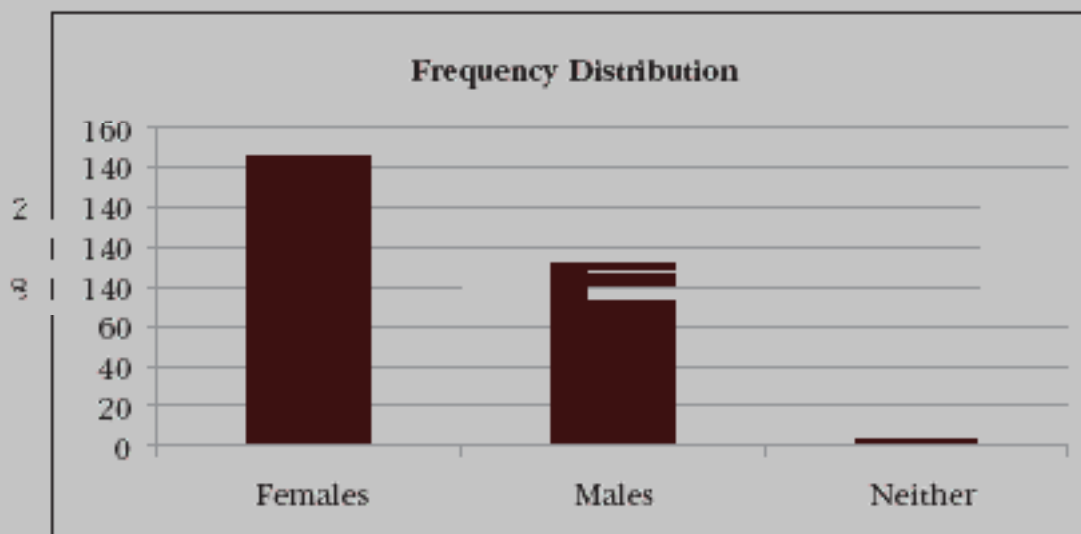
Spearman's Rank Correlation Coefficient: Since the research is quantitative, researchers relied on a bivariate analysis in order to compare the association of two variables. Researchers created hypothesis one, which claims that employers are more flexible with women and their family needs than men and their family needs. Hypothesis one relied on the following statement from the questionnaire: “My employer is flexible with my family obligations.” The hypothesis was tested via Spearman's Rank Correlation Coefficient since it relied on the nominal variable of gender and ordinal response categories, such as strongly agree, agree, disagree, and strongly disagree. Statistics indicated that this comparison yielded a value of .101. Spearman's Rank relies on a scale of -1 to +1, and since .101 is very distant from +1, it can be determined that little to no relationship

one was rejected. Nevertheless, according to the frequency distribution, women and men both indicate that their employers are flexible with their family needs.

The results from hypothesis two were also surprising because researchers anticipated that both sexes would generally be satisfied with their job. Although previous literature makes many distinctions between the genders, the literature states that both sexes are generally happy with their work arrangement, which further illustrates that many career paths can lead to a satisfying lifestyle (Ferriman, et al., 2009). Still, in the future, researchers hope that analyzing a larger random sample could help us assess statistical significance because we felt the small convenience sample was not adequate to test this hypothesis. Thus the small convenience sample resulted in a rejection of hypothesis two. Regardless, the frequency distribution provides important insight into the statistical analysis.

Lastly, researchers anticipated a relationship between gender and job characteristics. Previous literature indicates that women are more likely to value intrinsic career characteristics, such as flexibility, while men are more likely to value extrinsic career characteristics, such as salaries (Fernández, et al., 2006). Therefore, researchers sought to explore relationships between gender and job characteristics.

An Examination of Career Choices and Constraints



	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	78	32.5%	32.8%	32.8%
Agree	89	37.1%	37.4%	70.2%
Disagree	6	2.5%	2.5%	72.7%
Strongly Disagree	4	1.7%	1.7%	74.4%
Not Applicable	61	25.4%	25.6%	100.0%
Total	238	99.2%	100.0%	
Missing	2	.8%		

An Examination of Career Choices and Constraints

This figure illustrates the median for the univariate analysis of hypothesis two.

