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MESSAGE FROM THE EDITORIAL BOARD

USC Upstate is proud to announce the publication of the fourth volume of the *USC Upstate Undergraduate Research Journal*. This Journal provides a glimpse into a few of the many high quality research activities conducted by the talented faculty at USC Upstate. The Journal is a compilation of outstanding papers from numerous disciplines submitted by undergraduate students who have been involved in faculty-mentored research, scholarly, or creative activities. Undergraduate students involved in faculty-mentored extra-curricular projects enter the work-force with an enhanced skill set, including better problem solving, critical thinking, and team-working skills. Since many students who are educated at USC Upstate become employed in the region, support of academic research has a direct and positive impact on the Upstate of South Carolina.

We would like to express our sincere thanks to STÄUBLI for their generous funding of this Journal. We would like to especially thank DAVID ARCENEAUX, JOE GEMMA, CHAD HENRY, and JIM COOK for their continued support. Many thanks also to SUSAN HODGE for her support in securing this funding. Such support from prominent regional businesses and organizations is greatly appreciated and essential for the advancement of academic research in the Upstate. Stäubli is a mechatronics solution provider with three dedicated divisions: textile machinery, connectors, and robotics. With a workforce of over 3000, the company generates a yearly turnover surpassing 1 billion Swiss francs. Originally founded 1892 as a small workshop in Horgen / Zurich, Stäubli today is an international group with its head office in Pfäffikon, Switzerland. To learn more, please visit http://www.staubli.com.

We would like to thank the contributing authors for providing such a rich variety of outstanding articles on a broad range of exciting topics. A special thanks to VERONICA QUICK, Graphic Design Artist in the USC Upstate University Communications Office, for designing the outstanding cover of this volume of the Journal. Thanks also to LES DUGGINS for taking many of the pictures of the contributing authors. Many thanks to ELAINE MARSHALL, Director of Sponsored Awards, for making the grant writing process at USC Upstate a smooth and often fruitful process. Finally, we would like to take this opportunity to thank DR. MARSHA DOWELL, Senior Vice Chancellor for Academic Affairs at USC Upstate, who is dedicated to enhancing faculty and student research efforts at USC Upstate.

If you have any questions or comments about the Journal, or would like to receive a printed copy of the most recent volume of the Journal, please contact Dr. Sebastian van Delden, (864) 503-5292, svandelden@uscupstate.edu. The Journal is also available online, please visit the following website: http://www.uscupstate.edu/ResearchJournal.

Enjoy!
The Editorial Board

UPSTATE
University of South Carolina Upstate
THE EDITORIAL BOARD

Dr. Sebastian van Delden
Editor-in-Chief

Dr. van Delden is an Associate Professor of Computer Science and Director of Research. His research interests include Natural Language Processing, Computer Vision, and Robotics. He has published works in the Language and Computers book series; The Journal of Data and Knowledge Engineering; The International Journal of Artificial Intelligence Tools; Lecture Notes in Artificial Intelligence book series; and several others.

Dr. June Carter
Associate Editor

Dr. Carter is a Professor of Spanish in the Department of Language, Literature, and Composition and the Director of the Center for Teaching Excellence. Her research interests include Latin American narrative and film, Afro-Hispanic literature, Latin American female writers, and US Latino/a literature. She has published works in Anuario de Letras; Latin American Literary Review; Caribbean Quarterly; The Rocky Mountain Review; Prismatic Cabral; Studies in Afro Hispanic Literature; and several others.

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Associate Editor

Dr. Lancaster is a Professor of Business Management. Her research interests include Operations Management and Statistics. She has published works in Interfaces; the European Journal of Operational Research; the Production and Inventory Management Journal; the Socio-Economic Planning Sciences Journal; and several others.

Dr. Gamal Elnagar
Associate Editor

Dr. Elnagar is a Professor of Mathematics. His research interests include Optimal Control Theory in Climate Modeling and Economic Applications, and Numerical Solutions of Nonlinear Conservation Laws. He has published works in the following International Journals: Computer Mathematics; Numerical Functional Analysis & Optimization; Computational & Applied Mathematics; Differential Equations & Applications; and several others.
Universities benefit substantially when faculty members are awarded external grant monies for research or service projects. Applying for grant opportunities is a very time consuming and tedious process which often times goes unrewarded since most opportunities are highly competitive with only a small percentage being funded. Grant monies are often used to support student research assistants and thus can have a very positive impact on a student's academic experience. We would like to congratulate all USC Upstate faculty members who have recently been funded, and take this opportunity to spotlight Dr. Jack Turner, Professor of Biology in the Division of Natural Sciences and Engineering and Director of the Watershed Ecology Center.

Dr. Jack Turner was hired to teach Microbiology and Ecology at USC Spartanburg in 1974. He had just finished his Ph.D. at the University of Oklahoma. At the time he was hired, this small college had only two years of academics but had high hopes that it would soon reach the magic number of 1,000 full time students in order to develop four-year programs.

From the very start, Dr. Turner taught several new courses with labs and engaged in consulting research opportunities with the Milliken Research Center, working on Microbiology problems. At the time of his appointment, research requirements and support at USC Spartanburg were minimal. Dr. Turner took it upon himself to continue his research on his own time and off campus. That started a long period of time of home research mostly in the area of textiles. In the early part of this era, he worked on Mildew and how to control it on a commercial scale. For almost a decade, Textile Rental Services of America awarded Dr. Turner grants ranging from small amounts of $1,000 to larger amounts of $10,000 to finance most of this effort. Dr. Turner hired students, giving them invaluable practical experience, and purchased small pieces of equipment that ultimately were housed in the Microbiology lab. Dr. Turner also continued to do small projects for the Milliken Research Center most of which were in the $1,000 range.

In the early 1990s, Dr. Turner wrote a 319 water quality grant to do a water quality survey of the Pacolet River Watershed. This started a long run of water quality projects some of which were funded by Spartanburg Water and South Carolina DHEC. Several were partnership projects with Clemson University. The one item that all of these projects provided was money for student support plus excellent practical experience in disciplines such as Microbiology and Chemistry. Many of the students who worked with him on these projects went on to medical or graduate school, or to work in laboratories in the region. Several of Dr. Turner's students have also given talks at the South Carolina Academy of Science and have won awards for their research achievements.

Dr. Turner has been at USC Upstate for 38 years and during that time he has always maintained an ongoing research program in addition to his normal teaching load plus an active community outreach program.

“I have no way to calculate the total amount of money that I have brought into the institution from the variety of projects that I have done. The amount of money is of little importance to me; the real value is what has been provided to the USC Upstate students in the form of experience and financial support.”
## All Grant Winners (2010-2011)

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Funding</th>
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<tr>
<td>Hope, Deryle</td>
<td>Spartanburg Scholars Academy</td>
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</tr>
<tr>
<td>Herzberg, Tina</td>
<td>Preparing Highly Qualified Personnel to Serve Children with Visual Impairment (Combined Personnel Preparation 84.25K)</td>
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<td>Special Education Preservice Improvement 84.325T</td>
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<td>Herzberg, Tina</td>
<td>The Possibilities are Endless: Promoting Braille Throughout SC</td>
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<td>Merriweather, Helen</td>
<td>ACHIEVE 2010-11</td>
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<td>Wiegert, Elaine</td>
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<td>Mitchell, Cassandra</td>
<td>Upward Bound</td>
<td>$285,915</td>
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<tr>
<td>From, Heidi</td>
<td>Child Care Access Means Parents in Schools</td>
<td>$52,173</td>
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<tr>
<td>Izzard, Marilyn</td>
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<td>Williams, George</td>
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<td>Stockwell, John</td>
<td>SFSF - Year 2 - Utilities</td>
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<td>Fulbright, Ron</td>
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<tr>
<td>Beck, Judy</td>
<td>Virtual Child Development Center</td>
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<td>SC Quality Forum</td>
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<td>Cole, Elizabeth</td>
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<td>Herzberg, Tina</td>
<td>MGS: BrailleSC: Accessible Design for Digital Resources</td>
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<td>Davis, Andrea</td>
<td>The Impact of Social Networking Sites on College Students’ Awareness and Involvement in Political and Social Events</td>
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<tr>
<td>Turner, Jack</td>
<td>Watershed Ecology Center Education Program</td>
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<tr>
<td>Love, Charles</td>
<td>The College of Educational Enrichment</td>
<td>$56,138</td>
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<tr>
<td>Turner, Jack</td>
<td>Microbial Study</td>
<td>$200</td>
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**Note:** The funding amounts are for the respective years as indicated in the table.
JAKE HENNET is a junior Honors Student at USC Upstate. His major is Computer Science with a minor in Mathematics. During his time at Upstate, Jake has been active in Opportunity Network as well as the Computer Science club. He has tutored students in many courses, including Mathematics and Spanish classes. Jake has been awarded the Palmetto Fellows scholarship and Chancellor’s scholarship, and has maintained the required GPA to keep both of these awards throughout his entire enrollment. In addition to his academic achievements, Jake volunteers with Camp Spearhead, a Greenville-based camp for children and adults with special needs. Jake also volunteers with Miracle Hill Ministries, a homeless shelter that operates throughout the Upstate. In his home town of Enoree, SC, Jake has been selected as the youth (sixth to twelfth grade) and children’s (below sixth grade) director at Enoree First Baptist Church, which includes teaching youth and children weekly and planning events like the semi-annual clothing giveaway hosted by the Church. Jake plans to graduate in May 2013. After graduation, he hopes to develop a reputation of excellence in software development, through large scale projects for banking and similar industries. After gaining practical experience, Jake is open to pursuing a Master's Degree in the field that best enhances his work at Georgia Institute of Technology or University of North Carolina, Chapel Hill.

“When I first entered the Honors Program at Upstate, I expected a slightly more difficult workload - nothing more. What I got was something else entirely. Honors classes have encouraged me to step out of my comfort zone and more fully realize my potential as a student and as an individual. The classes are demanding, but this challenge promotes hard work in school as well as in all my other endeavors. The program offers the opportunity to spend a semester in Washington, D.C. as well as outside the country, proving that the sky is the limit with the honors program since it allows you to achieve what some may never have the chance to even try. These benefits, combined with regular honors events, form a fantastic program enabling all its members to make the most of the education experience here at USC Upstate.”

The Honors Program at USC Upstate provides an enriching educational opportunity for motivated students committed to academic excellence by offering a challenging curriculum of honors courses, exciting seminars, student-faculty conversations, extracurricular activities, and other honors opportunities. For more information please contact DR. THOMAS MCCONNELL, (864) 503-5681, tmconnell@uscupstate.edu, http://www.uscupstate.edu/academics/honors/default.aspx?id=2397.
NON-TRADITIONAL STUDENT SPOTLIGHT

SONDRA QUALEY lived in the Washington, D.C. area for over 30 years before she and her husband moved to Spartanburg, SC in 2003 to be closer to family. Sondra had been the Director of Finance for a non-profit in Washington, D.C. for most of her career. After she tried to find similar work in the Upstate and was unsuccessful, she decided to return to school to get the credentials she needed to be competitive in the job market.

While pursuing a Business Administration degree at USC Upstate, Sondra took a creative writing course as an elective. “Before I took the course, I approached Dr. Thomas McConnell and asked him if he thought I might pass it since I had never written anything before. His assurance gave me the confidence I needed to enroll and do well in course.”

After that one single course experience, Sondra changed her degree focus from Business to Interdisciplinary Studies and continued to take English and Creative Writing courses. She began writing about her early years in WV and presented a memoir entitled “Moments in Time before Moving Day” at the 2011 SC Upstate Research Symposium, hosted by Milliken & Company on April 15, 2011. “I have thought of myself as a scruffy kid from the hills of WV and I was very honored to be able to present my story at the Symposium alongside serious researchers.”

Sondra graduated from USC Upstate in May 2011 with a Bachelors degree in Interdisciplinary Studies. She is currently tutoring students through the Success Network at Spartanburg Community College. “I would like to thank DR. THOMAS McCONNELL for his encouragement and DR. MARILYN KNIGHT for her continued interest in my stories.”

Sondra has been married to Skip for nearly 37 years. Although they do not have children, they have a menagerie of rescued animals including two dogs, three cats, and one naked African Grey parrot. Her life has been filled with interesting experiences. She shook hands with Mikhail Gorbachev, former Soviet Union President, when his motorcade stopped on the corner of Connecticut Ave and 18th Street in Washington, D.C. She sat beside former President Bill Clinton’s viewing box during his first inaugural parade. She has flown into the Grand Canyon and over Mt. St. Helens. She protested on the steps of the Pentagon against the Vietnam War and was on 14th Street during the burning of Washington, D.C. after the assassination of Martin Luther King, Jr. She burned her bra on the boardwalk of Atlantic City, NJ for Women’s Lib.

“I survived poverty in the Appalachians of West Virginia, and now I have completed my lifelong dream of obtaining a college degree. One never knows where the next turn in the road may lead so I am anticipating many more good things to come. So far, I have been blessed.”
PERCEPTION OF DIALECT IN SOUTHEASTERN CHINA

ABSTRACT
China has a rich linguistic diversity, including hundreds of dialects. However, with the modernizing campaign to spread Mandarin and English, these dialects are now in danger. In order to increase awareness of dialects, questionnaires and interviews have been conducted mainly in Southeastern China and Beijing to research people's attitudes toward dialect versus Standard Mandarin.

Keywords: Dialect, Mandarin, Southeast, Beijing, China, Linguistic Diversity

JINWEN ZENG is an International student from China, majoring in Communications with a concentration in Journalism. She came to America and USC Upstate last August and took Dr. Marlow's independent study course this spring. “I was not so fluent or accurate in expressing myself in English at that time, but Dr. Marlow is very patient and kind, always explaining the material very carefully to me. From him, I learned how to do research and write a research paper in English. Moreover, through his teaching, I started to view my own culture from different angles and understand the significance of linguistic diversity.”

DR. DAVID MARLOW is Assistant Professor of English, ESOL, and Linguistics at the University of South Carolina Upstate. His primary research interests focus on affective variables influencing students' involvement in class content - including technological enhancements, learner strategies, and linguistic tolerance. In pursuit of this latter goal he has founded the South Carolina Language & Life Project which seeks to enhance understanding of dialect diversity and promote linguistic tolerance in South Carolina through education, community outreach, and academic research. In addition Dr. Marlow serves as President of the Carolina TESOL organization, faculty advisor to USC Upstate's International Club, and will be leading a study abroad opportunity to China in May 2012. Dave also tries to eke out a little free time each day to spend with his lovely wife and two kids.

1. LINGUISTIC DIVERSITY IN CHINA

China is the largest developing country in the world, with the third largest territorial area and the world's largest national population. The Chinese nation is one of the four oldest ancient civilizations. Because of these factors, China has a rich linguistic diversity. There are 129 kinds of languages spoken by 56 nationalities, including 55 minority groups and the Han people. Some of the minorities speak two or more languages (Ding, 2011). Additionally, in the Han nationality alone, which makes up 90.56% of Chinese people (“2005”, 2006), there are hundreds of dialects.

In ancient China, different dynasties issued different official languages, based on the dialect of their capitals. In 1728, the Empire of Qing Dynasty named the Beijing dialect Guan Hua, which means official language. With the end of Qing Dynasty, people disputed the status of the Beijing dialect. In order to cool down the tension between Northern dialects and Southern ones, in 1913, the president of the Republic of China Ministry of Education, Wu Zhihui, proposed a principle of “authorization word by word.” That is, instead of using a certain dialect as an official language, they invented a new one, called Guo Yu (National Language), combining northern and southern dialects. However, nobody could master this manmade language. After new China was founded, the National Reform of Writing System Conference changed Guo Yu into Putonghua, which, literally translated, means “language of common people.” During this meeting, all the
participants voted to choose a single dialect as the basis for a national language. The Beijing dialect defeated the Southwestern dialect by just one vote. Hence, in 1956, the Chinese state council gave the official designation to this dialect, popularly called Mandarin in the United States (Zhu, 2011). It must be noted here that while the Chinese government declared the Beijing dialect the official language, the government locked in the language of 1956 as “official” and the dialect of Beijing has continued to evolve, and so Mandarin is not directly equivalent to today’s Beijing dialect.

Also, the government issued a directive calling for popularizing of Putonghua Mandarin. In this statement, they required that broadcasting stations all over the country must include Mandarin programs in their everyday broadcasting. Additionally, all broadcasters, actors and singers should be trained to speak Mandarin and all journalists in the country ought to learn Mandarin grammar. After 50 years of popularizing Mandarin, 53% of 1.3 billion people in mainland China are able to speak Mandarin. Mandarin is spoken more by males than females and more by the young than their elders. Only one third of the people aged 60 to 69 are able to speak Mandarin. The results also showed significant differences in urban and rural usage. Over 66% of urban dwellers have mastered Mandarin, while only 45% of the rural population makes this claim (Zhang, 2011).

Furthermore, “with the modernizing campaign to spread Mandarin and encourage the use of English in China as the most useful foreign language, many of the younger generations have failed to learn or master local dialects” (“Dialects”, 2011). Due to the regional limitation of dialects and the mobility of populations, young people do not want to spend their time learning dialects, and a great many of them can only speak Mandarin now.

So what is the difference between dialect and Mandarin? Mandarin is the common language of Han nationality and the official language of China, while a dialect is a particular form of a language that is peculiar to a specific region or social group. Each language has its sub-dialects. In order to give a concrete idea about how different they are, here is how one could introduce themselves in Mandarin and the Manjiang dialect, saying the exact same thing (the bottom line is a word by word translation): “My name is Jinwen Zeng. I am studying in America now.”

<table>
<thead>
<tr>
<th>Wode</th>
<th>mingzi</th>
<th>shi</th>
<th>zeng</th>
<th>jinwen.</th>
<th>Wo</th>
<th>zai</th>
<th>meiguo</th>
<th>xuexi</th>
</tr>
</thead>
<tbody>
<tr>
<td>My</td>
<td>name</td>
<td>is</td>
<td>Zeng</td>
<td>Jinwen.</td>
<td>I</td>
<td>in</td>
<td>America</td>
<td>study</td>
</tr>
</tbody>
</table>

As this example demonstrates, the differences between the Manjiang dialect and Mandarin are much larger than the differences between most dialects in the United States. While there are clear connections between the Manjiang dialect and Mandarin, every word in the Manjiang dialect is pronounced differently. This makes communication between speakers of different dialects very difficult.

2. The Importance of This Study

Chinese dialects reflect traditional and precious culture built over thousands of years. They are of great value to our society. However, the rich variation in these dialects often inhibits communication amongst the people in various regions – leading to the directive calling for the popularizing of Mandarin in 1956. Since that time, most of the local dialects have been ignored and shrinking as both the Chinese government and people have given precedent to Mandarin and English. According to a survey taken by Zhang Yaqiu, an elementary school teacher in the province of Shengzho, over 60% of the students in the fifth and sixth grades have little or no skill in a dialect. Moreover, the number increases to nearly 75% for students in the first and second grades (Zhang, 2010). The younger the children are, the less their ability to speak in dialect. The lead author of this paper has personally experience this phenomenon:

“My grandma speaks only our home dialect, knowing only a few words in Mandarin. My mother can speak Mandarin in her daily life but her dialect speech is better than her Mandarin, and my Mandarin is much better than my dialect, though I am still capable to communicate with my grandmother in her dialect. Finally, my little cousin who is in elementary school now, is not able to speak or even understand the rest of us when we speak in our dialect.”
The impending death of dialect has begun to attract official attention. The director of the Chinese Language Application Management Department, Yang Guang, claimed in the 89th Universala Kongreso, “...dialects themselves are a kind of culture, with a considerable use-value and culture-value. Thus, popularizing Putonghwa is not to wipe out dialects; instead, it is to make sure citizens are able to speak a national official language while not eliminating the speaking of dialects” (Yang, 2011). By saying this, Yang Guang shows the Chinese government has realized the importance of dialects and started to pay attention to the maintenance of linguistic diversity through protecting dialects. However, some government messages conflict. On August 8th 2005, China’s State Administration of Radio, Film and Television (SARFT) claimed “Mandarin should be the main language of all TV series (except local drama pieces). Generally, dialects and non-standard Putonghua shouldn’t be used” (“∈ 陔”，2011). Recent increases in dialectal TV programs worry the government. They are afraid that too many dialectal TV programs may become an obstacle for ubiquitous fluency in Mandarin. As the deputy head of the SARFT, Hu Zhanfan, said: “Pure Mandarin must be our broadcasting norm, untainted by improper loans from dialects or foreign tongues” (Teo, 2011 emphasis added).

3. PROCEDURES

For a model for studying dialect, we turned to Jeffrey Reaser’s study on the perceptions of dialects in the United States. Reaser developed a Language Attitude Survey which he administered to students before and after a series of lessons educating students about the logic and value of local dialects. Based on Reaser’s Language Attitude Survey, we developed a Chinese Language Attitude Survey. The two surveys are similar, but because of the differences in language, culture, and the manner of use, the two are neither identical nor directly contrastable.

While Reaser administered his survey in a classroom context, we distributed ours via email. For the primary study, we sent 100 surveys to college students in southeast China, a dialect cluster as evidenced from the Map of Han Dialects. All 100 people responded and answered all questions. Responses indicate that 91 out of the 100 students can speak at least one dialect. Also, as college students, all of them speak Mandarin very well. This gives us a pertinent observation about how dialectal speakers think about dialect and Mandarin. To further investigate these issues, we interviewed 10 of the college students via telephone, asking open-ended questions to solicit deeper opinions about their perception of dialects and Mandarin. As a pilot study for comparing perceptions of dialect in the Southeast with those of students from Beijing, we also sent 20 surveys to college students there. Again, all students responded with answers to all questions.

4. SURVEY RESPONSES

Figure 1 presents the numerical responses of the 100 college students in southeast China, where 91% of the respondents speak one or more dialects. Following Reaser’s example, these data are ordered from the statement with the strongest agreement at the top to the statement with the strongest disagreement at the bottom. A score of 1.0 would indicate universal strongly agree responses while a score of 4.0 would indicate universal strongly disagree responses. 2.5 indicates even responses between agree and disagree.

Based on the responses collected, we found interesting observations worth further research. It is not surprising that nearly all of the respondents suggest that everyone should know and be able to speak standard Mandarin (statement 1: 1.75), since Mandarin is the official language and de facto lingua franca of China. In order to communicate with people from different dialect areas, and to enter college, one must speak Mandarin. However, the responses to statement 11, “Mastering Standard Mandarin is basic to being successful in life,” average to 2.37, indicating only weak agreement.

The respondents in this study appear quite tolerant towards speaking dialects. On item 15, “Dialects are sometimes more useful than Standard Mandarin,” respondents agreed with an average score of 1.94. Congruently, nearly all the respondents strongly disagree with statement 8, “I think people who speak dialects are not very smart” (3.56), and also with statement 6, “Compared with dialect, Standard Mandarin is superior” (3.11). To a large degree, these results are a product of our sample: our respondents are from southeast of China, which has a very high concentration of dialects and dialect speakers. Similarly dialect-tolerant attitudes are also evident in item 5, “There is never a good reason to speak a dialect, we should speak..."
Standard Mandarin” (3.27) and item 2, “Everyone should speak Standard Mandarin every time they talk” (2.82).

It is very interesting that while our respondents agree that “There are good reasons for using non-standard varieties of Mandarin” (statement 14: 1.86), they are also agree that “Students whose Mandarin is not standard will be discriminated against more or less” (statement 3: 1.92). Even so, they do not feel that “Students should be warned or punished for using non-standard Mandarin while studying” (statement 12: 3.23). Furthermore, they do not feel that failing to learn Standard Mandarin indicates laziness (statement 4: 2.89).

For statement 13, “Standard Mandarin is the best language variety to use with my friends outside of school,” responses are nearly split between agree and disagree (2.36). This center-leaning response may be a reflection of students’ awareness that they choose their linguistic code based on the person with whom they are speaking. Students are required to speak Mandarin at school; hence they get used to speaking Mandarin to schoolmates as they grow up. Furthermore in college, students interact with others from all over the country, making Mandarin the only way to communicate as friends often have mutually unintelligible dialects. On the other hand, for friends from the same hometown, speaking dialects promotes closeness in relationships and networking.

The 100 respondents split exactly evenly on statement 9, “Dialects should never be used in writing” (2.5) and with only slight disagreement on statement 10, “Professional authors would never use non-standard Mandarin” (2.67). Even though 91% of our respondents speak a dialect, they do not respond strongly to statement 7, “There are people who do not speak a dialect.” The average response for this statement was 2.24; the slight agreement here indicating that our respondents consider the Beijing accent representative of Mandarin, though linguistically there are differences.

### Table: Summary of Responses

<table>
<thead>
<tr>
<th>Statement</th>
<th>Average Response</th>
<th>Number of Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Everyone should know and be able to speak Standard Mandarin</td>
<td>1.75</td>
<td>100</td>
</tr>
<tr>
<td>14. There are good reasons for using non-standard varieties of Mandarin</td>
<td>1.86</td>
<td>100</td>
</tr>
<tr>
<td>3. Students whose Mandarin is not standard will face discrimination, more or less</td>
<td>1.92</td>
<td>100</td>
</tr>
<tr>
<td>15. Dialects are sometimes more useful than Standard Mandarin</td>
<td>1.94</td>
<td>100</td>
</tr>
<tr>
<td>7. There are people who do not speak a dialect</td>
<td>2.24</td>
<td>100</td>
</tr>
<tr>
<td>13. Standard Mandarin is the best language variety to use with my friends outside of school</td>
<td>2.36</td>
<td>100</td>
</tr>
<tr>
<td>11. Mastering Standard Mandarin is basic to being successful in life</td>
<td>2.37</td>
<td>100</td>
</tr>
<tr>
<td>9. Dialects should never be used in writing</td>
<td>2.50</td>
<td>100</td>
</tr>
<tr>
<td>10. Professional authors should never use non-standard Mandarin</td>
<td>2.67</td>
<td>100</td>
</tr>
<tr>
<td>2. Everyone should speak Standard Mandarin every time they talk</td>
<td>2.82</td>
<td>100</td>
</tr>
<tr>
<td>4. Some people are too lazy to learn Standard Mandarin</td>
<td>2.89</td>
<td>100</td>
</tr>
<tr>
<td>6. Compared with dialect, Standard Mandarin is superior</td>
<td>3.11</td>
<td>100</td>
</tr>
<tr>
<td>12. Students should be warned or punished for using non-standard Mandarin while studying</td>
<td>3.23</td>
<td>100</td>
</tr>
<tr>
<td>5. There is never a good reason to speak a dialect, we should speak Standard Mandarin</td>
<td>3.27</td>
<td>100</td>
</tr>
<tr>
<td>8. I think people who speak dialects are not very smart</td>
<td>3.56</td>
<td>100</td>
</tr>
</tbody>
</table>

*Non-standard Mandarin refers to speaking or writing Mandarin not in a standard way, with strong accent or associating with dialect words.*

**Figure 1.** Summary of college students’ responses from Southeast China
5. Interview Responses

In addition to the surveys, we conducted telephone interviews with 10 randomly selected college students in Southeastern China to investigate more deeply the perceptions of dialect. Due to different backgrounds, diverse answers are given to the same four questions. Questions asked included:

1) What do you think will be the future of dialects in China?
2) Will you teach your children primarily a dialect or Mandarin and why?
3) If there was an organization for protecting dialects, would you participate and why?
4) Do you think dialects will be useful in the future and why?

In response to the first question, four of the interviewees indicated that dialects would not disappear, but six observed that dialects are undergoing decline or convergence. One of the students in Zhejiang Forestry and Agriculture University, told us,

“In my opinion, dialects will gradually fade as they are pushed out by Mandarin and various foreign languages. But they will remain in local regions over a long period of time. It is impossible for dialects to disappear from the historical stage, at least in our lifetimes. However, in response to industrial and commercial development, dialects are seldom used by the newer generations, becoming less frequent in Chinese society.”

The student also reported that nowadays our education focuses more on teaching Mandarin and foreign languages rather than dialects, since we are required to pass the tests of Mandarin and English in school but none for dialects. Along the same lines, another college student in the Jiangsu province, where the local dialects are similar to Mandarin, opines,

“I feel some of the dialects, such as dialects in Dongbei, Tianjing, and Hebei, will have more resilience, since they are interesting and easy to understand. Yet, the Suzhou dialect and Nantong dialect are too difficult to understand. As a result, they are less likely to survive or become popular.”

By focusing on the diversity of dialects, this student points out that different dialects may have different tendencies and this point is reinforced by the nation-wide popularity of comedies which employ Dongbei, as its pronunciation is very similar to Mandarin, making it easily understood by Mandarin speakers. Moreover, unlike Mandarin, which is considered a formal language, the Dongbei dialect appears more casual and interesting.

Another respondent, who immigrated from the Sichuan province to Hangzhou, responded very differently. She reports being maltreated by her classmates in her childhood. “One of my classmates told me because I was an outsider, I was supposed to be bullied,” she complained. This discrimination influenced her perception about dialects. She asserts that all the dialects should be eliminated,

“I can’t understand the bus drivers [who are well-known for speaking local dialects]. I feel people exclude outsiders. For example, in Hangzhou, people treat the ones who speak the Hangzhou dialect as their own people, while they are not so friendly to people who speak different dialects, even in a company.”

She observed that dialects enhance the cohesion of certain area; however, this cohesion also results in the isolation of outsiders.

Responses to our second question, to some degree, explain why dialects may be on the decline. Only two out of ten interviewees strongly insist they will teach their children dialects first, holding the opinion that dialects are unique cultural attributes. Three of the ten plan to teach both, but to concentrate more on Mandarin. The remaining claimed that Mandarin is more useful than dialects and will teach Mandarin to their children instead of their home dialects.
Despite most of them preferring to teach Mandarin, seven of the interviewees said “Yes” they would participate in an organization promoting dialects. They emphasize dialects are intangible cultural heritages and should be protected. This demonstrates that most of the people are aware of the significance of dialects and want to preserve this culture.

All interviewees believe dialects are useful in the future and essential to Chinese. The collective responses can be distilled into three key reasons. First, people feel closer connections toward the others who speak the same dialects – and social cohesion is important in China. Second, learning dialects is basic to understand local cultures. Finally, dialects can be used in comedies to entertain people. Not because the dialects are funny in themselves, but they represent “real” life.

6. COMPARING SOUTHEAST AND BEIJING

As noted in Section 1, ‘Mandarin’ is not completely synonymous with ‘Beijing dialect,’ yet Mandarin is based on the traditional language of Beijing and a great number of people equate the Beijing dialect with Mandarin. Hence it is necessary to hear the voices of Beijing people, specifically, what they think of Mandarin and of other dialects. To this end, we sent 20 copies of the survey to college students in Beijing. With only 20 respondents, this phase of the study must be considered a pilot, but the findings of this pilot point to significant variation and indicate a need for further study. As with the respondents in the Southeast, all 20 responded and answered all questions. Naturally, some of these students are natives of Beijing and some are immigrants to Beijing. Although the surveys were sent randomly, the distribution of Beijing natives and immigrants was evenly divided; ten respondents grew up in Beijing and only speak Mandarin while the other ten have immigrated to Beijing and speak both Mandarin and at least one other dialect. In the discussion below we examine three groups: those from Southeast China (SE), Beijing Natives (BN), and Beijing Immigrants (BI). In Figure 2, we can see the responses from the Southeast track more closely with those of Beijing immigrants than with Beijing natives.

Figure 2. Responses from Southeast China, Beijing immigrants, and Beijing natives

While there is a general tendency of SE and BI to track together, they differ greatly on two survey items: 10 (Professional authors should never use non-standard Mandarin) and 3 (Students whose Mandarin is not standard will face discrimination, more or less). The BI group is much more similar to BN on these items. Beijing residents, both native and immigrant, are more accepting of professional authors using dialect in their writing than those in the Southeast. Beijing residents also deny that dialect users face discrimination, (item 3: BI = 3.0, BN = 2.8) while those in the Southeast feel strongly that dialect users do face discrimination. The
denial from Beijing respondents that users of dialect face discrimination is clear in the data, but directly contradicts the personal experience of both authors of this paper.

7. DISCUSSION

In this study we see that Mandarin carries considerable weight in Chinese society. The concept that Mandarin should be mastered appears to be deeply rooted in college students’ hearts. They believe everyone should know and be able to speak Mandarin. They do not, however, admit to associating dialect with a lack of intelligence, and the respondents from Beijing deny that dialect speakers face discrimination. Research from the United States done by Walt Wolfram suggests that “often, people who hear a vernacular dialect make erroneous assumptions about the speaker’s intelligence, motivation and even morality” (Wolfram, Adger & Christian, 1999). The respondents from the Southeast recognize this as they admit discrimination against non-standard Mandarin speakers exists. The denial of the Beijing respondents that speakers of dialect face discrimination raises many questions – most importantly, “Is the perception accurate?” We suggest three possible explanations for this finding. First, it may be that the people in Beijing chose the ‘ideal answer:’ the answer that should be correct. Second, this finding may be a reflection of our small sample size in Beijing. Finally, it is possible that the authors are wrong; that discrimination based on dialect does not happen in Beijing. This point needs further investigation.

8. CONCLUSION

Today, more and more people express their concern about the decline of dialects. They confirm the value of dialect and proclaim that dialects are in great danger. Internet blog posts like “Save Shanghai Dialect!”, “How many dialects are declining?” and “Support! Dialect!” are emerging daily. Moreover, even government groups, like the Chinese People’s Political Consultative Conference, urge the government to enact policies to protect dialects. However, a great many people also support the ubiquity of Mandarin. There are too many dialects, and most of them are mutually unintelligible, so for business and political purposes, Mandarin is essential to China’s continued success.

REFERENCES

ABSTRACT
By measuring activities such as voting, working for a political party, or contacting political leaders, researchers have long found that young people are less politically active than the general population. Such findings lend support to stereotypes attributed to young Americans as being disinterested and disengaged in political matters. A new generation of literature, however, suggests that young people care very deeply about politics and simply choose other avenues to influence the process. Of particular importance to young people is the opportunity to participate in “issue specific” political activities such as joining interest groups and attending demonstrations. Using survey research drawn from a sample in Spartanburg County, this study tests the relationship between age and various forms of political participation. Correlation coefficients and a regression analysis finds that young people do indeed contribute more time to political organizations than older Americans, despite participating less in other political activities. Given that interest group participation is a more specific method of communicating with government than other forms of political activity, these findings call into question commonly held beliefs about young Americans in the modern era.

KEYWORDS: Interest Group, Political Participation, Age

ALENA GERICKE is a political science major at USC Upstate where she enrolled in the senior seminar course taught by Dr. Goldberg this past spring. “My experience in the class had a significant influence on my future goals in terms of my education and career path. Working with Dr. Goldberg in conducting research not only contributed to my appreciation for political science, it also strengthened my ability to research a topic, collect and analyze data, and draw conclusions from it.” After graduating from USC Upstate this coming December, Alena will be interning with the Office of Science, Technology and Higher Education of the Swiss Embassy in Washington D.C for six months. She also recently applied for a MA program in European Government at the University of Konstanz, Germany. The program consists of studying European Government for one year in Germany and the second year at Rutgers in New Jersey. Alena’s long term goals include getting a Ph.D. in political science and teaching at a four-year college in the United States.

DR. ABRAHAM GOLDBERG earned a Ph.D. from West Virginia University in 2009 and is an Assistant Professor of Political Science. His research and teaching interests lie broadly in public policy and American politics with an emphasis on urban design, social capital, quality of life, and political behavior. Dr. Goldberg’s publications can be found in the Urban Affairs Review and the Journal of Urbanism. He enjoys working with students who are inspired by the research process.

1. INTRODUCTION
Political participation in America consistently holds a prominent place on the political science research agenda. Such research typically leads to pessimistic conclusions about the lack of political engagement in society - particularly among young people. Popular beliefs about young people in America are reinforced with scholarship that criticizes their low rates of participation in the political process. It has been found that
indeed young people are less likely to participate in several political activities than their parents and grandparents (Pika, 1981; Bennett & Bennett, 1990; Astin et al., 1997).

The central argument of this paper is that young Americans are in fact more active in politics than such conclusions would suggest. Despite findings that consistently show lower levels of political activity among 18-35 year old Americans, a new generation of scholarship has begun to ask whether younger segments of the population participate not less in political activity, but in different political activities than their older counterparts (Watts, 1999; Dalton, 2008). For example, scholarship that focuses on the activity of "voting" finds lower participation among young people; however, participating in demonstrations and joining interest group organizations might be the preferred method of political engagement. These alternative political activities are important for a healthy, vibrant democracy as they convey more specific messages to public officials than voting and are arguably more effective in influencing the political process (Verba, Schlozman & Brady, 1995). If it is found that young people are more engaged in political activity than believed, it will be important to rethink the common conclusions made about young Americans as disengaged and uninterested in political matters.

### 2. Political Participation

Political participation is the core of democracy. It is the outlet in which the people attempt to influence their leaders in a self-governing society. Political leaders are unable to act on behalf of the people if the people fail to inform leaders of their desires. Political activity, in a sense, represents the people's voice in government. Despite its importance, scholars have found already low rates of political participation in decline, especially when it comes to younger generations of Americans (Pika, 1981; Bennett & Bennett, 1990; Astin et al., 1997).

Several explanations for a lack of participation among young Americans have been suggested. Pika (1981) argues that older Americans have a greater sense of civic duty, along with higher efficacy as demonstrated by the stronger belief they hold in their ability to overcome bureaucratic hurdles necessary to influence government (Pika, 1981). Rosenstone and Hansen (1993) point out that younger generations are less politically active because there have been fewer salient issues as compared to the generations which faced events such as the Civil Rights movement, Watergate, and the Vietnam War. Further, they point out that people are more likely to participate in politics when they are recruited into the process, and the recruitment efforts of political parties have significantly declined. Younger people are less likely to be recruited into participation, thus leading some to believe that the system is failing young people as much as the reverse (Rosenstone & Hansen, 1993). Other research examines political attitudes and finds that citizens who hold consistent, coherent political attitudes are more likely to become politically active (Verba, Schlozman & Brady 1995; Breakwell, Fife-Schaw & Devereux, 1989). As such, young people are less likely to participate in politics because their attitudes are not as developed as those of their older counterparts (Breakwell, Fife-Schaw & Devereux, 1989). Regardless of cause, political participation research emphasizes the lower rates among young people compared to the rest of the population (Pika, 1981; Bennett & Bennett, 1990; Astin et al., 1997; Smith, 1999).