Figure 3: Univariate Analysis of Hypothesis Two - Median for the Univariate Analysis of Hypothesis Two.



This table illustrates the median for the univariate analysis of hypothesis three.

Table 4: Univariate Analysis of Hypothesis Three - Median for the Univariate Analysis of Hypothesis Three.



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An Examination of Career Choices and Constraints

Eg. 7: Image related to a a .

Below is a segment of the questionnaire that was focused on careers and demographic information.

This questionnaire will ask you about educational attainment, careers, and family aspirations. Please mark the corresponding answer. It will take approximately 10-15 minutes to complete this questionnaire. Your answers are very important to us. Your answers will remain anonymous and confidential.



Introduction

Relationships with family and friends are powerful influences on people's lives. These relationships define how people develop socially, and this process is called socialization. Through the process of socialization, young people learn from those to whom they are affiliated with and from whom they receive reinforcement. For children and adolescents, socialization may shape both pro-social and antisocial behavior. Peers in particular have a more influential role as children move into adolescence, and socialization by parents is decreased (Snyder et. al., 2005). Many factors, like greater access to transportation and mandatory education, make spending time with parents "less obligatory" and increase the child's freedom to choose his or her own friends (Snyder, 2002). Children and adolescents not only learn during interaction with other peers, but

tend to affiliate with others who are like minded

pleted their high school education, 34% had beyond high school education, and 20% had less than a high school education. Dual wage earner families comprised seventy-five percent of the total, while 9% of the families were without an employed adult.

Mea **y** **e**

Observations of children's interactions with same-gender classmates were made on three separate occasions during the kindergarten year. These observations included the two variables of games and free time, which provided the context for defining peer deviancy training. The target child and two of his/her classmates were taken to a small room and asked to engage in two tasks: 15 minutes of interactive age-appropriate games and 15 minutes of free play time. Same-gender classmates were sampled in randomly based on availability.

Videotapes of peer interaction were coded using Antisocial Content Code (ACC, Oeser & Schrepferman, 2002), an age-appropriate adaptation of the TOPIC code (Poe, Dishion, Greisler, & Andrews, 1992) which has been applied to adolescent interaction. The ACC provides a real-time interval coding of the occurrence of five different forms of deviant language used by young children: sex, alcohol/tobacco, stealing, aggression, and authority defiance. This deviant talk occurred at an average rate of once every 5 min

This table represents the data collected on controversial, rejected, and popular children. The data includes analysis of Teacher Report Forms (TRF), video observations, classroom observations, and classmate social preference ratings. We analyzed the data using mean (average), SD (standard deviation), and the T-test, a math-

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Abstract D

miRNA targets previously analyzed at the whole organ level and assessed if they are differentially expressed at the tissue/cell-specific level in control versus neonatally DES-treated hamster uteri at both the initiation and promotion stages of the organ neoplasia phenomenon. Our findings indicate that further modifications to our procedure are needed to obtain conclusive results.

Introduction

Currently, the scientific community has expressed concern that inappropriate exposure to endocrine disruptors during and/or shortly after pregnancy can disturb normal reproductive tract development and adult function (Hendry III et al., 2002; Mericskay et al., 2005). One of the possible disruptions is vaginal cancer, which usually occurs in older women; however, in 1971, seven young girls were diagnosed with a rare cancer: vaginal clear-cell adenocarcinoma (Alwis et al., 2011; Herbst, Ulfelder and Poskanzer, 1971). Further investigation revealed that their mothers were all treated with the synthetic estrogen, diethylstilbestrol (DES), during their first trimester of pregnancy in the mistaken belief that such treatment would prevent miscarriage. That was the first report linking transplacental DES exposure of the developing female fetus with the development of benign and neoplastic lesions in the adult female reproductive tract (Alwis et al., 2011; Li et al., 2003; Mericskay et al., 2005; Newbold et al., 2007). Subsequent reports found a low incidence of clear-cell adenocarcinoma in young women as well as other common abnormalities such as vaginal adenosis, an abnormal development of glandular tissue in the vagina (Herbst, Ulfelder and Poskanzer, 1971).