On the other hand, a small minority of researchers present a compelling case that rather than in a decline, political participation is evolving. Most prominently, Russell Dalton (2008), author of The Good Citizen, argues that Americans are changing their views on what it means to be a "good citizen." While acknowledging that some political activities such as voting, contacting a political leader, campaign work and community work to solve local problems have declined from 1967 to 2004, Dalton (2008) finds that rates of participation in other political activities have steadily grown. For example, the number of people who participate in protests and demonstrations has steadily increased. Protesting and demonstrations differ from other political activities in that they are more issue specific (i.e., conveys more specific information) and typically request political leaders to take specific action (Dalton, 2008). In looking at variations by age, the author found that while older generations are more likely to vote and belong to a political party, younger age groups seem to engage more in issue specific actions such as boycotts and demonstrations (Dalton, 2008).

Inglehart (1997) supports Dalton’s argument by noting a natural progression that occurs within societies where worldviews among residents change with the economic and political environment. As the political and economic environment changes, so too do our norms and values in terms of civic duties and responsibilities (Inglehart, 1997). While our grandparents viewed voting as their civic duty, younger generations today might place a higher emphasis on caring for others or volunteering their time and energy to a specific cause they
believe to be important. This belief is supported by a survey conducted by the Center for Democracy and the Third Sector at Georgetown University. According to the study, older Americans who are part of the WWII and postwar boomer generation were more likely to think of citizenship in terms of their duty to vote in elections, to follow the laws and to support the social order. Younger residents, however, were more likely to believe that the primary attributes of a good citizen include concern for others, independent thinking and engaging in non-electoral politics (Center for Democracy and the Third Sector at Georgetown University, 2005). Some believe that different orientations toward citizenship are rooted in a psychological framework more commonly found among younger people (Watts, 1999; Harris, Duncan & Boisjoly, 2002). For example, younger people are described as more “actionistic” than others (Watts, 1999). Furthermore, young people are less likely to behave with “adherence to conventional norms” (Harris, Duncan & Boisjoly, 2002).

### 3. HYPOTHESES

Based on the research presented above, this article argues that younger people (18-35) are less likely to vote, work for a political party/candidate and contact a political leader, but that they are more likely to participate in interest organizations than their older counterparts. Participation in interest group organizations will be examined by whether a person is a member of a group, whether they attend meetings, how much time they put into the group, whether they served on a committee within the group, whether they worked on special projects for the group, and whether they helped organize a meeting for the group. The following 6 hypotheses will be tested:

- **(H1):** People between the ages of 18-35 are more likely to be a member of an interest organization than people of the age group 35+.

- **(H2):** People between the ages of 18-35 are more likely to have attended any meetings in the past 12 months of the organizations they are involved in than people of the age group 35+.

- **(H3):** People between the ages of 18-35 tend to give more time per week to work for the organizations they are involved in than people of the age group 35+.

- **(H4):** People between the ages of 18-35 are more likely to have served in a committee within the organizations in the past 12 months than people of the age group 35+.

- **(H5):** People between the ages of 18-35 are more likely to have given time for special projects such as demonstrations, marches, handing out flyers, raising awareness or any other type of activity that required to give time, in the past 12 months, than people of the age group 35+.

- **(H6):** People between the age of 18-35 are more likely to have helped organize meetings in the past 12 months of the organizations they are involved in than people of the age group 35+.

- **(H7):** People older than 35 are more likely to have voted in any government elections in the past 4 years than people between the ages of 18-35.

- **(H8):** People older than 35 are more likely to have taken part in any of the traditional means of participation (i.e. voting, working for a political party/candidate or contacting a political actor) over the past 4 years than people between the ages 18-35.

### 4. METHODOLOGY

To test these hypotheses, a survey was conducted in Spartanburg, South Carolina, asking respondents to answer questions about their levels of political and organizational involvement. Surveys were distributed by the lead author of this paper until 50 had been completed. As the sample size is relatively small, the findings of this study cannot necessarily be generalized to the nation, or perhaps even the city of Spartanburg.
However, the survey and its results serve as a starting point and provide a general idea of participation trends in relation to the two age groups.

4.A Dependent Variable

The key dependent variables of this study are participation in interest organizations and more traditional political activities. To measure interest group participation, respondents were asked whether they are a member of an organization (environmental, business, women’s rights, charity, political issue) (Dalton, 2008). An additive index was constructed by adding one point for each type of organization in which the respondent is a member. If a respondent checked environmental and business organizations for example the case received a 2. The higher the score on the additive index, the more different types of organizations the individual is involved in, with 6 being the highest, meaning that the individual is a member of all of the listed types of organizations. To measure the level of involvement in interest groups, respondents were asked whether they attend meetings, how much time they put into the group, whether they served on a committee within the group, whether they worked on special projects for the group, and whether they helpedorganize a meeting for the group. Serving on committees, working on special projects, and helping to organize meetings is determined by “yes” or “no” questions based on the past 12 months. Time commitment is determined by the average amount of time given per week in the past twelve months.

To measure participation in more traditional political activities, respondents were asked the following question: “In the past 4 years, have you voted in any government elections, done work for one of the political parties or candidates and/or spoke or written to a local or city county official?” (Verba, Schlozman & Brady 1995). Again, another additive index was created. The higher the score on the additive index for the individual case, the higher the level of participation, with 3 indicating the highest level of participation.

4.B Independent and Control Variables

The key independent variable of this study is age, since age is expected to be related to certain types of participation. In the survey people were asked what year they were born (Verba, Schlozman & Brady, 1995; Wolfinger & Rosenstone, 1980). The survey asked respondents to indicate the highest level of education they completed. Eight options ranging from “less than High School” to “graduate or professional degree” were provided.

4.C Methods

Correlations for the independent variable “age” are run with each of the dependent variables including the amount of organizational memberships, meeting attendance, time given per week, committee involvement, time given to special projects, meeting organization, voting and the “political participation index” (i.e., voting, campaign work, contacting a leader). Correlations are used to determine the strength and direction of the bivariate relationships. To investigate whether changes in the dependent variables are actually associated with the primary independent variable, a regression analysis is included, controlled for education. The regression analysis will be calculated only for H1 and H8.

5. RESULTS

The results of the correlation analysis are reported in Table 1. Age appears to be correlated with participation in interest groups as expected (see H1). The relationship between membership in an interest organization

---

1 “Yes’ I voted, done work for a political party, contacted a representative = 1; ‘no’ = 0 -> “political participation index”
2 Birth year calculated into age
3 Less than high school= 1; high school = 2; some college= 3; associates degree= 4; BA= 5; MA= 6; graduate or professional degree= 7
and age \( r = -0.53 \) shows a correlation of the two variables in the expected direction, as age goes up membership in interest groups goes down. The dependent variables meeting attendance (H2), time (H3), committee (H4), special projects (H5) and organize meetings (H6) show moderate correlations in the expected direction. This supports H2 – H6 insofar as age increases involvement in terms of time and skills given to the organization decreases. Younger people seem to be more involved in interest groups than their older counterparts.

**Table 1.** Correlation of Independent variables with Age.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>(H1) Total Organizations</td>
<td>-0.53</td>
</tr>
<tr>
<td>(H2) Meeting Attendance</td>
<td>-0.29</td>
</tr>
<tr>
<td>(H3) Time (per week)</td>
<td>-0.19</td>
</tr>
<tr>
<td>(H4) Committee</td>
<td>-0.27</td>
</tr>
<tr>
<td>(H5) Special Projects</td>
<td>-0.39</td>
</tr>
<tr>
<td>(H6) Organize Meetings</td>
<td>-0.24</td>
</tr>
<tr>
<td>(H7) Voting</td>
<td>0.29</td>
</tr>
<tr>
<td>(H8) Political Participation Index</td>
<td>0.47</td>
</tr>
</tbody>
</table>

For the dependent variables voting (H7) and total political participation as measured by the additive index (voting, campaign work and contacting a political figure) (H8), Table 1 reports that there is a relationship between age and political participation. The table also shows a correlation in the expected direction, namely as age increases, political participation and voting also increase. For total political participation the correlation is fairly strong (0.47).

The results of the regression analysis for organizational involvement (controlling for education) are reported in Table 2.

**Table 2.** Regression Analysis of Total Organizational Involvement with Age Controlling for Education

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>B</th>
<th>Std. Error</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>.917</td>
<td>.340</td>
<td>.010**</td>
</tr>
<tr>
<td>Age</td>
<td>-.029</td>
<td>.008</td>
<td>.001**</td>
</tr>
<tr>
<td>Education</td>
<td>.25</td>
<td>.087</td>
<td>.006**</td>
</tr>
</tbody>
</table>

**Statistically Sig. at. 01 level; R Square .237**

As demonstrated in Table 2, even controlling for education, the relationship between age and organizational involvement is moderate and negative. For education a positive relationship can be reported, because as education goes up, organizational involvement also goes up (.25). Both Independent Variables, age and education, are statistically significant at the .01 level.

Table 3 reports the results of the regression analysis for political participation (controlling for education)

**Table 3.** Regression Analysis of Political Participation with Age Controlling for Education

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>B</th>
<th>Std. Error</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-.026</td>
<td>.271</td>
<td>.924</td>
</tr>
<tr>
<td>Age</td>
<td>.018</td>
<td>.007</td>
<td>.007**</td>
</tr>
<tr>
<td>Education</td>
<td>.053</td>
<td>.069</td>
<td>.445</td>
</tr>
</tbody>
</table>

**Statistically Sig. at .01 level; R Square .232**

Table 3 shows that for political participation which includes voting, campaign work and contacting a political figure, the relationship between age and political participation, even when controlling for education is still positive which is the expected direction, because as age goes up, political participation should also increase. The relationship is also statistically significant at the .01 level.
6. CONCLUSION

Generally the data of this study supports the main theory that younger people seem to be more likely to be a member of an interest organization and to give more time to the organizations they are a member of. The older age group (35+) on the other hand tends to be more likely to take part in more traditional acts of political participation such as voting, campaign work and contacting a political leader as was expected based on previous research done on political participation. These findings call into question the overly pessimistic assumption that young people are not politically active. It appears they choose to engage the process through methods different from their parents and grandparents.

Although the data supports the theory, there are a number of recommendations that need to be made in terms of future repetitions of the performed study. First, the sample for a future study should more closely represent the entire nation and should be significantly larger. Furthermore, one should control for more variables such as gender and race for example. It would be interesting to see if race also has an impact on participation in interest organization. While there are many improvements that could be made for future research, this study serves as a starting point in the investigation of the participation of the younger segment of the American population. Also, findings will be very relevant especially to any type of political figure because organizational involvement might be where the voice of the people lies and as stated earlier, the voice of the people is vital for democracy.

REFERENCES

THE EFFECTS OF EXPERIMENTER ATTIRE AND PERCEIVED PERSONALITY ON PERFORMANCE

ABSTRACT
Attire and demeanor can influence perceptions; this is especially important in a college setting where stereotypes about fellow college students based on attire and actions affect opinions. The purpose of the current study was to determine the effect of an experimenter's attire and demeanor on performance of a standardized task, to evaluate the accuracy of recall of an experimenter's attire, and to investigate participant evaluations on perceived personality traits of an experimenter. This study used a 2 (Attire: casual or conservative) x 2 (Demeanor: warm or cold) between-subjects factorial design. The results showed that the conditions of attire and demeanor influenced participants' ability to recall information about the experimenter as well as influenced their ratings of specific personality traits about the experimenter. This research contributes to the literature on the effects of attire and demeanor of an experimenter on participant's perceptions. Implications for making spontaneous judgments of people and their personalities are discussed.

KEYWORDS: Attire, Demeanor, Person Perception.

KATHERINE HOWELLS is currently a senior psychology major at the University of South Carolina Upstate. As a junior she became interested in research opportunities and began working on several projects under the supervision of Drs. Keen, Griffin, Lehman and Purdy. Her research focused on how attire and demeanor can influence perceptions, especially in a college setting where stereotypes about fellow classmates based on appearance affect opinions. As a junior she presented a poster of her award-winning paper at the Upstate Research Symposium held at Milliken & Company in Spartanburg, SC. As a senior, she continues her research on how surface factors affect judgments. She aspires to pursue graduate studies in the field of psychology. Outside of school, Katherine enjoys working out, reading, and listening to music. “I am very grateful for the experience of working with these professors and excited to use what I have learned in graduate school as well as in my future career in psychology.”

DR. KIM PURDY is an Associate Professor of Psychology. She earned a degree in Experimental Psychology from Queen’s University in Kingston, Ontario, Canada. Dr. Purdy currently teaches courses on Sensation and Perception, Cognitive Neuropsychology and Human Communication. Her research is in the area of attention. Active research projects in Dr. Purdy's lab include metacognitive demands of interpreting, the cognitive benefit of expert performance in interpreting tasks, and an investigation into automatic and controlled processes that impact the availability of cognitive resources during instances of craving. Dr. Purdy has published articles in the Canadian Journal of Experimental Psychology, the Journal of Experimental Psychology: Human Perception and Performance, and the Proceedings of the ASME International Mechanical Engineering Congress: Dynamic Systems and Control Division. Dr. Purdy believes that one of the strengths of the psychology program at USC Upstate is the opportunity for undergraduate research experiences. Dr. Purdy works with several research students each year, teaching and mentoring them so that they may present their research at undergraduate conferences.
DR. STEFANIE KEEN is an Assistant Professor of Psychology. She earned a Ph.D. in Clinical Psychology from Indiana University. Dr. Keen currently teaches a variety of undergraduate courses including Child Abuse and Neglect, Developmental Psychology, and Abnormal Psychology. She is also engaged in an active research program related to the psychological effects of traumatic stress including intimate partner violence and child maltreatment, and has published articles in Clinical Psychology Review and the Journal of Rehabilitation Research and Development and a book titled Child Abuse and Neglect. Dr. Keen enjoys spending time with her family, including her two young daughters – “I’m often horrified by what young children are forced to suffer, and amazed by their resilience.”

DR. LEIGH LEHMAN is an adjunct faculty member in the Department of Psychology. She earned a Ph.D. in Rehabilitation Science from the University of Florida. Dr. Lehman currently teaches Psychological Statistics and University 101. Her research interests relate to assessment development and validation, views of students with disabilities, and fear of pain. She has published articles in the Journal of Hand Therapy, American Journal of Occupational Therapy, and Disability and Rehabilitation. Dr. Lehman enjoys spending time with her family, exercising, and being outdoors. “As a former student at USC Upstate, I have so many people, including many here at Upstate, to thank for helping me along my journey as a student. I hope to be able to do the same for those who I now teach.”

DR. JAN GRIFFIN is a Professor of Psychology at USC Upstate with more than 30 years experience working with undergraduate students on independent research projects. Her interests focus around the effects of social stigma in today’s society. Over the years, she and her students have presented research on such timely topics as attitudes toward dual-working couples, recognition of characteristics that lead to school violence after Columbine, fairness of providing accommodations for individuals with ADHD after the introduction of the ADA Act, missing depression in the elderly as the population ages, the unintended effects of the “No Child Left Behind” Act, potential fallout from taking Family Medical Leave Act (FMLA) leave at work, prejudice towards Arab-Americans after 9-11, and most recently, social acceptance of individuals with disabilities on college campuses. She collaborates widely with colleagues, and their research often is recognized for its excellence at conferences and presentations. “Our student talent at USC Upstate continues to amaze me. At whatever venue they present their research, from the nationally acclaimed, Posters-on-the-Hill in DC, to the more local Upstate Research Symposium, psychology students from Upstate excel.” Her most recent collaborators are Drs. Stefanie Keen and Leigh Lehman.

1. INTRODUCTION

Personality consists of traits or characteristics which make up an individual’s continuous, habitual patterns of acting, thinking, and behaving. A person’s perceived personality is important because it may affect the possibility of forming future relationships with others. There are certain factors such as presentation, style of dress, body language, and length or lack of eye contact that all contribute to a stranger’s perception of another’s personality. Two factors in particular that have been shown to affect perception are attire and demeanor. Littrell and Littrell (1982) discovered that the attire of a counselor (i.e., formality of dress) affected how willing participants were to discuss concerns. They found that counselors dressed in a casual, young, more comfortable manner or those dressed in a more up to date, fashionable manner were preferred compared to those who dressed in a more conservative manner. The authors concluded that this effect was the result of students identifying with the counselors based upon the similarities of dress. Rogers, Wilson, Gohm and Merwin (2007) found that the warmth of the experimenter positively influenced how open and engaged participants were in a writing task. Further, Namenek and Schuldt (1997) found that participant performance was enhanced when the experimenters were rated high on levels of genuineness,
understanding, and friendliness. The research conducted in this study contributes to the potential for enhanced performance of participants in future data collection settings. Perhaps with the right attire and demeanor an experimenter could expect greater performance or more reliable performance. Therefore, the focus of the present study was to evaluate the effect of attire and demeanor on participants’ performance on a standardized task and the accuracy of their recall of an experimenter’s attire. A 2 (Attire: casual or conservative) x 2 (Demeanor: warm or cold) between-subjects factorial design was used. Based on Littrell and Littrell’s work, it was thought that participants would be more comfortable and, thus, more likely to identify with the experimenter in the casual dress conditions. Therefore, it was predicted that participants would remember more about an experimenter’s attire in the casual conditions due to their increased level of comfort. Based on previous research by Rogers et al. and Namenek and Schuldt, it was predicted that performance and recall of an experimenter’s attire would be highest in the warm demeanor conditions. Although no predictions were made, evaluations of the perceived personality characteristics of the experimenter were also assessed.

2. Method

Forty-five introductory psychology students were given a sheet of 24 identical word scrambles to complete. The first 12 scrambles consisted of Christmas-related words, and the last 12 scrambles consisted of Thanksgiving-related words. Since the experiment was conducted during the last week of November, themed categories were chosen in order to facilitate participants’ completion of potentially difficult word scrambles (e.g., ogkcitssn - stocking, terciebaoln - celebration).

The experimenter varied her attire for each of four testing sessions. For half of the testing sessions she wore casual attire (i.e., jeans, a tee-shirt, tennis shoes, no makeup, and hair wavy and frizzy underneath a black hat). For the remaining testing sessions she wore more conservative attire (i.e., black slacks or black skirt, a plain shirt, a buttoned black blazer, black boots, makeup neatly done, and hair styled). Thus, there were four conditions: casual/warm, casual/cold, conservative/warm, and conservative/cold. For all testing sessions, the experimenter left the room after the participants had been working on the word scrambles for 4 minutes. A confederate then entered the room, ended the scramble portion of the experiment, and distributed a questionnaire. On the first portion of the questionnaire, the participants were asked to recall in format information about the experimenter (i.e., color and kind of pants, color of shirt, hair color, and kind of shoes). On the second portion of the questionnaire, the participants completed 12 personality ratings of the experimenter, each on a 7-point Likert-type rating scale.

WARM Demeanor. A warm demeanor was portrayed for half of the testing sessions through the use of positive body language that included smiling, frequent eye contact, and expressing interest in participants. The procedure for the warm demeanor conditions was as follows:

The scrambles were passed out, face down by the experimenter. The experimenter smiled and made eye contact with the participants to make them feel comfortable as she passed out the scrambles. The participants were instructed to accurately complete as many scrambles as possible in the next few minutes and were wished good luck. The experimenter maintained eye contact with the participants while describing the instructions and smiled as much as possible. The experimenter stayed at the front of the room, and watched the participants as they began. If any participant looked up the experimenter met his or her glance with direct eye contact and smiled. The experimenter’s body language included uncrossed arms and legs, to appear as warm and approachable as possible.

COLD Demeanor. For the other testing sessions, the experimenter portrayed a cold demeanor by using negative body language that included lack of smiling, minimal direct eye contact, and expressing disinterest in the participants by engaging in other work. The procedure for the cold demeanor conditions was as follows:

The scrambles were passed out, face down by the experimenter, and she did not make any eye contact or smile at all while passing the sheets out. The participants were instructed to accurately complete as many scrambles as possible in the next few minutes and were not
wished good luck. This was all said without any smiling or eye contact. The experimenter sat at the front of the room and did not watch the participants, but rather engaged in other work. Again, there was no eye contact, and no smiling. The experimenter’s body language included crossed arms and legs, to appear as cold and unapproachable as possible.

3. RESULTS

Separate 2 x 2 analyses of variance were conducted on the correct number of word scrambles, the recall of the experimenter’s attire, and on the personality traits. There were no significant effects for the correct number of word scrambles. However, on correct recall of the experimenter’s attire, there was both a main effect for attire ($F(1,40)=7.544, p=.009$), and a main effect for demeanor ($F(1,40)=5.406, p=0.025$). As can be seen in Figure 1, participants recalled more about the experimenter’s attire in the warm conditions as expected; however, unexpectedly, they also recalled more in the conservative attire conditions ($M$s= 4.07 and 4.16 vs. 3.12 and 3.03, respectively).

![Figure 1. Main effects for experimenter attire and demeanor on correct recall.](image)

There were main effects for demeanor for the personality dimensions of enthusiastic ($F(1,38)=5.81, p=0.021$) and interesting ($F(1,38)=6.24, p=0.017$). Participants thought the experimenter was more enthusiastic and interesting in the warm than in the cold conditions ($M$s=4.56 and 4.59 vs. 3.25 and 3.39, respectively). In addition, there was a main effect for attire on the personality dimension of attractiveness ($F(1,40)=7.001, p=0.012$) that indicated the participants thought the experimenter was more attractive in the casual conditions than in the conservative conditions ($M$s=5.47 vs. 4.31). Finally, there was a significant Attire x Demeanor interaction on the personality dimension of funny ($F(1,38)=7.546, p=0.009$). As can be seen in Figure 2, the participants rated the experimenter as funniest in the warm/casual condition.

![Figure 2. Attire x Demeanor interaction on rating on personality dimension of funny.](image)
4. CONCLUSIONS

It was hypothesized that the attire and demeanor of the experimenter would influence participants' performance. Although there were no effects for correct performance of the scrambles, there was both an expected and unexpected effect on recall of the experimenter's attire. As predicted, participants were able to recall more about the experimenter's attire in the warm condition although, unexpectedly, also recalled more in the conservative than in the casual condition. While there were no specific predictions made for the personality measures, there were main effects for demeanor such that the warm demeanor was rated in a more positive manner than the cold demeanor on the personality dimensions of enthusiastic and interesting. There was also a main effect for attire on the personality dimension of attractiveness, such that casual attire was rated as more attractive than conservative attire. The results showed that the conditions of attire and demeanor influenced participants' ability to recall information about the experimenter, as well as influenced their ratings of specific personality traits about the experimenter. Specifically, although slight, the condition which influenced participants the most was when the experimenter displayed a warm demeanor. This is consistent with research conducted by Asch (1946), in which he found that the use of the terms "warm" or "cold" provides for the unconscious categorization of other unrelated traits. He suggested that "warm-cold" is a central dimension that influences the perceptions of other traits. This phenomenon is evident in the findings from the present study, as the ratings of certain personality dimensions (such as enthusiastic and interesting) were more strongly associated with the warm demeanor rather than the cold. The results of this experiment suggest that displaying a warm demeanor, and labeling it as such, may allow for more positive evaluations of various personality dimensions. Therefore, the attire and demeanor of the experimenter did in fact have an effect on participants, and their recall of the experimenter.

REFERENCES

**SMALL MAMMAL COMMUNITY STRUCTURE IN URBAN GREENWAYS**

**ABSTRACT**

A key contributor to the current decline in species diversity is the loss of native habitat due to urban sprawl. Urban greenways, linear parklands maintained in a more natural condition than typical urban parks, represent one method by which wildlife might be conserved within urban areas. We sought to determine whether urban greenways in Spartanburg, South Carolina, provide effective habitats for native small mammals. We compared the small mammal community structure within two riparian urban greenways (the Edwin M. Griffin Reserve and USC Upstate Palmetto Trail) to the community within a rural riparian forest (Peter’s Creek Heritage Preserve). We conducted a capture-mark-recapture study during June-August and November of 2009 and 2010. Within urban greenways, we caught 76 individuals representing 6 species at the Griffin Reserve and 32 individuals from 4 species at the Palmetto Trail. At Peter’s Creek, we captured 50 individuals representing 4 species. Across all sites, the most abundant species were the white-footed mouse (Peromyscus leucopus) and southern short-tailed shrew (Blarina carolinensis). Our preliminary work suggests that *P. leucopus* may have reduced survival in urban greenways such as the Griffin Reserve.

**KEYWORDS:** Mark-recapture, *Peromyscus*, Program MARK, Urban Greenway

**JOSEPH JOHNSON** started working with Dr. Storm the summer after his freshman year. Joshua assisted with the field work portion of a project that explored the differences in small mammal populations located near to, and far away from, urban areas. “It was a great experience to work closely with a professor, and to see all the work that goes into designing and carrying out scientific research. For this project I was also able to assist in the designing and presenting a poster at the Research Symposium. It was a wonderful experience, and it has inspired me to pursue as many research opportunities as possible.”

**REBECCA LEVER** is a senior at the University of St Andrews, Scotland, UK, pursuing a Bachelors of Science with a double major in Environmental Biology and Geography. After working a summer in the field on this project, she spent the academic year planning further research for her senior thesis. The following summer, Rebecca spent two months in the low-lands and Andes of Peru, researching carbon budgets related to deforestation for her senior thesis and acting as a research assistant to a Ph.D. student from St Andrews. Her thesis is based in ecosystem ecology with a focus on soil carbon changes. “I hope to continue biogeographical research in graduate school, and after doing a Ph.D. I plan to continue conducting research throughout my career.”

**DR. JONATHAN STORM** is an Assistant Professor of Biology in his 4th year at USC Upstate. He earned his Ph.D. from Indiana State University and has published in journals such as the American Naturalist, Journal of Comparative Physiology, Journal of Experimental Biology, Canadian Journal of Zoology, Functional Ecology and the Journal of Wildlife Management. His research interests include the urban ecology of small mammals and anti-predator behavior. His research on white-nose syndrome in bats has been featured on National Public Radio and his cricket anti-predator work has been featured in the New York Times, BBC Wildlife Magazine, and the Discovery Channel Canada. Dr. Storm is a native of Iowa who enjoys hiking and nature photography in his spare time.
1. INTRODUCTION

Due to urban sprawl, wildlife habitat is turned into disjunct fragments embedded in a human-dominated landscape (Tabarelli & Gascon, 2005). The continued loss of habitat has led some biologists to suggest that the best way to protect wildlife is by designing urban areas to co-function as reserves for wildlife (Rosenzweig, 2003). One method by which expanding urban areas may preserve biodiversity is through the retention and creation of urban greenways. An urban greenway is linear parkland maintained in a more natural condition than typical urban parks. A common example is forested land along urban streams and rivers. Greenways are often multi-use habitats that contain trails for hiking and other recreational purposes (Schafer, 2000). Although wildlife conservation goals are often stated in greenway retention plans, the actual contribution of urban greenways to wildlife conservation remains unclear (Fabos, 2004). Thus, research on urban greenways is needed to provide wildlife managers with the tools to design and manage greenways in a manner that will benefit both humans and wildlife.

There has been much research on the use of urban greenways by birds (Mason et al., 2007; Sandstrom et al., 2006); however, less is known for small mammals. In addition, much of the existing work on small mammals has been done outside of North America. In one of the few studies done in the United States, Mahan and O’Connell (2005) compared small mammal diversity in urban parks to that of a rural forest. They found that urban parks supported a diverse native small mammal community similar to that of the rural forest. However, this study was short-term (only 4 days of sampling/site) and did not examine demographic parameters such as survival, estimated abundance, and density. Survival, in particular, may be a critical parameter for small mammals, as greenways often contain feral domestic cats (Felis domesticus) which are predators of small mammals (Baker et al., 2003).

The purpose of this study was to determine whether urban greenways in Spartanburg, South Carolina provide effective habitat for native small mammals. In particular, we sought to compare the species abundance and diversity of small mammals in urban greenways to a rural riparian forest. In addition, we wished to determine whether small mammals in urban greenways have a lower survival rate than small mammals in rural forests.

2. MATERIALS AND METHODS

During June-August and November of 2009 and 2010, we live-captured small mammals at two urban greenways (Edwin M. Griffin Reserve and USC Upstate Palmetto Trail) within the city of Spartanburg. Both greenways consist of riparian forest along Lawson’s Fork Creek. We compared the small mammal community at these sites to a rural riparian forest in eastern Spartanburg County (Peter’s Creek Heritage Preserve). At each site, a 5 x 20 array of H.B. Sherman live traps (H.B. Sherman Traps, Tallahassee, FL) was used to capture small mammals. Captured individuals were then given a unique ear tag (National Band and Tag Company, Newport, Kentucky) and released. Each site was trapped for 5 continuous days each month. Traps were baited with a mixture of rolled oats and peanut butter wrapped in perforated wax paper and then checked before 0900 each morning. For each captured individual, we recorded the mass, gender, age class (adult or juvenile) and reproductive condition (male: scrotal or non-scrotal; female: pregnant or lactating). On nights in which temperatures were projected to be below 7°C, two cotton balls were added to the live trap to provide bedding. We calculated the apparent survival rate for P. leucopus using the Huggins closed robust design in Program MARK (Huggins, 1991; White & Burnham, 1999). The Huggins model is used when a population has been sampled across multiple time periods. It calculates the rate of recapture for each marked individual and then uses this information to estimate the probability of survival. All procedures were approved by the University of South Carolina Animal Care and Use Committee.

We assessed the ground, horizontal, and forest canopy cover at each site, as these variables influence habitat suitability for small mammals (Greenberg et al., 2007). Forest canopy cover was determined at each trap location using a GRS densitometer. The horizontal cover was visually estimated using a 2 m profile board and ground cover was visually estimated within a 3.14 m² area adjacent to each trap.
3. RESULTS

At both urban greenways and in the rural forest, the most common species captured were the white-footed mouse (*Peromyscus leucopus*) and southern short-tailed shrew (*Blarina carolinensis*; Table 1). During 2009, the apparent survival rate for *P. leucopus* was lowest at the Griffin Reserve ranging from 65.3 – 68.9 % between sampling periods. Survival rate for *P. leucopus* ranged from 87.5 – 92.5% at the Palmetto Trail and from 78.0 – 79.3% at Peters Creek.

The predominant ground cover at each site was leaf litter (65.9-85.9%) and downed woody debris (13.9-15.2%); however, the Griffin Reserve differs from the other sites in that it has a considerable amount of bare ground (36.4%).

4. CONCLUSIONS

Our preliminary research suggests that urban greenways in Spartanburg provide effective habitat for native small mammals. Although introduced species such as the house mouse (*Mus musculus*) often dominate urban habitats (Cavia et al., 2009), all captured individuals at urban greenways were native species. In addition, the urban greenways were similar in species composition to the rural forest. Across all sites, the most common species captured were *P. leucopus* and *B. carolinensis*. Both of these species are common residents of eastern deciduous forests in South Carolina (Webster et al., 1985). More data need to be collected before we can reach a definitive conclusion in regards to whether small mammals such as *P. leucopus* have reduced survival in urban greenways.

ACKNOWLEDGMENTS

We thank the USC Upstate Center for Undergraduate Research and Scholarship for providing a mini-grant and Research Assistantship to fund this research. Additional funding was provided by a Tenure and Productive Scholarship grant to J. Storm. N. Hyatt, J. Price and M. Storm provided assistance in the field.

Table 1. Number of small mammals captured at two riparian urban greenways and a rural riparian forest in Spartanburg County, South Carolina.

<table>
<thead>
<tr>
<th>Species</th>
<th>Urban Greenways</th>
<th>Rural Forest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Edwin M. Griffin Reserve</td>
<td>USC Upstate Palmetto Trail</td>
</tr>
<tr>
<td></td>
<td>2009</td>
<td>2010</td>
</tr>
<tr>
<td>Virginia Opossum <em>Didelphis virginiana</em></td>
<td>--</td>
<td>1</td>
</tr>
<tr>
<td>Southern short-tailed shrew <em>Blarina carolinensis</em></td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Eastern Chipmunk <em>Tamias striatus</em></td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Southern flying squirrel <em>Glaucomyos volans</em></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>White-footed mouse <em>Peromyscus leucopus</em></td>
<td>32</td>
<td>29</td>
</tr>
<tr>
<td>Golden mouse <em>Ochrotomys nuttali</em></td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Cotton Rat <em>Sigmodon hispidus</em></td>
<td>--</td>
<td>1</td>
</tr>
<tr>
<td>Pine vole <em>Microtus pinetorum</em></td>
<td>1</td>
<td>--</td>
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</tbody>
</table>
REFERENCES


YOUR FAITH HAS MADE YOU WELL: A EXAMINATION OF THE RELATIONSHIP BETWEEN RELIGION AND MEDICINE

KEYWORDS: Faith Healing, Alternative Medicine, Biomedicine, Healing, Religion and Medicine

ABSTRACT
This paper discusses faith healing and its validity in the field of biomedicine. The claim that prayer, divine intervention, or the ministrations of an individual healer can cure disease is a prominent view in a number of world religions. However, reports of faith healing-related mortalities put this healing system in direct conflict with civil authorities. The objective of this study is to examine the history of the legal actions against faith healing, the validity of its effectiveness and the question of whether this method can be accepted as a plausible alternative or complement to conventional medicine. The findings will contribute to the ongoing debate surrounding faith healing and provide insight into the ongoing debate about the intersection between religion and medicine.

Jan Andre Enabore is currently a chemistry major (pre-pharmacy) at USC Upstate. “I found the Honors Research Assistantship Program to be a great opportunity and experience to explore the research field of sociology and medicine. After I graduate, I plan to go into the field of research pharmaceuticals. In addition to research and school, I also work and volunteer at the local hospital. In my free time, I enjoy playing sports, playing music, and spending time with family and friends.”

Dr. Calvin Odhiambo is originally from Kenya and is an Assistant Professor of Sociology in the Department of Sociology, Criminal Justice, and Women’s Studies at USC Upstate. Dr. Odhiambo earned his Ph.D. in Sociology from Indiana University and both his Master's and Bachelor's degrees from the University of Nairobi, Kenya. Much of his research is in medical sociology, particularly in the intersection between HIV/AIDS and Cardiovascular Disease. He has provided scholarly presentations regionally and nationally on the topics of health and teaching pedagogy. The current work on Faith and Medicine captures Dr. Odhiambo’s growing interest in the intersection between religion and medicine and working with undergraduate students.

1. INTRODUCTION

According to Merriam-Webber’s medical dictionary, faith healing is a method of treating diseases by prayer and exercise of faith in God (Merriam-Webster’s online dictionary). In the past, before medical advancement provided substantial cures, society relied on religion for healing. In the earlier cultures, the sick relied on ‘medicine men’, or ‘witch doctors’, to pray for their healing. In ancient Greece and Rome, people prayed to their gods to remedy their sickness. Healing by priests or shamans persists in many of the world’s modern cultures. From sacred tribal dances to meditation, there is a wide array of healing options and rituals around the world.

When faced with a medical problem, people who believe in faith healing choose prayer instead of orthodox medicine. Often times, parents who believe in faith healing choose this healing option for their children. In many states, though, parents of minors who opt to use faith healing as opposed to conventional
medicine are often prosecuted for “withholding medical treatment” for their dependent minors. The ensuing conflict between faith healing and conventional medicine seems to be a question of social construction – where the state, showing preference for orthodox medicine, constructs faith healing as ‘child abuse’ when a minor is involved. Such an action is premised upon the assumption that, first, faith healing does not work and, second, faith healing is incompatible with scientific medicine.

The main purpose of this study is to examine the validity of the claimed effectiveness of faith healing. In doing so, we will also explore the basis of the controversy between faith healing and the state legal system and whether faith healing can be accepted as part of a legitimate healing system that complements, instead of conflicting with, scientific medicine.

2. METHODOLOGY

The main data used in this paper was from existing literature of previous studies. The literature of both peer and non-peer reviewed publications were obtained through the USC Upstate library and the library’s online database. In addition, we also conducted an interview of USC Upstate students. This interview consisted of an availability sample of 40 male and female students representing various disciplines. The interviews were conducted using a questionnaire consisting of open- and closed-ended questions. The first set of questions on the survey sought to find out basic information on respondents’ religious backgrounds and the latter sought to find out their views and experiences regarding faith healing. The data was analyzed using SPSS.

3. FINDINGS

The findings presented below mainly capture the students’ opinions, attitudes, and beliefs regarding faith healing and its relationship with conventional medicine. While a total of 40 students were interviewed, six of the cases turned out to be invalid because of a number of missing data. The data presented here is therefore based just on the 34 valid cases.

As Table 1 shows, the majority of the students believed that: faith helps someone cope with illness (97.1%), religion provides emotional support for the sick (61.7%), and prayer provides practical ways for healing (55.9%). Students were also asked about their opinion about faith healers. Particularly, they were asked whether they believed that faith healers are “quacks” and whether they believe that faith healers can help where physicians cannot. The findings presented in Table 2 shows that around 44% of the students did not believe that faith healers are quacks. Close to 30% of the students were not sure. On the other hand, as Table 2 shows, over 64% of the students felt that faith healing has a place in healing – especially where physicians cannot heal. This suggests that, in general, students see faith healing and conventional medicine as complementary.

<table>
<thead>
<tr>
<th></th>
<th>Faith helps cope</th>
<th>Religion provides emotional support for the sick</th>
<th>Prayer provides practical ways for healing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>7 (20.6%)</td>
<td>8 (23.5%)</td>
<td>7 (20.6%)</td>
</tr>
<tr>
<td>Agree</td>
<td>26 (76.5%)</td>
<td>13 (38.2%)</td>
<td>12 (35.3%)</td>
</tr>
<tr>
<td>Neutral</td>
<td>1 (2.9%)</td>
<td>11 (32.4%)</td>
<td>12 (35.3%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>2 (5.9%)</td>
<td>2 (5.9%)</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0</td>
<td>0</td>
<td>2 (5.9%)</td>
</tr>
</tbody>
</table>
Table 2. Student opinions about Faith Healers

<table>
<thead>
<tr>
<th></th>
<th>Faith Healers are &quot;quacks&quot;</th>
<th>Faith healers can help where physicians cannot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>1 (2.9%)</td>
<td>7 (20.6%)</td>
</tr>
<tr>
<td>Agree</td>
<td>8 (23.5%)</td>
<td>15 (44.1%)</td>
</tr>
<tr>
<td>Neutral</td>
<td>10 (29.4%)</td>
<td>10 (29.4%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>9 (26.5%)</td>
<td>1 (2.9%)</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>6 (17.6%)</td>
<td>1 (2.9%)</td>
</tr>
</tbody>
</table>

Students were also asked for their opinion on the place of faith in healing and the therapeutic value of faith. Table 3 shows that 41.2% of the students interviewed believed that sick people who are prayed for have a higher chance of healing. Slightly over 23% either disagreed or strongly disagreed. The remaining students were not very sure. Further, the findings show that an overwhelming majority of the students interviewed (94.1%) believed that medicine and faith healing should complement each other, thus confirming the findings presented in Table 1.