DES is no longer prescribed to women, but it is used in animal studies as a prototypical estrogenic chemical that causes "endocrine rIchemicng female fetus with the develop



to a direct mechanism that involves instant DES

Progress Regarding in Situ Hybridization

stable forms in blood provides a foundation for

known as the “DES syndrome” (Hendry III et al., 2002). Although important insight came from the original paradigm of events driving carcinogenesis (DNA mutations), newer mechanistic paradigms are now recognized. Researchers are now investigating the altered expression of non-coding-protein gene products such as miRNAs in various disease states including cancer in general and perinatal endocrine disruption in particular. In other words, researchers are probing both classical genetic and more recently discovered epigenetic mechanisms of carcinogenesis to gen-



Consequently, further development and optimization of our basic ISH protocol is still needed.

Discussion

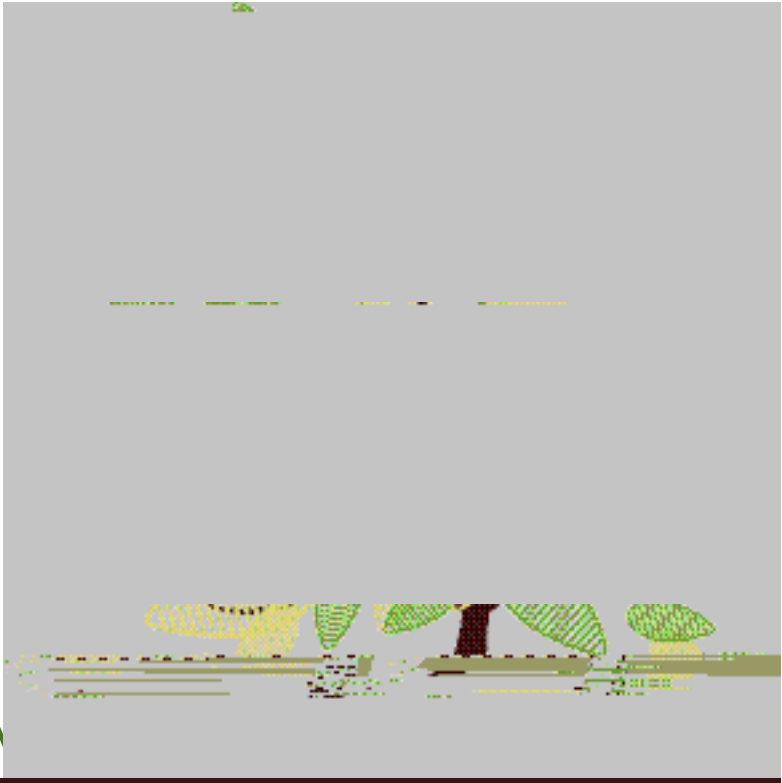
The involvement of miRNAs in normal physiology and disease processes, including cancer, is an emerging but clearly very important topic. For example, analysis of miRNA expression can assist diagnosis and prognosis of specific cancers because they can function either as tumor suppressors or oncogenes and thereby affect cell survival, development, and proliferation (Calin & Croce, 2006). For instance, Mitchell et al. (2008) reported that levels of miR-141 expression differentiated prostate cancer patients from healthy people. Therefore, scientists are confident that continued analysis will uncover more miRNAs that can help detect and treat other cancers (Mitchell et al., 2008).