Table 3. Student opinion about the efficacy of faith

<table>
<thead>
<tr>
<th></th>
<th>Sick people who are prayed for have higher chance of healing</th>
<th>Medicine and faith should complement each other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>7 (20.6%)</td>
<td>10 (29.4%)</td>
</tr>
<tr>
<td>Agree</td>
<td>12 (35.3%)</td>
<td>22 (64.7%)</td>
</tr>
<tr>
<td>Neutral</td>
<td>12 (35.3%)</td>
<td>1 (2.9%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>7 (20.6%)</td>
<td>0</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>1 (2.9%)</td>
<td>1 (2.9%)</td>
</tr>
</tbody>
</table>

Finally, students were asked for their opinion about what kind of choice people should have when considering healing options. As Table 4 shows, the majority of the students interviewed (82.3%) either agreed or strongly agreed that the choice to accept or reject conventional medicine should be left to the individual. However, where minor dependents were involved, the majority of the students interviewed (58.8%) felt that people should not be allowed to make healing choices for their dependent children.

Table 4. Student opinions about choice of Healing Method

<table>
<thead>
<tr>
<th></th>
<th>People should have a choice to reject scientific medicine</th>
<th>People should be allowed to make choices for their dependent children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>15 (44.1%)</td>
<td>6 (17.6%)</td>
</tr>
<tr>
<td>Agree</td>
<td>13 (38.2%)</td>
<td>4 (11.8%)</td>
</tr>
<tr>
<td>Neutral</td>
<td>1 (2.9%)</td>
<td>4 (11.8%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>3 (8.8%)</td>
<td>10 (29.4%)</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>2 (5.9%)</td>
<td>10 (29.4%)</td>
</tr>
</tbody>
</table>
4. DISCUSSION

Much of the information on the effectiveness of faith healing seems to be generally negative and is mainly based on sporadic media reports that emphasize the perceived dangers of faith healing and the incidence of related deaths. These reports paint a rather grim picture of faith healing and give the impression that little or no actual healing takes place. Further, these reports give the impression that the odds of death significantly increase when one opts to use faith healing as opposed to conventional medicine. Even where empirical studies on faith healing have been done, the overall conclusion is that faith healing is less effective than conventional medicine and that mortality rates are higher in cases of faith healing (Asser, 1998). Empirical studies that have validated faith healing have been heavily criticized as unscientific. For instance, in a review of scientific journals that appear to give credence to faith healing, Flamm (2004) made several claims, including the assertion that (i) faith healing can cause patients to shun effective medical care, (ii) doctors who accept faith-healing study results might diminish their medical efforts, (iii) faith-healing studies could steer third-party players towards faith-healing interventions, (iv) faith-healing studies encourage the use of intercessory prayer, a technique that is widely used for questionable purposes, and (v) positive faith-healing studies could affect public policy. What is evident in these arguments is the fact that while Flamm’s study was billed as “scientific” and “objective”, the main conclusions of the study suggest a lack of true scientific objectivity and a bias against faith-healing. Most of the conclusions against faith-healing in Flamm’s study are based on premonitions and arguments about how acceptance of faith-healing as a legitimate healing option can undermine conventional medicine. In comparison, our study shows that a majority of college students (55.9%) agree that prayer provides a practical method for healing. In addition, over 60% of our respondents also believe that faith healing provides a plausible alternative for treatment in cases where conventional medicine appears to be ineffective.

The general perception about the efficacy of faith healing found in our study corroborates a cross section of medical literature and medical practitioners that arrived at the same conclusions based on their clinical studies. For instance, studies at Duke's Center for the Study of Religion/ Spirituality and Health (Koenig, 1999) concluded that belief in the supernatural plays a significant role in healing. Among many other observations, the Duke study found that (i) people who regularly attend church, pray individually, and read the Bible have significantly lower diastolic blood pressure than people who do not; (ii) people who attend church regularly are hospitalized much less often than people who never or rarely participate in religious services; (iii) people with strong religious belief are less likely to suffer depression from stressful life events, and if they do, they are more likely to recover from depression than those who are not religious; (iv) the deeper a person’s faith, the less likely he or she is to be crippled by depression during and after hospitalization for physical illness, and (v) religious people have healthier lifestyles in generally compared to non-religious people. The Duke study concluded that elderly people with a deep, personal religious faith have a stronger sense of well-being and life satisfaction than their less religious peers; people with strong faith who suffer from physical illness have significantly better health outcomes than less religious people; people who attend religious services regularly have stronger immune systems than their less religious counterparts; and religious people live longer.

Our study findings support the results obtained from the Duke study by showing the strength of the relationship between faith and healing. Our study showed that a majority of students (97.1%) believe that having faith in a supernatural being helps cope with illness. Most of the students (61.7%) also believed that religion provides emotional support for the sick. A growing body of research supports these findings by showing that religious people are both physically healthier into later life and live longer than their nonreligious counterparts. Religious faith also appears to protect the sick from the two major afflictions of later life, cardiovascular disease and cancer. In this regard, researchers conclude that religion may be as significant a protective factor as not smoking in terms of survival and longevity. These conclusions are consistent with those of Matthews and Clark (1999) – two medical doctors who reported “witnessing healings that could not be explained by science.” These two doctors probably came to the same conclusion that congress woman Gabrielle Gifford’s doctor came to when he announced that “A lot of medicine is outside our control. We are wise to acknowledge miracles” (ABC News, 2011). This doctor was describing the surprising recovery of the congress woman after being shot on the head by a gunman in Tucson, Arizona. These studies suggest that there is verifiable evidence of the connection between faith and healing. Besides,
the studies also suggest that criticisms against faith healing have been driven more by a subjective bias than an objective assessment of its efficacy.

Studies that have been critical of faith-healing have pointed out the dangers associated with faith healing. One of the most famous of such studies was the one done by Asser (1998). In this study, Asser concluded that faith healing proves to be an “ineffective and dangerous treatment.” Dr. Asser studied 172 reported infant deaths between 1975 and 1995 where faith healing was used as treatment. Asser concluded that in those 172 deaths: 140 of the children would have had a 90% chance of surviving if they had been treated medically; 18 of the children would have had a 50 to 90% chance of surviving; 11 children would have received some benefits from health care; and three would have reached the same result. As with other similar studies, Asser’s study attempts to predict the unpredictable – the exact number of children who would have survived had they sought treatment from a medical doctor instead of faith healing. While the actual number of faith-healing related deaths are not known (because of no centralized reporting system), estimates of hospital related deaths suggest that as many as 15,000 patients die each month in hospitals (USA Today, 2010). Considering that these estimates are only for Medicare patients, it is reasonable to assume that the figures would be much higher when all other kinds of patients are included. Based on this information, any claims that the odds of death are higher for patients who use faith-healing as opposed to conventional medicine are only conjecture – without any empirical evidence.

Questions involving faith healing are not just limited to questions of its efficacy. Another aspect of the question relating to this healing method has been on whether followers of faith healing should be criminalized. In an attempt to crack down on faith healing, states have preferred to prosecute people who opt for faith healing, especially in cases where dependent minors are involved. Does prosecution of faith-healing followers have free speech implications?

Supporters of faith healing have often invoked issues of freedom of speech, arguing that the 1st amendment of the U.S. constitution allows for the free exercise of one’s religion, including freedom to choose one’s preferred method of healing. Proponents of faith healing have also found support from the courts in states where parents were granted exemptions from prosecution if they relied on faith healing instead of medical doctors to treat their sick children. In 1974, the U.S. Department of Health, Education and Welfare required states to have clauses in their child abuse and neglect legislation that allows exemptions from prosecution of parents on religious grounds. If a state refused, they would not receive federal child abuse protection grants. In 1983, the federal government allowed states to repeal the clause, but by then virtually every state had preferred to keep the clause. In 1994, a House Bill was passed by the U.S. congress that required all parents to obtain medical help for their seriously sick or injured children. Accompanying the bill was another bill that allowed defendants to claim faith healing as a defense. However, many states have repealed such clauses. For instance, in 2001, Colorado and Oregon legislators eliminated the clause that protected faith healers. By 2002, twelve states had also done the same. Today, child abuse laws in 30 states provide protection for faith healers. Without a direct deferral requirement for parents to provide their children with medical treatment that is against their religious beliefs, states are left to determine how to regulate faith healing. Our study findings suggest that most students (82.3%) concur that people should have the freedom to choose to reject medicine in preference for faith healing. However, the general perception (shared by slightly over 58% of our respondents) is that parents should not be allowed to make the same choice for their dependent children.

Is there an irreconcilable difference between faith healing and conventional medicine or are there similarities between the two methods of healing and a way in which any presumed differences can be harmonized? It can be argued that the choice between conventional medicine and faith healing is often based on faith: faith in the medical practitioner and in the efficacy of the medical procedure being undertaken. On the same token, faith healing also works through the expression of faith – the only difference is that in the case of faith healing, this faith is on the efficacy of supernatural powers to heal as opposed to human scientific knowledge. It seems odd then that civil authorities would prosecute one person for exercising faith in divine powers and legally require the exercise of faith in the power of the medical practitioner. It is clear how one can see the prosecution of those who opt for faith healing as a restriction of “the free exercise of religion.”

Can faith healing work hand in hand with conventional medicine? While faith-healing skeptics prefer to depict faith healing as fraud (Swan, 1983), magic (Flamm, 1999), or mental illness (Stefanelli, 2010), results from some clinical studies have suggested some common ground between faith and medicine. For instance, Matthews and Clark (1999) concluded that there is a convergence of medicine and faith – especially because of their observation of how faith complemented the practice of medicine. This was not just as a result of
miraculous healings that took place in spite of predicted negative treatment outcomes, but also because of the ways in which better treatment outcomes were observed among more religious patients when compared to non-religious patients. This conclusion corroborates an earlier study by Stern et al (1992) which had examined the use of nonmedical treatment by cystic fibrosis patients and concluded that faith healing does not interfere with medical care. Our study also confirmed these previous findings. More than 90% of our student respondents felt that conventional medicine and faith healing should complement each other. The conclusion from these studies is that, rather than competing with conventional medicine, faith healing should actually be seen as complementary to scientific medicine.

5. CONCLUSIONS

This paper has examined the efficacy of faith healing, the legal implications of faith healing, and whether faith healing can complement conventional medicine. From the foregoing discussion, there is evidence to support claims about the effectiveness of faith healing as a legitimate healing option. The free exercise of faith should protect individuals who opt for faith-healing from prosecution. Instead of being treated as adversarial to orthodox medicine, faith healing in contemporary America should be seen as part of a canopy of complementary and alternative medicine. Both faith healing and conventional medicine are similar in the sense that neither can work for everyone and in every situation. The decision to utilize health care services and even which services to use is often a subjective one, based on individual perception, beliefs, and attitudes. Prosecuting persons who prefer one form of healing over another not only smirks of an overpowering government and may even border on denial of individual rights and freedoms – two values that should be integral to any democratic society.

ACKNOWLEDGEMENTS

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REFERENCES

The Long-Term Effects of Childhood Exposure to Domestic Violence

Abstract
Domestic violence affects the lives of millions of children every year in the United States. Prior research documents serious psychological and behavioral effects on children exposed to intimate partner violence (Carter, Weitorn, & Behrman, 1999; Grych, Jouriles, McDonald, Norwood, & Swank, 2000). The present study investigates college students’ childhood exposure to domestic violence between their primary caregivers. Specifically, we examined the long-term effects that witnessing domestic violence in childhood has on young adults. Two hundred seventy-one students completed questionnaires containing measures related to depression, anxiety, drug and alcohol abuse, aggressive behaviors, self-esteem, and exposure to domestic violence. Participants with childhood exposure to domestic violence reported increased symptoms of depression and anxiety, greater likelihood for aggressive behaviors, and lower levels of self-esteem. Furthermore, those exposed to severe levels of domestic violence (for example, witnessing one caregiver choke the other and/or violence involving the use of a gun or knife) also reported greater alcohol-related problems. These results clearly demonstrate the negative long-term consequences of exposure to domestic violence during childhood, and provide support for the development of evidence-based prevention and intervention strategies that will minimize these effects.

Keywords: Domestic Violence, Childhood Exposure

Bobbi Jo Davidson received her Bachelor’s of Science degree for Psychology in May 2011. She is currently working at New Day Inc. of Spartanburg (also known as New Day Clubhouse) which is a psychosocial rehabilitation center for individuals with mental illnesses. Bobbi Jo plans on continuing higher education to receive a Master’s and eventually a Ph.D. in Clinical Psychology. “My dream job is to be a counselor on a college campus and teach part time. I worked with Dr. Stefanie Keen and Dr. Jennifer Parker for two years during my years at Upstate. I assisted with the collection, analyzing, writing, and presenting of this research project. The opportunity I had to work alongside these professors really helped to make my experience at Upstate great and prepare me for graduate school. I hope one day to be on the other side of the project, to be able to mentor college students and teach them about the importance of research and all the rewards that come with it.”

Dr. Stefanie Keen is an Assistant Professor of Psychology. She earned a Ph.D. in Clinical Psychology from Indiana University. Dr. Keen currently teaches a variety of undergraduate courses including Child Abuse and Neglect, Developmental Psychology, and Abnormal Psychology. She is also engaged in an active research program related to the psychological effects of traumatic stress including intimate partner violence and child maltreatment, and has published articles in Clinical Psychology Review and the Journal of Rehabilitation Research and Development and a book titled Child Abuse and Neglect. Dr. Keen enjoys spending time with her family, including her two young daughters – “I’m often horrified by what young children are forced to suffer, and amazed by their resilience.”
The Long-Term Effects of Childhood Exposure to Domestic Violence

**DR. JENNIFER PARKER** is the Associate Dean of the College of Arts and Sciences and a Professor of Psychology at USC Upstate. She is the director of the Center for Child Advocacy Studies and the project director of the Youth Leadership Summer Institute at the University. She earned her Ph.D. from Virginia Tech and has been at USC Upstate since 2001. She teaches a variety of courses including Developmental Psychology, Child Advocacy, Youth at Risk and Applied Internship Seminars. She has published findings from her research projects in childhood obesity, exposure to domestic violence and youth development. Dr. Parker enjoys involving students in all aspects of her research.

1. **INTRODUCTION**

Domestic violence refers to both verbally and physically aggressive behaviors perpetrated between intimate partners. Research indicates that childhood exposure to domestic violence is developmentally associated with both short- and long-term cognitive, behavioral, and social problems (Carter, Weithorn, & Behrman, 1999; Grych, Jouriles, Swank, McDonald, & Norwood, 2000). Children exposed to domestic violence may regress in language development, “potty accidents” often increase, they tend to be emotionally distressed, and as they age they tend to blame themselves for the violence between their caregivers (Chiancone, 1997). Witnessing domestic violence during childhood also increases the child’s risk of being a victim of more direct abuse or neglect (Dube, Anda, Felitti, Edwards, and Williamson, 2002). These childhood correlates of domestic violence exposure seem to extend into adulthood as well. Davies, DiLillo, and Martinez (2004) found that low self-esteem, high depression rates, and an increase in trauma symptomology were prevalent in adults who witnessed domestic violence as a child. Furthermore, Maker, Kemmelmeier, and Peterson (1998) found that those who reported witnessing severe acts of domestic violence as a child also reported experiencing violence and exhibiting violence in their own intimate relationships. Fergusson and Horwood (1998) boil down the key concern and reason for studying domestic violence; that is, childhood exposure to violence between caregivers has both short- and long-term adverse effects on children. The present study specifically addresses some of the longer-term adjustment issues and psychological factors associated with childhood exposure to domestic violence. We will analyze both personality and clinical factors such as self-esteem, coping ability, depression, and anxiety. We expect to find that those who were exposed to more severe levels of domestic violence as a child will report higher levels of depression and anxiety, lower levels of self-esteem, and the use of less adaptive coping mechanisms.

2. **METHOD**

Two hundred seventy-one undergraduate students from the University of South Carolina Upstate participated in this study. More than one-half (67.9%) of our participants were female. They ranged in age from 18–51, with a mean age of 19.7 years (SD = 3.56). Participants were 58.7% Caucasian, 31.7% African American, 2.6% Hispanic, and 1.1% Asian/Pacific Islander, reflecting the racial demographic of the university student population. Survey instruments included self-report questionnaires designed to measure childhood exposure to parental conflict, in addition to a variety of psychological and behavioral phenomena. These measures include the Beck Depression Inventory-II (BDI-II), the Beck Anxiety Inventory (BAI), the Posttraumatic Stress Disorder Checklist – Civilian Version (PCL-C), the Drug Abuse Screening Test (DAST), the Michigan Alcoholism Screening Test (MAST), modified versions of the Conflict Tactics Scale-2 (measuring general aggressive behavior, CTS-2G, and exposure to parental conflict, CTS-PCR), the Ways of Coping-Revised (WOC-R), and the Rosenberg Self-Esteem Scale (RSES). Participants completed the previously mentioned questionnaires to determine their childhood exposure to parental domestic violence and current psychological/behavioral characteristics. Data collection occurred over the course of two academic semesters, and each testing session lasted approximately forty-five minutes. Students enrolled in various psychology courses participated in this study to obtain course credit. Testing sessions were conducted in group settings, with a maximum of 20 participants per session. The researchers provided participants with instructions for completing the questionnaires, and were available throughout the testing session to answer
any questions that the participants may have had. See Table 1 for childhood domestic violence exposure (DVE) categories and corresponding sample size information.

<table>
<thead>
<tr>
<th>Level of DVE</th>
<th>Category Examples</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Exposure</td>
<td>• Tried to discuss the problem calmly</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>• Brought in someone else to help work it out</td>
<td></td>
</tr>
<tr>
<td>Mild Exposure</td>
<td>• Stomped out of the room</td>
<td>137</td>
</tr>
<tr>
<td></td>
<td>• Insulted or swore at the other person</td>
<td></td>
</tr>
<tr>
<td>Moderate Exposure</td>
<td>• Pushed, grabbed or shoved the other person</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>• Slapped the other person</td>
<td></td>
</tr>
<tr>
<td>Severe Exposure</td>
<td>• Used a gun or knife on the other person</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>• Burned or scalded the other person on purpose</td>
<td></td>
</tr>
</tbody>
</table>

**Table 1.** Example items from DVE categories and corresponding sample sizes

3. RESULTS

A one-way analysis of variance (ANOVA) demonstrated significant main effects of DVE for the BDI-II ($F(3, 256)=6.251, p=.000$), the PCL-C ($F(3, 256)=5.399, p=.001$), and the CTS-2G ($F(3, 256)=3.25, p=.020$). Tukey’s post-hoc comparisons revealed significant increases in symptomatology between participants without DVE and those with moderate and severe exposure to domestic violence for depression and posttraumatic stress disorder (PTSD) scores. A similar, although non-significant, trend was found for anxiety symptoms. Additionally, a significant increase in aggressive behaviors was found between those with no DVE and those with severe DVE only. No significant differences were found for alcohol and/or drug-related problems. Results further demonstrated significant main effects of DVE for self-esteem ($F(3,258)=3.707, p=.012$) and the Confrontive Coping ($F(3,258)=3.671, p=.013$) and Escape-Avoidance ($F(3,258)=8.015, p=.000$) subscales of the WOC-R. Tukey’s post-hoc comparisons revealed significantly lower self-esteem scores among the participants with moderate DVE compared to those without DVE. Furthermore, participants with severe DVE reported significantly greater use of confrontive coping mechanisms compared to those without DVE, while all participants with DVE reported significantly greater use of escape-avoidance coping mechanisms compared to those without DVE.

![Figure 1](image-url)
The Long-Term Effects of Childhood Exposure to Domestic Violence

4. CONCLUSIONS

Domestic violence is a serious crime, and one that has a lasting impact on its youngest victims. As evidenced by the present investigation, adults exposed to domestic violence during childhood are more likely to experience symptoms of depression and posttraumatic stress, have higher rates of aggression, have lower self-esteem, and engage in ineffective coping patterns. With respect to coping, participants scored highest on the Confrontive Coping and Escape-Avoidance Coping subscales of the Ways of Coping-Revised. These two subscales represent the most maladaptive coping styles included in the inventory and consist of items such as “I expressed anger to the person(s) who caused the problem” and “Refused to believe that it had happened,” respectively. Furthermore, while not statistically different, participants exposed to severe levels of domestic violence (for example, witnessing one caregiver choke the other and/or violence involving the use of a gun or knife) reported clinically significant alcohol-related problems. It should be noted that these findings may not accurately reflect the full spectrum of consequences suffered by those exposed to domestic violence during childhood, as the participants in this study were all college students. The characteristics of these participants may be unique in that they likely exemplify a more resilient subsample of childhood victims of domestic violence; that is, those who have been able to persevere in the face of adversity and obtain some measure of success in spite of (or possibly as a result of) their earlier experiences. Conducted with a non-college student sample, the differences found between exposed and non-exposed individuals may be even greater. These results clearly demonstrate the negative long-term consequences of exposure to domestic violence during childhood, and provide support for the development of evidence-based prevention and intervention strategies to minimize these effects.

ACKNOWLEDGEMENTS

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REFERENCES


SURVIVAL PROBABILITIES WITH AND WITHOUT THE USE OF CENSORED FAILURE TIMES

KEYWORDS: Survival Functions, Failure Times, Statistics

JAMES NEWELL worked with Dr. Hyun on a statistical study known as survival analysis. During the course of this research with Dr. Hyun, he not only improved his understanding of statistics but he also gained an inside look into how medical research firms and consumer product firms manipulate their data in order to improve their studies.

“Overall I thoroughly enjoyed working on this research paper and I look forward to continuing this and other research with Dr. Hyun. I am currently a Junior Math and Secondary Mathematics double major and after graduation I plan on teaching high school Mathematics somewhere in the state of South Carolina for one year before continuing my studies in Mathematics in graduate school.”

DR. SEUNGGEUN HYUN is an Assistant Professor of Mathematics and has been at the University of South Carolina Upstate since 2007. His research interests are primarily in biostatistics, such as statistical analysis of time-to-event data, competing risks data, longitudinal data, and application of statistical models to real problems involving data from medicine, epidemiology, demography, and engineering. He has published research articles in several journals, including the Journal of Applied Statistics, Biometrics, and Statistics in Medicine. Before he joined USC Upstate, he had an opportunity to participate in a research program at the National Institute of Health (NIH). This experience provided him with comprehensive, practical research mentoring. Dr. Hyun strongly encourages students to gain research experiences that strengthen their academic knowledge in preparation for their future graduate studies and careers.

1. INTRODUCTION

The time-to-event data analysis is used predominately in biomedical sciences where the interest is in observing time to death either of patients or of laboratory animals. Survival time is especially a main topic in medical statistics and survival functions are the quintessential quantities for describing the probability that an individual will survive beyond a specified time. In the case of animals or plants the survival function represents the time before members of the data pool will more than likely expire, or cease living. The problem of analyzing time-to-event data, however, arises in a lot of applied fields, such as biology, public
health, engineering, economics, and demography. In the case of machinery or products the survival function actually measures the products failure rate, or time until the products fail, and thus the survival function is also referred to as the reliability function. To be specific, let $X$ be the time until some specified event. Then the survival function is defined by the probability of an individual surviving beyond time $t$, $S(t) = \Pr(X > t)$. The survival function is a non-increasing function with a value 1 at the origin and 0 at infinity. Then Kaplan-Meier (1958) proposed an estimator for estimating the survival function. A plot of the Kaplan–Meier estimate of the survival function is a series of horizontal steps of declining with jumps at the observed event times. The size of these jumps depends not only on the number of events observed at each event time, but also on the pattern of the censored observations prior to event time. Suppose that the events occur at distinct times $t_1 < t_2 < \ldots < t_n$. The Kaplan-Meier estimator is a product of the form

$$\hat{S}(t) = \prod_{t_i < t} \frac{n_i - d_i}{n_i},$$

where $n_i$ is the number of survivors just prior to time $t_i$ and $d_i$ is the number of deaths at time $t_i$. In medical studies we are also interested in comparing two or more groups of time-to-event. In comparing two survival functions, we may plot the standard estimates of the Kaplan-Meier survival estimators, and McCracken and Hyun (2010) plot the standard estimates of the survival functions and visually examine these curves. The subjects in the groups, however, may have some additional characteristics that may affect their outcome. For example, subjects may have demographic variables recorded, such as age and gender, or physiological variables, such as blood pressure and heart rate. Such variables can be used to predict the distribution of the time to some event. So another function useful in survival analysis is the hazard function, $h(t) = \lim_{\Delta t \to 0} \Pr(t \leq X < t + \Delta t \mid X \geq t)/\Delta t$. See Klein and Moeschberger (1997) for more details.

The widely used proportional hazards model allows us to quantify the relationship between the time to event and a set of explanatory variables, Cox (1972). For an individual with covariate vector $Z$, the hazard rate at time $t$ is modeled as follows: $h(t \mid Z) = h_0(t)e^{\beta Z}$, where $h_0(t)$ is an arbitrary baseline hazard rate and $\beta$ is a parameter vector.

In survival analysis, however, a lot of reasons make it difficult to get complete data in studies of survival times. A study is often finished before the death of all patients, and we may keep only the information that some patients were still alive at the end of the study. So it is common that these data sets contain censored observations. Most common censoring schemes are right censoring, where all that is known is that the individual is still alive at a given time. One possibility to deal with censored data is to be unaware of them, and compute the statistic only on the rest of the data. However we may lose some information ignoring censored data, and actually our estimator will be biased because ignoring right-censored data means ignoring data which has the property to be greater than a given value. In this case, the expectation of our estimator is smaller than the real value of survival time. Therefore in our study we are looking at whether or not censored data has a bearing on the reliability of a survival function, i.e. we test to see whether or not the use of, or exclusion of, censored data can cause an obvious and severe effect on survival probabilities. Now when these censored data are considered we are supposed to get a more realistic representation of our intended survival function.

**2. Methods**

Our testing is carried out using a statistical analysis program, R (2008). Using the R software, there is a ready-to-use package Survival which provides some tools we need to fit our model. We generate that we have $n$ independent, identically distributed lifetimes, $X_i$, with exponential distribution function, and $n$ independent, identically distributed censoring times, $C_i$, with exponential distribution function. The actual observations consist of $(T_i, d_i)$, where $T_i = \min(X_i, C_i)$ and $d_i = I(X_i \leq C_i)$ is an indicator of the censoring status of $T_i$. As such we program R to produce twelve graphical representations with each graph showing our true exponential survival function and fifteen estimates of each simulation. The graphs are as
follows: for each sample size $n=50, 100,$ and 200, we make two plots at a censoring rate of thirty percent (30%) and two at a censoring rate of sixty percent (60%), then one graph from each censoring rate was produced with the censored data considered and once without the censored data. We present the four graphs with the sample size $n=100$ here. While doing this we also consider the Cox models in regards to standard errors and overall bias. To do this we simulate each experiment a total of one thousand times. A part of the programs in R is summarized below.

```r
library(survival)
sset.seed(5)
x<-seq(0,7,0.1)
tsurv<-exp(-0.5*x)
par(mar=c(4.1,4.6,1,1))
plot(x,tsurv,type="l",col="red",lwd=3,xlab="time",ylab="survival probability",cex.lab=1.5,cex.axis=1.5)
abline(h=0)
n<-100
nsim<-15
crate<-rexp(0,nsim)
for(i in 1:nsim){
    ftime<-rexp(n,0.5)
    ctime<-rexp(n,0.74)
    otime<-pmin(ftime, ctime)
    delta<-as.numeric(ftime==otime)
    fit<-survfit(Surv(otime,delta))
    lines(fit,mark.time=F, conf.int=F)
    crate[i]<-1-sum(delta)/n
}
```

### 3. RESULTS

Through our Cox proportional models in Table 1, we find that for the sample size of $n=50$ with 30% censoring rate, the bias is 0.09 and sample standard error is 0.48 parted from the true parameter 0.5 while including the censored data. Without censored data included the bias is -0.28 and sample standard error is 0.49. At a censored rate of 60%, the sample size of $n=50$ produces the bias of 0.16 and sample standard error of 0.67 when the censored data are considered. When censored times are removed, the bias is -0.66 and it has the sample standard error of 0.75. As expected, this shows larger bias when we ignore the censored data. Clearly, the bias increases as the degree of censoring increases. With censored data included the bias decreases as the sample size increases, but with exclusion of censored times the bias increases as the sample size increases. For different sample sizes, we have similar results. We also present the Kaplan-Meier estimates of the true exponential survival function with the sample size of $n=100$.

**Table 1.** Summary statistics for the simulation results:

<table>
<thead>
<tr>
<th></th>
<th>$n=50$</th>
<th>$n=100$</th>
<th>$n=200$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>30% censoring rate</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With censored times</td>
<td>Bias: 0.0910</td>
<td>Bias: 0.0420</td>
<td>Bias: 0.0101</td>
</tr>
<tr>
<td></td>
<td>SSE: 0.4796</td>
<td>SSE: 0.3177</td>
<td>SSE: 0.2090</td>
</tr>
<tr>
<td>Without censored times</td>
<td>Bias: -0.2806</td>
<td>Bias: -0.3175</td>
<td>Bias: -0.3518</td>
</tr>
<tr>
<td></td>
<td>SSE: 0.4927</td>
<td>SSE: 0.3342</td>
<td>SSE: 0.2136</td>
</tr>
<tr>
<td><strong>60% censoring rate</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With censored times</td>
<td>Bias: 0.1588</td>
<td>Bias: 0.0628</td>
<td>Bias: 0.0188</td>
</tr>
<tr>
<td></td>
<td>SSE: 0.6651</td>
<td>SSE: 0.4052</td>
<td>SSE: 0.2626</td>
</tr>
<tr>
<td>Without censored times</td>
<td>Bias: -0.6572</td>
<td>Bias: -0.7240</td>
<td>Bias: -0.7621</td>
</tr>
<tr>
<td></td>
<td>SSE: 0.7487</td>
<td>SSE: 0.4521</td>
<td>SSE: 0.2900</td>
</tr>
</tbody>
</table>

Figure 1 shows fifteen estimated survival functions with and without censored times considered and the true exponential survival function. We can see that the estimates are quite close to the true one when censored...
times are considered. The estimates, however, are under-estimated to the true one when censored times are excluded.

![Figure 1](image1.png)

**Figure 1.** Fifteen estimated survival functions for the true survival function (red) with 30% censored time and the sample size $n=100$. Left is the estimates with censored data and right is the estimates without censored data.

In Figure 2 with 60% censoring rate we can see significant bias when compared to the true one when ignoring the censored data.

![Figure 2](image2.png)

**Figure 2.** Fifteen estimated survival functions for the true survival function (red) with 60% censored time and the sample size $n=100$. Left is the estimates with censored data and right is the estimates without censored data.

As the censoring rate increases and censored times are excluded, the graphs show that the majority of our estimates are showing cease times, or failure rates, earlier than true intended failure times.
3. CONCLUSIONS

After our experiment we note that our graphs distinctly show that those that included the censored data seem to match our true exponential survival function with the graphs being more evenly matched to our true function more often than not. Meanwhile the graphs of our functions that excluded the censored data show a weaker match for our true exponential survival function and actually the graphs show cease times that fit well below our true survival function in most cases. From this we can see that the Kaplan-Meier estimates including the censored data are more often less biased, either positively or negatively, from our intended function. Similarly each time the censored data are included we have much smaller standard errors, meaning that our tests prove that the functions including the censored data are much closer on average to the true functions plotted points. From Table 1 we are actually able to see how different the estimates actually are from the true parameter. As shown in Table 1, the cases in which the censored data are included provide a much smaller bias from the true parameter. Therefore we have found that in survival analysis it is best to keep all censored data in order to maintain a minimum level of bias and to avoid misrepresenting the true survival probabilities or reliabilities.

ACKNOWLEDGEMENTS

This research was partially supported by the Student Research Assistant Program offered by the USC Upstate Office of Sponsored Awards and Research Support.

REFERENCES


**ABSTRACT**

This study tested a culturally appropriate intervention, "Save Our Breasts", a breast health forum, in seventy-five African-American women from Upstate South Carolina using a quasi-experimental pre and post-test design. African-American women over 35 from churches and community organizations were invited to participate using community-based participatory recruitment strategies. Surveys on breast health knowledge, beliefs, fear, fatalism, mammography self-efficacy, and intention to screen for mammography were administered prior to and immediately after the intervention. A spirituality/religiosity survey was administered prior to the intervention. Of particular interest is breast cancer fear, fatalism, and spirituality/religiosity. It is expected that participants will have a significant difference in fatalism and fear as a result of the intervention. It is also expected that spirituality/religiosity and fatalism will be negatively correlated before and after the forum.

**KEYWORDS:** Cancer, Spirituality, Fatalism, African-American Women

**Danielle Harris, RN, BSN,** was a nursing student at the Mary Black School of Nursing when she was approached by Dr. Lynette Gibson with the opportunity to conduct research and broaden her knowledge on African-American women and breast cancer. She was particularly interested in this kind of research because it allowed her to gain further knowledge about breast cancer, views on healthcare by the African-American community, and how to conduct research. "It was very exciting that we were able to conduct a breast health forum in conjunction with community leaders that would bring awareness, education as well as emotional and social support within the African-American community." Danielle is currently work as a Registered Nurse at Bon Secours St. Francis Hospital in the Medical – Surgical unit. "My future goals are to obtain Masters Degrees in Community Health Nursing and Business Administration and continue to provide healthcare to our community. I would like to thank Dr. Lynette Gibson for allowing me to work with her on this research and being a great mentor."

**Dr. Lynette Gibson** is originally from Bermuda and is a tenured Associate Professor in the Mary Black School of Nursing on the University Center of Greenville campus. She has earned a Ph.D. in Nursing Science from the University of South Carolina and has published articles in several Journals, including: the Cancer Control Journal, Journal of the National Black Nurses Association, the ABNF Journal, Clinical Nurse Specialist Journal, and Applied Nursing Research. She has provided scholarly presentations regionally, nationally, and internationally and is often invited to speak on health issues in the community. Her primary research is in the area of health disparities, particularly related to research recruitment strategies, breast health beliefs, spirituality, and breast cancer survivorship. She has had her current research on breast health in African-American women funded through research assistantships and a mini-grant award from the Center for Undergraduate Research as well as the University of South Carolina Magellan Scholars Program. "I love to participate with undergraduate students in conducting nursing research. I enjoy serving as a mentor and watching them develop academically and professionally. One of my mentors taught me to always reach back and inspire students to excel."
1. **INTRODUCTION**

Breast cancer is the most common cancer in African American (AA) women (American Cancer Society (ACS), 2011). The breast cancer mortality rate is higher in AA women than that of all U.S. ethnic groups and AA women are more likely to die from breast cancer at every age (ACS, 2009). One of the recommended screenings that helps reduce mortality in high risk women is to have mammograms beginning at age 35 (ACS, 2008). In 2005, 49.9 percent of AA women over 40 reported receiving a mammogram within the past year; 64.9 percent reported receiving in the past two years. The 15 percent decrease in having mammograms every year is likely due to numerous barriers to breast cancer screening (ACS, 2009).

Gibson (2008) published an integrative review on breast cancer screening barriers in AA women and interventions to reduce those barriers. This study will incorporate findings from that paper. One of the barriers reported in the literature is fatalism. In a study of rural women from South Carolina, fatalism was associated with noncompliance with mammography in AA women (Mayo, 2001). The Powe Fatalism Model (Powe, 1995), adapted for breast cancer (Mayo, Ureda, & Parker, 2001), was the theoretical framework for the study. The model proposes that cancer fatalism is the belief in the inevitably of death once diagnosed with breast cancer. Mayo, Ureda, and Parker reported that there was a positive association between fatalism and noncompliance with mammography screening.

Spirituality has been associated with health, and is an important component in the lives of many AA women (Holt., Lukwago, & Kreuter, 2003), while religion and spirituality are associated with health seeking behaviors by AA women (Dessioe et al., 2004). The literature is unclear as to the influence of spirituality/religiosity on mammography screening intention in AA women. Fear has also been reported as a predominant emotion (Adams, et. al., 2004) and a barrier to mammography screening (Gibson, 2008).

For breast cancer education to be successful, culturally appropriate interventions must be used, especially in Southern states (Glanz et al., 2003). However, gaps exist in research aimed at culturally appropriate interventions for AA women that aim to reduce psychosocial, spiritual/religious, fatalistic barriers and mammography screening intention (Gibson, 2008). Numerous psychosocial and spiritual strategies have been used successfully to improve breast cancer screening that incorporate the AA oral tradition of storytelling, witnessing of testimonials by credible, attractive survivors (Erwin, et al., 1996; Williams-Brown et al., 2002), poetry and other narrative genres (Kline, 2007). Multifaceted culturally specific interventions by healthcare providers have resulted in significant differences in breast cancer knowledge, beliefs, and behaviors (Hall, 2005; Kline, 2007). These interventions included: teachings that stressed morbidity, mortality, and survival statistics; susceptibility to breast cancer; breast cancer signs and symptoms; efficacy of treatments; women's perceptions of the seriousness of the disease; and barriers to and benefits of screening (Hall, 2005; Kline, 2007).

We hypothesize that in African American women over 35 who participate in the “Save Our Breasts” Breast Health Forum:

1. There will be a significant negative score for breast cancer fear after the forum;
2. There will be a significant negative score for breast cancer fatalism after the forum;
3. There will be a significant negative relationship between spirituality/religiosity and breast cancer fatalism before and after the forum.

2. **METHOD**

A quasi-experimental pre and post-intervention design was used. A convenience sample of 75 AA women 35 years and older from churches and community organizations were invited to participate. Twenty-nine AA women from an Upstate church and community center totally completed surveys that measured spirituality/religiosity before and fear and fatalism before and immediately after the “Save Our Breasts” Breast Health Forum. All instruments demonstrate reliability and have been validated in AA women. Nonparametric statistical analysis, using the *Wilcoxon Signed Ranks* test and the *Spearman Rank-Order Correlation Coefficient*, appropriate for ordinal level variables, skewed data, and small sample sizes, was used to analyze differences from pre to post-intervention and correlations between spirituality and fatalism, respectively.
3. RESULTS

3.A Descriptive Characteristics of the Sample

All the women identified themselves as being African-American or Black. Completed pre-post data were received for 29 women. The ages of the women ranged from 41 to 91 years with the mean age being 60.30 (SD=15.41). The women were predominantly Baptist. Their education level ranged from elementary to graduate school with approximately half having attended or completed college (n=14). Table 1 reports the frequencies for education. Income levels ranged from less than $10,000 per year to greater than $50,000 per year. Six women had a yearly income of $10,000 to $19,000. Table 2 reports the frequencies for income level.