In several other studies, we found that perinatal DES exposure disrupts normal development and function of the female reproductive system, thus leading to neoplasia (Hendry et al., 2002; Mericskay et al., 2005). The objective was to determine the mechanism responsible for this type of endocrine disruption (Hendry, Branham, & Sheehan, 2002; Hendry et al., 2002; Newbold et al., 2007). More specifically, they wanted to understand what molecular factors are involved in the two-stage phenomenon of neonatal DES-induced cancer in the hamster uterus.

This research complements previous research that profiled differential miRNA expression in the neonatally DES-exposed uterus at the whole

organ level. A major objective was development of an ISH protocol able to determine whether such differences in expression occurred primarily in the epithelial or stromal compartment of the uterus. Such questions regarding the dynamics of signaling between the epithelium and stroma are crucial to understanding the mechanisms of carcinogenesis. Furthermore, we expected to detect miRNAs in the cytoplasm where they target the translation and stability of messenger RNAs. At this point, we made some progress, but the analytical protocol requires further development. We probably need to modify the concentration of each probe we test and take more precautions to reduce target miRNA degradation possibly due to incomplete inactiva-

RESEARCH SUMMA





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EXAMINATION OF HOW HEALTH PROFESSIONALS OF COLOR EXPERIENCE AND NEGOTIATE RACE WITHIN THEIR WORKPLACES

Courtney Berry, McNair Scholar

D.S.S., P.D., PA-C
W.S., J.S., T.V.

Introduction

Recent research on African American physicians indicates that racial identity plays a significant role in their work environment. Discrimination is one way that race becomes an issue; however, a small amount of literature exist that documents the experiences of African American health professionals or other minority health professionals. In today's world, racism and the attitudes that support race-based mistreatment remain a reality that affects the lives of African Americans and other minorities of color throughout the United States. No matter the social setting, discrimination and mistreatment remain a significant barrier to social justice and equality (Doane, 2006).

this research will help institutions retain and

HOW DO I TEXT THEE: EFFECTS OF

Is compatibility in romantic relationships a factor in how text messaging is used by each partner? Theories suggest relationships centered on text messaging can lead to more misunderstandings, which could lead to unfulfilling relationships. Furthermore, the effects of limited face-to-face communication can lead to unsatisfactory relationships as well. We suspect that text messaging may affect relationships more negatively than positively compared to relationships in which the majority of communication takes place face-to-face.

Discussion

In an interview from a newscast, Orbuch (2010) presented several interesting points as to how men and women use text messaging. Orbuch suggests that text messaging has different purposes for men and women, which could be one fac-



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EFFECTS OF PATIENTS' PREOPERATIONAL EXPECTATIONS FOLLOWING SHOULDER SURGERY

Ehijator Ighalo, McNair Scholar

Robert M. ... Ph.D., Ph.D., Ph.D.

Summary of Research

Shoulder surgery is one of the more common types of orthopedic procedures done to alleviate pain and dysfunction. Patients' preoperative expectations of shoulder surgery may affect postoperative outcomes. The purpose of this study is to identify the relationship between preoperative expectations and the patients' self-reported postoperative outcomes. All operations used to collect data for this study were performed by a single surgeon. Each patient who participated completed pre-surgery questionnaires: the Musculoskeletal Outcomes Data Evaluation and Management (MODEM), the Simple Shoulder Test (SST), and the American Shoulder and Elbow Surgeons (ASES) assessment. These questionnaires are used to evaluate individuals' self-reported results. The SST will help determine the capability the patients have for certain tasks. The ASES is what the patients use to rate the pain and disability in their shoulder (McClure P, Michener L; 2003). Our hypothesis is that patients' preoperative expectations will predict their outcomes after shoulder surgery.

Methods


Our study included 29 patients who needed any type of shoulder operation and were treated by Surgeon Daniel Prohaska between November 2011 and July 2012. The average age of the patients (and

standard deviation) at the time of surgery was 51.035 ± 23.6 years (range, 18 to 72 years old). The study included 17 males and 12 females. All of the operations were done in Wichita, KS. The operations in this study consisted of rotator cuff



Research Summaries

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ONLY TIME WILL TELL: A STUDY OF DELIBERATE PRACTICE METHODS AND STRATEGIES USED BY MUSICIANS

Christina Johnson, McNair Scholar

Musicology, Ph.D., M.M.

Summary of Research

The purpose of this research was to highlight the cognitive differences between undergraduate, graduate, and professional musicians as well as the differences between collegiate and professional musicians' practice sessions. My extended literature review examined the essential cognitive processes of the instrumentalists. The research revealed several distinct components of deliberate practice as well as themes regarding this type of expert practice. The complexity of practice and its subsequent strategies and techniques warrants further investigation.

The instrumentalists in my study were asked to provide verbal reports during and immediately after viewing their videotaped practice sessions. The data for this study included interviews, verbal reports, and videotape analysis. The results of this study showed that the collegiate-level musicians did

self-efficacy, and creativity. Being able to deliberately practice while maintaining effective time management skills contributes to effective pacing strategies, like the amount of time a musician uses face-time (having the instrument to the face) to non-face-time practice. Finally, the musician must develop an understanding of a variety of practice strategies that can be implemented at his or her disposal. Musicians need an abundance of resources available to them such as peers, teachers, books (musical or non-

PHANTOM LIMB
PAIN OF LOWER
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the nociceptors, the action potential bypasses the cell body in the dorsal root ganglion (DRG) and continues to propagate into the synaptic terminal in the dorsal horn of the spinal cord. From the dorsal horn the 5 (c) 5 (i) o5 (i) oeaptFd hesh he therspind

experiences an increase in PLP when exposed to the cold, such as attending late fall early winter high school football games and late winter early spring baseball games, e.g., sympathetic origin. Episodes of stump breakdowns have occurred frequently and are always accompanied with increased PLP, e.g., potential ephapses relationship.

Conclusion

The awareness, sensations, and pain felt by amputees have indeed earned the mysterious title “phantom” as the exact mechanisms causing such experiences remain elusive. Here we’ve discussed only one component of the neurological pathway that may be involved in these phenomena. Besides peripheral mechanisms, central mechanisms have also been implicated, including those suggesting alterations in the transmission of action potentials within the spinal cord and brain. The Gate

Control Theory of Pain was introduced in 1965 by Ronald Melzack and Patrick Wall—this theory highlights regulatory mechanisms within the dorsal horn of the spinal cord, mechanisms that may go awry following amputation and deserve further investigation in relation to phantom limb pain. The Neuromatrix Theory of Pain, again proposed by Melzack, suggests that changes in neural mapping patterns, in areas such as the somatosensory cortex, can lead to a reorganization of the homunculus following amputation and allow for the activation of neural patterns producing pain without somatic input (Melzack, 2005; Flor et al., 2006; Giummarra et al., 2007). Some have proposed that this remapping is a protective evolutionary trait that in some amputees, those who experience phantom pain, has gone awry (Giummarra et al., 2007). But if phantom pain is such an abnormality, why is the estimated percentage of sufferers (80-85%) so high?


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Phantom Limb Pain of Lower Extremity Amputees

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THE ONGOING INVESTIGATION OF THE CENTRAL FAN QUESTION THROUGH NUMERICAL COMPUTATIONS

Francis L. Nguyen, McNair Scholar

T D L , P .D., M
W S U S T V

Summary of Research

his ongoing research explores whether or not the principal investigators can provide enough data for conjectures into the existence of central fans. With the use of MATLAB for numerical computations, we developed tools to analyze different capillary surfaces at reentrant corners to determine where a central fan does and does not exist. In conjunction with our last investigation into graphing minimal surfaces, we were still required to develop code to solve a Riemann-Hilbert problem on the unit disk of the complex plane. However, before solving this problem, it was necessary to translate our expo

The task of constructing capillary surfaces is broken into three modules suggested by Mitchell [2] and based on a mathematical framework specified by Athanassenas and Lancaster [3]. We implement each module in MATLAB. Each module numerically completes one of the three tasks outlined in the methodology:

1. a conformal map $f_0 : \mathbb{D} \rightarrow \mathbb{D}$ implementing Henrici [4], DeLillo [5], Driscoll and Trefethen [6], Fornberg [7] and numerical experiments.
2. a solution $f_0 : \mathbb{D} \rightarrow \mathbb{D}$ to the Riemann-Hilbert problem according to Monakhov ([2], [3], [8]), and
3. a construction of the minimal surface using the Enneper-Weierstrass representation ([2], [3]).