Table 1. Education (N=29)

<table>
<thead>
<tr>
<th>Variable</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some College</td>
<td>9</td>
<td>31.0</td>
</tr>
<tr>
<td>High School</td>
<td>6</td>
<td>20.7</td>
</tr>
<tr>
<td>Elementary School</td>
<td>6</td>
<td>20.7</td>
</tr>
<tr>
<td>Associate’s Degree</td>
<td>2</td>
<td>6.9</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td>2</td>
<td>6.9</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>1</td>
<td>3.5</td>
</tr>
<tr>
<td>No Response</td>
<td>3</td>
<td>10.3</td>
</tr>
</tbody>
</table>

Table 2. Income Level (N=29)

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-19,000/year</td>
<td>6</td>
<td>20.7</td>
</tr>
<tr>
<td>20-29,000/year</td>
<td>4</td>
<td>13.8</td>
</tr>
<tr>
<td>30-39,000/year</td>
<td>4</td>
<td>13.8</td>
</tr>
<tr>
<td>&gt;50,000/year</td>
<td>4</td>
<td>13.8</td>
</tr>
<tr>
<td>40-49,000/year</td>
<td>3</td>
<td>10.3</td>
</tr>
<tr>
<td>&lt;10,000/year</td>
<td>2</td>
<td>6.9</td>
</tr>
<tr>
<td>No Response</td>
<td>6</td>
<td>20.7</td>
</tr>
</tbody>
</table>

3.B Results of Hypotheses

For the first hypothesis, although the fear scores were lower after the intervention, the difference was not significant (p = .484). The second hypothesis demonstrated that, although the fatalism scores were lower after the intervention, the difference was not significant (p = .512). Results of the third hypothesis indicated that, although there was a negative relationship between spirituality/religiosity and breast cancer fatalism before the forum, this relationship was not significant ($r_s = -.077$, $p = .345$). After the forum there was a negative relationship between spirituality/religiosity and breast cancer fatalism that was not significant ($r_s = - .162$, $p = .200$).

4. CONCLUSIONS

As expected, the “Save Our Breasts” Breast Health Forum served to decrease breast cancer fear in this group of African-American women, although the decrease was not significant. The forum also decreased the women's breast cancer fatalism, although this difference was not significant. It is apparent that the forum is making some difference in fear and fatalism. Immediately after the forum the women were less fearful and fatalistic. There were negative relationships between fatalism and spirituality/religiosity before and after the forum that were not significant, meaning that the women who were spiritual/religious tended to be less fatalistic. Since the majority are church-going women it is possible that the women in this study believe that
breast cancer is part of God’s plan. However, they do not appear to have the fatalistic view that they are likely to die as a result of a breast cancer diagnosis. Further research is needed with a larger sample size and a more diverse group of African-American women to determine whether the “Save Our Breasts” Breast Health Forum decreases their breast cancer fear and fatalism. Research is also warranted to try to differentiate the relationship between spirituality/religiosity and breast cancer fatalism and to test whether spirituality/religiosity influences breast cancer fatalism. Nurses should regard the findings with caution in considering using the “Save Our Breasts” Breast Health Forum and incorporating discussions of fear, fatalism, and spirituality/religiosity.

ACKNOWLEDGEMENTS

The authors would like to thank Ms. Crystal Humbert and Ms. Hadassa Legrand, undergraduate research assistants, for their contribution to the study, University of South Carolina Upstate Center for Undergraduate Research and Scholarship, David Hellams Community Center, and Reedy Fork Missionary Baptist Church.

REFERENCES


RESURRECTING THE DEAD: THE DECLINE OF THE DEAD SEA AS AN ENVIRONMENTAL PROBLEM

ABSTRACT

Climate change, recycling, water scarcity – how and why do certain environmental issues capture public attention? Social scientists argue that environmental problems are socially constructed in the sense that societal groups and conditions help define, or frame, certain changes in the natural environment as problematic and worthy of attention and action. Researchers point to the role of the media, environmental organizations, and policy-makers, in shaping public perceptions about ‘the environment’ and about the salience of some environmental issues over others. Drawing on this constructionist approach, the paper examines the problem of the Dead Sea, the unique salt lake in the Middle East, where the water level has been declining for decades yet it is only in recent years that it has been loudly touted as an urgent environmental problem. With 30 years of news articles, and documents from government agencies and environmental NGOs, the project tracks the changing conceptions of the Dead Sea, paying close attention to when the receding water line was defined as an environmental problem, who pushed the idea, how they did it, and to what effect. The paper argues, ironically, that powerful state and economic interests in a particular solution helped to construct the decline of the Dead Sea as a serious environmental problem.

KEYWORDS: Dead Sea, Environmental Problems, Middle East, Climate Change.

AMANDA SCHRAU is a graduate of the University of South Carolina Upstate class of 2010. She earned her Bachelor of Arts degree in Interdisciplinary Studies with concentrations in Sociology and Religion. In 2010, Amanda was awarded a grant from the Office of Sponsored Awards and Research Support to embark on a research project with professor of Sociology, Dr. Lizabeth Zack. Their research focused on the rapid decline of the Dead Sea’s water level and how society comes to define and respond to environmental issues. Currently Amanda is a research intern at the Appalachian Sustainable Agriculture Project in Asheville, North Carolina. ASAP is a nonprofit organization that helps promote local and sustainable agriculture through consulting with local, small farmers, and educational outreach programs, and raising awareness surrounding local food. Amanda hopes to pursue further education in the area of Environmental Sociology in the near future.

DR. LIZABETH ZACK is an Associate Professor of Sociology in the Department of Sociology, Criminal Justice and Women’s Studies. She has been at USC Upstate since 2003. Her research interests include political and social movements, political conflict, and environmental politics in the Middle East. She has published articles in Southern Studies, Journal of North African Studies, the International Journal of Politics, Culture, and Society, and Middle East Report. In 2006-07, she was awarded a Fulbright Scholarship in Jordan where she taught at the University of Jordan and conducted research on environmentalism.

1. INTRODUCTION

The Dead Sea, the famous salt lake in the Middle East, has captured the public imagination in different ways. It is known as a site of religious significance for the discovery of the Dead Sea scrolls in the nearby Qumran caves. It is also celebrated as a healthy retreat for tourists and the infirmed who indulge in the mysterious
healing powers of the mud and waters of the Dead Sea. In recent years, however, interest in the Dead Sea has focused on the site as an endangered ecological treasure. Government officials, environmentalists, and international organizations have raised alarm about the receding water line of the Dead Sea – eighty feet in the last fifty years – and the shrinking surface area as a major environmental problem, one that poses a serious threat to the local economy and the region’s cultural heritage. Reinforcing this sense of environmental emergency, media outlets from the Middle East and around the world report on the topic with clever headlines such as ‘the Dead Sea needs a lifeline’, ‘the Dead Sea on life support’, and so on. And, more recently, the celebrated photographer Spencer Tunick staged one of his famous and controversial naked photo shoots at the Dead Sea to highlight how human beings are “driving this amazing sea to destruction” (Bernard, 2011).

What’s behind the recent interest in the Dead Sea as an environmental problem? The drop in the water level is not new, nor is knowledge of it, for government officials and scientists have remarked on the decline for decades. This suggests that other factors are at play in generating this heightened concern about the problem of the Dead Sea. This paper examines changing conceptions of the Dead Sea and how physical changes in the area have been framed and understood. It tracks the emergence of the idea that the declining water level of the Dead Sea constitutes an environmental emergency, as well as who pushed the idea, how they did it, and to what effect. In other words, the paper seeks to understand the process by which changes in nature come to be defined as environmental problems.

2. Literature Review

Research on the Middle Eastern environment is limited in addressing these questions. Much of it comes from the paradigm of environmental science and thus focuses on identifying the variety of environmental problems in the region (e.g. water scarcity, desertification, coastal degradation, industrial pollution) and assessing the causes and consequences of those changes, rather than how those changes are represented and framed (Albert et al, 1998). Other research investigates how and why governments, civil society organizations, and the general public, respond in different ways to environmental changes occurring in the region. Most of this research examines the actions, or lack thereof, taken by governments in the form of policies and protection structures meant to address environmental problems (Jabbra and Jabbra, 1997). A much smaller body of work investigates the efforts of environmental and community groups to raise awareness about certain issues or the difficulties involved in resisting governmental and business ventures that harm the environment (Hillstrom and Hillstrom, 2003). The perceptions, narratives, and representations people construct to make sense of changes in the natural environment are less important in this line of inquiry than the patterns of action taken to address them.

It is only recently that scholars of the Middle East have begun to examine prevailing cultural representations of the natural environment and the role they have played in regional developments. Researchers challenge broad and widely accepted ‘degradation narratives’, including the idea that the region was subject to the abusive deforestation and overgrazing practices of local Arab nomads for centuries (Davis 2005; Davis 2007). The research also highlights the political and economic uses to which these narratives, many of which were formed in the colonial period, have been put in subsequent years. Others have investigated how community residents understand basic ideas such as the environment, pollution, and nature (Hopkins et al, 2001).

We draw on this new line of research and combine it with insights developed within the field of environmental sociology. Environmental sociologists have argued that environmental problems are socially constructed in the sense that societal groups and conditions help define, or frame, certain changes in the natural environment as problematic and worthy of attention and action (Hannigan, 1995). Researchers point to the role of the media, environmental organizations, policy-makers and cultural institutions, in shaping public attitudes and perceptions about ‘the environment’ in general and about the salience of some environmental issues over others. Our paper draws on this constructionist approach to explain the recent sense of urgency surrounding the decline of the Dead Sea.

3. Methodology

We tracked news articles over time from a diverse sample of news sources as a way of capturing general public perceptions about the Dead Sea. We conducted a Lexis-Nexis search for all articles using the key word
'Dead Sea' over the last three decades (1978-2010). Articles came from a range of English language news sources (daily newspapers, news magazines, industry journals, on-line news sites) from around the world, including those from the region of the Dead Sea (e.g. Jordan Times, Haaretz, Daily Star). We put the articles in chronological order and kept track of how many articles appeared per year, as a way to measure the level of interest in the Dead Sea over time.

To track the shifting ideas about the Dead Sea, we coded each of the articles based on the subjects mentioned in the article with regard to the Dead Sea. For example, articles discussing the mineral extraction industry in the Dead Sea were coded ‘industry’, while those that discussed the hotel and tourism trends were coded ‘tourism’. Other codes included: ‘culture/history’, ‘health’, ‘science’, ‘canal project’, etc. Any article that reported on environmental issues was labeled ‘environment’. For some articles, where the subjects overlapped equally, we coded them with both labels. We created a spreadsheet that organized the articles by year and by subject, so that we were able to see which aspects of the Dead Sea were emphasized at different times.

We paid close attention to the ‘environment’ articles. We were able to note when they began to increase and at what point a consensus seemed to build around the idea that the Dead Sea was in real trouble. Using content analysis of those articles, we ascertained who spoke about the Dead Sea as an environmental concern, their ideas and rationale for doing so, and what they proposed to do to solve the problem. These articles also captured the controversies, tensions, and counter-claims about the current state of the Dead Sea.

To supplement the news articles, we also consulted government documents and documents from environmental organizations taking up the cause of the declining Dead Sea.

4. RESULTS AND DISCUSSION

We found that general perceptions of the Dead Sea have, indeed, changed over the last three decades. These perceptions include ideas about how the area is geographically defined, the nature and degree of importance accorded to it, and the source and level of threat to the area. Table 1 details the topics mentioned in articles appearing on the Dead Sea each year. Based on the table, we found that conceptions of the Dead Sea shifted across these three different time periods:

1980 - early 1990s

Based on the number of articles generated per year since 1980, we would argue that the level of interest in the Dead Sea was intermittent and relatively low during the 1980s compared to subsequent years. During the 1980s, just a few articles appeared per year, the two exceptions being 1981 and 1989. The dominant concern about the Dead Sea in the 1980s was economic, with articles focusing on industry and tourism. News sources did not report on the Dead Sea as an area of environmental concern, even though the receding water level was mentioned in a few articles. There is a spike in the number of articles in the early 1990s when controversies erupted surrounding the Dead Sea scrolls, which brought attention to the area as a site of cultural heritage.

Mid-1990s – 2000

A significant jump in the number of news articles in the 1990s suggests that the level of interest in the Dead Sea had increased dramatically, especially in the latter years of the decade. Industry dominated the news about the Dead Sea in this period, although in some years the topic competed more evenly with articles on history/culture, health, and tourism. The mid-1990s is the period in which environmental concern about the Dead Sea emerged, with a few articles consistently between 1993 and 1998. During this period, the Dead Sea environment was discussed as part of a larger ecosystem that included the shores and other land-based habitats around the sea, the Jordan River feeding it, and other waterways in the area. Local environmentalists feared that new economic development, in the form of proliferating hotels, would overwhelm the area; they called for the implementation of a sustainable development approach. While there is more news about the receding water line than there was in the 1980s, it was not the central focus of environmental concern.
Resurrecting the Dead: The Decline of the Dead Sea as an Environmental Problem

*Early 2000s - present*

Interest in the Dead Sea rises yet again in the early 2000s, and even more so starting in 2005. This corresponds to an increase in the level of environmental concern about the Dead Sea which picks up in 2006. The real spike in interest in the water level starts in 2002; in most years of the 2000s, it overtakes interest in industry. There is also a noticeable shift away from the nature of environmental concern about the Dead Sea that developed in the mid-1990s. By the late 2000s, the broader conception of the environment of the Dead Sea Basin, and the threat posed by unchecked economic development, gave way to a narrower and circumscribed focus on the declining water level and the threat it posed to economic development, especially tourism. In a sense, the logic of danger and protection was reversed.

**Table 1.** The topics mentioned in articles appearing on the Dead Sea each year.

<table>
<thead>
<tr>
<th>Year</th>
<th>Industry</th>
<th>Tourism</th>
<th>History/Culture</th>
<th>Health</th>
<th>Science</th>
<th>Water Level</th>
<th>Med-Dead Canal</th>
<th>Red-Dead Canal</th>
<th>Environ. Concern</th>
<th>Totals</th>
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<td>1</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>10</td>
</tr>
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<td>1982</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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We also noticed that the pattern of interest in the water line correlates closely with the appearance of articles on the Red-Dead project, a controversial proposal to build a canal from the Red Sea to the Dead Sea. While it may look like the project is a response to the heightened concern about the receding water line – in fact, proponents of the project argue that it will raise the water level in the Dead Sea and thus save the ecological and cultural treasure – it is also possible that the reverse is true, that interest in the Red-Dead project is helping to drive the heightened awareness and concern about the receding water line as a major environmental problem. In other words, the political and economic interests behind this particular solution may be, inadvertently or intentionally, creating the environmental problem.
CONCLUSIONS

Thus far, we draw the following conclusions. The findings confirm the idea that our collective sense of what constitutes a serious environmental problem emerges and changes over time, and sometimes does not correspond to the actual changes occurring in nature. The findings also suggest that certain societal conditions, in this case, powerful political and economic interests, can play a key role in defining such changes as impending environmental disasters in need of urgent action. In promoting certain solutions such as the Red-Dead canal development project, powerful groups have pushed the issue of the Dead Sea water line to the forefront of public discussion. We also contend that the heightened attention to the issue of the water line has, in turn, helped to inspire and frame an international campaign to save the Dead Sea. Ironically, the extra attention on the problem of the water line means that other, potentially more important, environmental issues around the Dead Sea basin are being eclipsed. The paper concludes that seemingly benevolent environmental protection campaigns are not always what they seem and sometimes even draw attention away from other serious environmental problems.

ACKNOWLEDGEMENTS

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REFERENCES


Southern Field Crickets (Gryllus rubens) Respond to the Chemical Cues of Wolf Spiders

Abstract

Many prey exhibit an adaptive response to the chemical cues of their predators. Given the nocturnal activity of field crickets and their use of chemical cues in other behaviors, it is likely that field crickets can recognize predators via chemical cues. We sought to determine whether the southeastern field cricket (Gryllus rubens) responds to the chemical cues of a co-occurring predator, the dotted wolf spider (Rabidosa punctulata). Relative to control cues, we found that juvenile, predator-naive field crickets exhibited a significant increase in their time spent immobile when exposed to the chemical cues of dotted wolf spiders.

Keywords: Acheta, Rabidosa, Antipredator Behavior, Predator Avoidance

Ronnetta Sartor is currently a junior Biology major. As a freshman biology student, she was approached by Mrs. Bannan with the opportunity to conduct undergraduate research with Dr. Storm. “I was honored to be given such an opportunity. As I conversed with Dr. Storm about his cricket research, I immediately became interested and eager to learn more about the subject.” Through this research project, Ronnetta learned the importance of accurate procedure, data collection and analysis as well as knowledge on the presentation of scientific findings to the public. “I cherish everything that I have learned through this research project. I have gained an enhanced appreciation for the world of science through my experimentation. As I further my college education, I will continue conducting research. I am very grateful that Dr. Storm got me involved in scientific research.”

Dr. Jonathan Storm is an Assistant Professor of Biology in his 4th year at USC Upstate. He earned his Ph.D. from Indiana State University and has published in journals such as the American Naturalist, Journal of Comparative Physiology, Journal of Experimental Biology, Canadian Journal of Zoology, Functional Ecology and the Journal of Wildlife Management. His research interests include the urban ecology of small mammals and anti-predator behavior. His research on white-nose syndrome in bats has been featured on National Public Radio and his cricket anti-predator work has been featured in the New York Times, BBC Wildlife Magazine, and the Discovery Channel Canada. Jon is a native of Iowa who enjoys hiking and nature photography in his spare time.

1. Introduction

Predators have an obvious, direct impact on prey populations through the act of predation. However, the indirect effects of predators are also important, albeit a bit more subtle. For example, predators often leave behind chemical cues that indicate their presence in the environment (Lima, 1998). These chemical cues include feces, urine, hair, and any other secretions that are deposited into their surroundings. Prey can often detect these chemical cues, and will respond with an adaptive response that enhances their chance of survival. Although many studies have examined these chemically-mediated indirect interactions for vertebrate animals, much less is known about invertebrate responses to predator chemical cues (Kats and Dill, 1998). This is surprising given that chemical cues have been shown to influence the mating (Kortet and Hedrick, 2005) and feeding behavior of invertebrates such as crickets (Matsumoto and Mizunami, 2000).
Recent studies have also found that field crickets can recognize and respond to the chemical cues of predators (Kortet and Hedrick, 2004; Storm and Lima, 2008). The chemically-mediated recognition of predators may be particularly useful to field crickets, as they are nocturnal and co-occur with a variety of spider predators.

In this study we sought to determine whether southeastern field crickets (*Gryllus rubens*) respond to the chemical cues (e.g. feces and silk draglines) of predatory wolf spiders. We hypothesized that southeastern field crickets will exhibit reduced movement when exposed to the chemical cues of wolf spiders. This reduced activity should be adaptive as wolf spiders are sit-and-wait predators that detect and attack moving prey (Persons and Uetz, 1997; Rovner, 1996).

2. METHODS AND MATERIALS

We established a breeding colony of *G. rubens* from wild, hand-caught individuals collected within Spartanburg, South Carolina during the summer and fall of 2010. The colony was housed in plastic containers (120 L) containing egg crate and *ad libitum* cricket quencher and ground rabbit chow. Gravid female field crickets laid eggs in plastic dishes containing moist sand. The colony was maintained on a 12h light:12h dark cycle at 25 ± 1°C. Egg dishes were collected approximately every seven days and then placed in a rectangular 5 L plastic container. Crickets generally began hatching out at approximately 20 days post-laying.