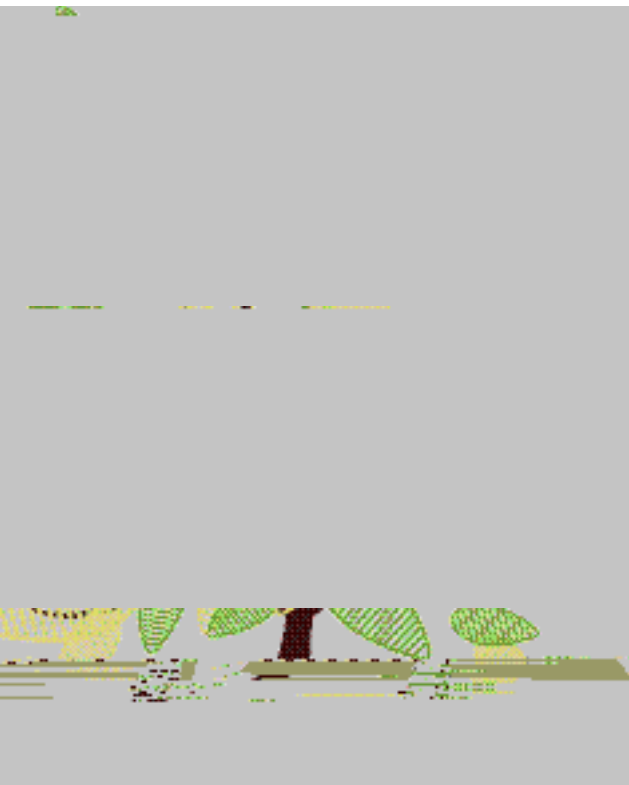
Our principal investigation includes improving the conformal mapping module and encoding the Monakhov solution to the Riemann-Hilbert problem as suggested by Athanassenas and Lancaster [3], and Mitchell [2]. To improve the conformal mapping module, the investigators abandoned previous work, replacing the very computationally intensive implementation based on Marshall [9] with a much quicker and, overall, more accurate implementation crafted by the

investigators. The new methods combine simpler maps from Henrici [4], DeLillo [5], Driscoll and Trefethen [6], and Fornberg [7].

The investigators developed a conformal mapping module that is more accurate and facilitates implementation of the Riemann-Hilbert module. We continue to update both the conformal mapping classes and the Riemann-Hilbert module. At the moment, we have 10^{-4} to 10^{-5} accuracy, which is not as accurate as hoped for. Hence, the more time we invest into this research, the more we plan on increasing the accuracy. Polishing the modules will provide a variety of implementation of capillary profiles. Lastly, we plan on making the object classes easier to use in other areas of minimal surfaces. The surface construction module is well-tested and robust. We compute minimal surfaces from their Enneper-Weierstrass representations based on holomorphic functions, (f, g) , determined by their boundary conditions. Here f is determined by solving a suitable Riemann-Hilbert problem defined by the geometry of the boundary. Computing the surfaces allows one to consider the flow of fluids in zero gravity and other areas where surface tension plays an important role, such as those encountered with spacecraft.

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THE ONES LEFT BEHIND: DELINQUENCY IN CHILDREN WITH INCARCERATED PARENTS

Michelle Ofuokwu, McNair Scholar

women who are incarcerated often suffer from low self-esteem, which impacts their availability

Delinquency in Children with Incarcerated Parents

When a young person matches the definition of a delinquent, their behavior is often reflected through statistics about delinquency among males and females; male delinquency usually involves physical forms of aggression, while, for females, it is related to other more subtle forms of aggression (Hagan, McCarthy, & Foster, 2002).

they may have missed by having a parent incarcerated. In Kansas, many children who are a part of the Children of Promise program show more

Ad e ce S ygg e i Pa e a I ca te a

The social stigma of parental incarceration impacts children by suggesting their households are unstable (Travis & Waul, 2003). Social stigma can pressure children into accepting negative labels associated with having a parent incarcerated. As a result, this stigma can become a self-fulfilling prophecy towards delinquency (Becker, 1967). Children tend to turn to delinquency to release the tension they experience in their daily lives or the stress of the stigma (Agnew, 1992). Furthermore, juveniles may commit illegal activities to meet their needs. They often will attack or flee. Sometimes they may use drugs and alcohol to cope with many of the negative aspects in their lives.

C Fa -ba ed P g a

This particular population of juveniles needs extra assistance in maintaining long-term and short-term goals. Many state and local governments, as well as nonprofit providers, have programs designed to reinforce healthy parent-child relationships and develop successful outcomes for both children and parents. Many communities, nonprofit organizations, churches and faith-based organizations offer a variety of social services to assist people in prison as well as their children. The absence of an incarcerated mother or father has a significant impact on delinquency, so these groups also provide mentoring services that help children build relationships with their incarcerated parents (Garland, Kane, & Nickel, 2009).

The Big Brothers Big Sisters program Children of Promise has a mentoring program that is designed to impact children with an incarcerated parent. The workers pair each child with a caring committed mentor who can teach them life skills

nile delinquents when a parent has a history of incarceration? The findings of this study revealed that, in response to the research question, African American males are more often delinquent than females and other minorities. The average age of subjects in the sample range was 13-18 years old, for a mean of 16 years old. Females had a 38.7% property crime rate, while males had a

PARENT-CHILD
RELATIONSHIPS
AND THE INTENSITY

Methods

Data Source and Sample

The data comes from the National Longi-

els of parental attachment and involvement. For girls, the associations remained significant. For boys, after controlling for background variables and family structure, the associations between the parent-child relationship variables and sexual behavior were no longer significant.

Discussion

The strongest findings from our study focused on the associations between sexual behavior and parent-child relationships. Results suggest that strong parent-child relationships tend to discour-

age sexual behavior within romantic relationships, especially for daughters. Perhaps as the adolescent spends more time with parents, the parents' values have more of an impact on the children, especially when it comes to adolescent sexual behavior. Future researchers could replicate this study for more current data. Since we used the first wave of data, this study was a cross-sectional study. A longitudinal study would better test causality between parent-child relationships and intensity in adolescent romantic relationships. Lastly, future researchers could create their own study to include more in-depth measures that are tailored to their interests.

References

Cavanagh, S. E., Crissey, S. R., & Raley, R. K. (2008). Family structure and adolescent romance. *Journal of Marriage and Family, 70*, 698-714.

FROM DROPPED
OUT TO CHECKED
IN: A SNAPSHOT
OF ALTERNATIVE
EDUCATION

had yet to earn a diploma or general education development (GED) certificate and were not enrolled in school (U.S. Department of Education, 2011). Engaging and encouraging these students to continue their education is problematic. Currently, in the United States, experts are examining alternative education as a viable option to help combat this educational dilemma. This study used both a literature review and an original study in an attempt to answer the following questions: (1) What percentage of dropouts in the selected area elect to attend alternative high schools? (2) What is the structure of this alterna

answers were compiled into graphs. Write-in responses were listed and used to answer questions and address statements.

Results

Question 1: What percentage of dropouts in the selected area elect to attend alternative high schools?

The answer was unclear because the alternative school works as a program within the district's high schools and because not all students choose to immediately continue their education at the alternative school.

Question 2: What is the structure of this alternative school?

Currently, the alternative school uses a

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