We collected dotted wolf spiders on the campus of the University of South Carolina Upstate during September – November 2010. Wolf spiders were kept individually in round containers (11 cm diameter and 8 cm height) that contained 2-3 cm of moist sphagnum peat moss. Spiders were fed a diet of house crickets (*Acheta domesticus*) and kept at 25 ± 1 °C on a 12h light:12h dark cycle.

We assessed the behavioral responses of second generation, lab-reared juvenile crickets to both predator and control chemical cues. This was done in a round arena (16 cm diameter and 12 cm height) created from PVC tubing and covered with transparent Plexiglas. During each trial, the bottom of the arena was lined with filter paper containing one of the following chemical cue sources: (i) dotted wolf spiders fed domestic crickets, (ii) house crickets, or (iii) a blank filter paper control.

To collect cues, an adult female wolf spider or house cricket (either gender) was placed on top of a sheet of filter paper that lined the bottom of the arena. The arena was then placed in a room at 25 ± 1°C while the spider or cricket deposited feces, secretions, and silk drag lines (spider only) for 24 h. No more than 18 h before being placed on the filter paper, each spider was fed a house cricket. All trials occurred within 24 h of cue deposition.

At the start of each trial, a juvenile field cricket was placed into a transparent holding tube (4.5 cm diameter and 10.5 cm height) in the center of the arena in an area lacking filter paper. Following a 1 – 2 minute settling period, the tube was removed and the trial began once the cricket moved onto the filter paper. Behavioral responses were recorded during the subsequent 20 minute trial with an infrared sensitive camera. Dim, red illumination was provided from two light bulbs (25 W) placed 50 cm above the arena. After each trial, the arena was rinsed with filtered water, washed with a 1:1 solution of acetone and isopropyl alcohol and then air dried. The locomotor behavior of each cricket was remotely recorded using a Videomex-One behavioral monitoring system (Columbus Instruments, Columbus, Ohio). Each filter paper was discarded after a single use.

3. RESULTS

We assessed the antipredator behavior of 93 juvenile field crickets. Overall, there was a significant difference in the amount of time crickets spent immobile between cue types (ANOVA, $F_{2,90} = 4.32, p = 0.016$). When exposed to filter paper containing chemical cues from the dotted wolf spider (Fig. 1), field crickets exhibited a significant increase in time spent immobile relative to blank filter paper ($t = 2.87, p = 0.005$) and the cues of domestic crickets ($t = 2.03, p = 0.045$). There was no significant difference in time spent immobile for crickets exposed to blank filter paper and the chemical cues of domestic crickets ($t = 0.94, p = 0.348$).
Figure 1. Mean (± 1 SE) time spent immobile by predator-naïve juvenile southeastern field crickets (*Gryllus rubens*) when exposed to blank filter paper (n = 30) or filter paper previously occupied by house crickets (*Acheta domesticus*, n = 34), or dotted wolf spiders (*Rabidosa punctulata*, n = 29).

4. CONCLUSIONS

Southeastern field crickets recognize the chemical cues of a common, co-occurring predator, the dotted wolf spider. When exposed to the chemical cues of this spider, they exhibit a significant increase in their time spent immobile. This is an adaptive response by the cricket given that dotted wolf spiders are visual hunters that cue on prey movement.

ACKNOWLEDGMENTS

We thank the USC Upstate Tenure and Productive Scholarship committee for funding. We thank M. Storm for assistance collecting crickets.

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THE BENEFITS OF PRIOR EXPOSURE TO PERSONS WITH PHYSICAL DISABILITIES

ABSTRACT

Identifying factors that positively influence peer acceptance of college students with disabilities is an important endeavor. The current study used a scenario methodology to investigate the effects of 1) participants’ prior exposure to people with disabilities and 2) the visibility of the symptoms on students’ attitudes. Results showed that regardless of symptom visibility, prior exposure led to increased comfort ratings. This is good news for increasing peer acceptance. Once students have more interaction or contact with people who have a physical disability, the type of disability does not seem to matter, peer acceptance is increased.

SYDNEY BROWN is a recent graduate from the University of South Carolina Upstate and is currently employed as a Mental Health Tech for a Psychiatric and Behavioral Health hospital in Charleston, SC. Sydney is a recipient of the Who’s Who Among College and University Students award who became interested in conducting research on perceptions of college students with different types of disabilities. Under the supervision of Drs. Keen, Griffin and Lehman, one of Sydney’s research projects focused on factors that affect acceptance of someone described as having Aspergers disorder. Sydney investigated how degree of prior exposure to friends or family members with a disability affected acceptance. She has conducted studies in the area of acceptance of others with disabilities and has presented her results at several conferences including the Upstate Research Symposium held at Milliken & Company on April 15, 2011 in Spartanburg, SC. “I am very thankful to have had this opportunity to work with such amazing professors and fellow students on a research project that meant so much to each of us. I will always cherish the time I had at USC Upstate as an undergraduate researcher and be thankful to Dr. Keen, Dr. Griffin, and Dr. Lehman for their support, guidance and wisdom as they helped shape me into the young professional that I am today.”

DR. JAN GRIFFIN is a Professor of Psychology at USC Upstate with more than 30 years experience working with undergraduate students on independent research projects. Her interests focus around the effects of social stigma in today’s society. Over the years, she and her students have presented research on such timely topics as attitudes toward dual-working couples, recognition of characteristics that lead to school violence after Columbine, fairness of providing accommodations for individuals with ADHD after the introduction of the ADA Act, missing depression in the elderly as the population ages, the unintended effects of the “No Child Left Behind” Act, potential fallout from taking Family Medical Leave Act (FMLA) leave at work, prejudice towards Arab-Americans after 9-11, and most recently, social acceptance of individuals with disabilities on college campuses. She collaborates widely with colleagues, and their research often is recognized for its excellence at conferences and presentations. “Our student talent at USC Upstate continues to amaze me. At whatever venue they present their research, from the nationally acclaimed, Posters-on-the-Hill in DC, to the more local Upstate Research Symposium, psychology students from Upstate excel.” Her most recent collaborators are Drs. Stefanie Keen and Leigh Lehman.

KEYWORDS: Prior Exposure, Physical Disabilities, Visibility of Symptoms
The Benefits of Prior Exposure to Persons with Physical Disabilities

**Dr. Stefanie Keen** is an Assistant Professor of Psychology. She earned a Ph.D. in Clinical Psychology from Indiana University. Dr. Keen currently teaches a variety of undergraduate courses including Child Abuse and Neglect, Developmental Psychology, and Abnormal Psychology. She is also engaged in an active research program related to the psychological effects of traumatic stress including intimate partner violence and child maltreatment, and has published articles in Clinical Psychology Review and the Journal of Rehabilitation Research and Development and a book titled Child Abuse and Neglect. Dr. Keen enjoys spending time with her family, including her two young daughters – “I’m often horrified by what young children are forced to suffer, and amazed by their resilience.”

**Dr. Leigh Lehman** is an adjunct faculty member in the Department of Psychology. She earned a Ph.D. in Rehabilitation Science from the University of Florida. Dr. Lehman currently teaches Psychological Statistics and University 101. Her research interests relate to assessment development and validation, views of students with disabilities, and fear of pain. She has published articles in the Journal of Hand Therapy, American Journal of Occupational Therapy, and Disability and Rehabilitation. Dr. Lehman enjoys spending time with her family, exercising, and being outdoors. “As a former student at USC Upstate, I have so many people, including many here at Upstate, to thank for helping me along my journey as a student. I hope to be able to do the same for those who I now teach.”

**Lizzie Forbus** is a Psi Chi psychology honor graduate from USC Upstate. As a senior at Upstate, Lizzie worked on an independent research project with Drs. Keen, Griffin and Lehman on investigating perceptions of fellow college students with disabilities. She was interested in social distance measures of acceptance. Using a vignette model that presented paragraph descriptions of students with different disabilities, such as deafness, she had students rate their willingness to interact with the described person in terms of closeness of the interaction on dimensions such as talk to, work on a project with, ask to join a study group, and communicate with outside of class. “I really learned a tremendous amount when I put together my poster for the 9th annual Georgia Undergraduate Research in Psychology (GURP) Conference. Everything came together and made sense. Working as part of a research team on such an important topic has shown me the value of pursuing research opportunities.” Lizzie plans on pursuing graduate training in counseling psychology and looks forward to applying the findings from her research in her practice.

**Lauren Crow** graduated from USC Upstate with a B.S. degree in experimental psychology and is currently pursuing her Masters Degree in Forensic Psychology at Marymount University. While a senior at Upstate, Lauren worked on an independent research project with Drs. Keen, Griffin and Lehman on investigating the acceptance of persons with disabilities. Using a paragraph vignette model, she focused on whether students are more accepting of a fictitious student described as having a physical disability, such as cerebral palsy versus a mental disorder, such as depression. Lauren presented her research project at the 9th annual Georgia Undergraduate Research in Psychology (GURP) Conference and enjoyed discussing her findings with other psychology majors. She currently is an intern in the Forensic Services Unit at the National Center for Missing and Exploited Children and will graduate in May 2012. “I attribute my extensive research knowledge to Dr. Griffin, my passion for child welfare to Dr. Keen and my analytical skills to Dr. Lehman, all of which have been invaluable in my graduate training.”
1. INTRODUCTION

Peer acceptance of college students with disabilities is an important goal of diversity, and investigations of factors that positively influence acceptance will aid in achieving this goal. Barr and Bracchitta (2008) found that prior contact with (or exposure to) persons with behavioral and developmental disabilities correlated with positive attitudes, but prior contact with persons with physical disabilities did not produce the same relationship, perhaps because that category, physical disability, was too broadly defined. Toriello, Leierer, Sheaffer, and Cubero (2007) found that the visibility of a disability affected social distance ratings in that the more visible the symptoms, the less the desire for close contact. The purpose of the current study was to assess the effects of students’ prior exposure to persons with physical disabilities and the visibility of symptoms of a particular disability on students’ ratings of acceptance.

2. DESIGN AND HYPOTHESIS

A 2 (level of prior exposure to disabilities: high vs. low) x 2 (visibility of symptoms: high vs. low) factorial design was used. Level of exposure was a between-subjects variable, such that participants were categorized based on self-ratings as having either high or low exposure to disabilities. Visibility was a within-subjects variable, such that participants read and rated scenarios with either a more (i.e., cerebral palsy) or less (i.e., deafness) visible disability. Based on Barr and Bracchitta we predicted that participants with high exposure would make more positive ratings than those with low exposure, and based on Toriello et al. we predicted that participants would give more positive ratings for the less visible disability.

3. METHOD

Twenty-eight introductory psychology students participated in this study, ages ranged from 18-21, and the sample was predominately female (76%). We adapted the Valdetaro et al. (2010) methodology for constructing our stimuli and rating scales. Participants read two scenarios describing a woman with one of two physical disabilities (cerebral palsy or deafness):

**Caroline** is 20 years old and has cerebral palsy. She just moved to Spartanburg and is enrolling at USC Upstate for the fall semester. She is very friendly and likes to meet new people. Her disability makes it hard for her to walk. She has to drag her left foot, making it difficult to get anywhere quickly. She also has very poor muscle coordination when doing voluntary movements, such as picking things up. Caroline is intelligent and excels academically. She also loves to read, yet sometimes has difficulty with it due to muscle spasms. Her disability is very obvious to others.

**Rachel** is 20 years old and is deaf. She just moved to Spartanburg and is enrolling at USC Upstate for the fall semester. She loves to read and is very nice. She is intelligent, but in class has to sit near the instructor in order to lip read. When more than one person is talking at a time she can become confused. She has on and off ringing in her ears, which can make it hard for her to concentrate and she needs for people to repeat themselves. Others don’t immediately know that she is deaf though they may notice pronunciation errors when she is speaking. Rachel is very friendly, but sometimes is apprehensive to interact with others because of her difficulty hearing. Her disability is not very obvious to others.

Participants then completed a series of 8-point Likert-type ratings. These items assessed their willingness to communicate, interact, and form lasting relationships with each of the women. An additional item measured participants’ previous exposure to disabilities, from limited/no exposure (1) to extensive exposure (9). Individuals who reported a moderate level of exposure to disabilities (5) were not included in subsequent analyses, reducing our final sample size to 16 participants.
4. RESULTS

Separate 2 x 2 analyses of variance were performed on each item. Participants who reported higher prior exposure to persons with physical disabilities were more willing to work on a class project \((p=.025, d=2.48)\), be friends outside of school \((p=.039, d=2.04)\), be comfortable in a public setting \((p=.025, d=.70)\), be willing to continue interaction after the semester ended \((p=.000, d=2.54)\), and be more willing to share a dorm/apartment \((p=.024, d=2.48)\) with a person with either disability than those who reported only lower prior exposure.

![Figure 1. Main effects for prior exposure to someone with a physical disability.](image)

5. CONCLUSIONS

Contrary to expectations, visibility of symptoms did not yield any effects. However, consistent with our predictions, prior exposure to persons with physical disabilities did affect participants’ ratings, such that increased exposure was associated with increased comfort. Regardless of symptom visibility, prior exposure led to increased comfort for both disorders. This is good news for increasing peer acceptance. Once students have more interaction or contact with people who have a physical disability, the type of disability does not seem to matter, peer acceptance is increased.

REFERENCES


**ABSTRACT**

When students do not understand how to complete an assignment, their choice to seek help can influence their performance and understanding of the material. Different types of goal-oriented instructions and the difficulty of the task may affect students’ intentions to seek help and their willingness to ask for help. A 2 (Type of Instructions: mastery-oriented vs. performance-oriented) x 2 (Difficulty of Task: easy vs. difficult) between-subjects factorial design was used. Results indicated that type of instruction influenced perceptions of help-seeking behaviors and that level of difficulty determined perceived need for help. Implications for increasing actual help-seeking behavior are discussed.

**KEYWORDS:** Help-Seeking, Goal Orientation, Task Difficulty, College Students

**Toni Puleo** is a recent graduate from the University of South Carolina Upstate. As a former psychology major with a minor in business (marketing emphasis) she became interested in research opportunities and began working on a project under the supervision of Drs. Keen, Griffin and Lehman. Her research focused on how different types of instructions (those focused on learning how to do a task vs. those focused on correctly performing a task) affected students’ attitudes about asking for help. She used her marketing background to design an award-winning poster that summarized her research findings, and she presented her project at the Upstate Research Symposium held at Milliken & Company in Spartanburg, SC, on April 15, 2011. “The entire process was very rigorous, but I found myself loving every minute of it. I hope to continue using this knowledge in a graduate program in experimental psychology and ultimately become a professor myself.”

**Dr. Stefanie Keen** is an Assistant Professor of Psychology. She earned a Ph.D. in Clinical Psychology from Indiana University. Dr. Keen currently teaches a variety of undergraduate courses including Child Abuse and Neglect, Developmental Psychology, and Abnormal Psychology. She is also engaged in an active research program related to the psychological effects of traumatic stress including intimate partner violence and child maltreatment, and has published articles in Clinical Psychology Review and the Journal of Rehabilitation Research and Development and a book titled Child Abuse and Neglect. Dr. Keen enjoys spending time with her family, including her two young daughters – “I’m often horrified by what young children are forced to suffer, and amazed by their resilience.”

**Dr. Leigh Lehman** is an adjunct faculty member in the Department of Psychology. She earned a Ph.D. in Rehabilitation Science from the University of Florida. Dr. Lehman currently teaches Psychological Statistics and University 101. Her research interests relate to assessment development and validation, views of students with disabilities, and fear of pain. She has published articles in the Journal of Hand Therapy, American Journal of Occupational Therapy, and Disability and Rehabilitation. Dr. Lehman enjoys spending time with her family, exercising, and being outdoors. “As a former student at USC Upstate, I have so many people, including many here at Upstate, to thank for helping me along my journey as a student. I hope to be able to do the same for those who I now teach.”
1. INTRODUCTION

When students do not understand how to complete an assignment, their willingness to seek help is an important concern because it affects performance, grades and, ultimately, level of conceptual understanding (Ryan, Pintrich, & Midgley, 2001). Furthermore, whether a teacher emphasizes mastery or performance goals can affect students' willingness to ask for help (Ryan et al., 2001; Ryan, Gheen, & Midgley, 1998). In a mastery goal-oriented classroom, goals are focused on understanding how to accomplish the presented tasks. In contrast, in a performance goal-oriented classroom, goals are focused on performance accuracy, making students less willing to seek help when needed because they feel they are already supposed to know how to complete the tasks independently (Ryan et al., 2001). In addition, the difficulty of a task may affect students' willingness to ask for help. Newman and Goldin (1990) found that more difficult tasks elicited more help-seeking behaviors. The purpose of the present research was to assess the effects of the type of instructions and difficulty of the task on performance and perceptions in a problem-solving situation. A 2 (Type of Instructions: mastery-oriented vs. performance-oriented) x 2 (Difficulty of Task: easy vs. difficult) between-subjects factorial design was used. Based on previous research, it was expected that there would be greater help-seeking behavior with mastery-oriented instructions and with difficult tasks.

2. METHOD

Forty-two psychology students (64% female, age, M=19.44 years) participated in this study. The participants were tested in small groups of four to six students. They received one of two sets of instructions, either mastery goal, in which they were encouraged to ask for help, or performance goal, in which they were encouraged to complete the task independently. Participants were then directed to individual testing rooms where they completed a set of three easy or difficult puzzles (modified from Cameron, 1999). Participants were given approximately 5 minutes to complete each puzzle. During that time they were allowed to ask for help, which was delivered in the form of hints that would assist them in solving each puzzle. After completing the puzzles, participants completed a questionnaire that assessed their perceptions of the task (i.e., familiarity and level of difficulty), their willingness to ask for help, their reasons for asking for help, and their perception of the experimenter's acceptance of help-seeking behavior. All questions were completed on 9-point Likert-type scales.

3. RESULTS

Separate 2 x 2 analyses of variance were performed on the number of problems solved, the number of hints requested, and on each item from the questionnaire. Using a modified Bonferroni estimate of significance, only effects that reached \( p=.025 \) were included for further consideration. As expected, there was a main effect...
for difficulty on the number of problems solved \((p=.000)\). Participants solved more easy than hard problems \((Ms=2.45 \text{ vs. } .62)\). Table 1 presents the number and percent of participants who asked for help in each condition.

**Table 1.** Number and percent of participants who asked for help in each condition.

<table>
<thead>
<tr>
<th>Problem Difficulty</th>
<th>Mastery</th>
<th>Performance</th>
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<tbody>
<tr>
<td>Easy</td>
<td>0/11 (0%)</td>
<td>0/8 (0%)</td>
</tr>
<tr>
<td>Hard</td>
<td>3/12 (25%)</td>
<td>1/11 (9%)</td>
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</table>

There were only four total participants who asked for help, and as expected, all four were in the hard problem conditions. Three of the four participants who asked for help did so with the mastery goal-oriented instructions that encouraged asking for help. Although in the expected direction, the small number of total participants who asked for help made it impossible to conduct a meaningful statistical analysis.

**Figure 1.** Main effects for type of instructions on questionnaire items.

As can be seen in Figure 1, there were four main effects for type of instructions. As expected, compared to participants who received the performance-oriented instructions, participants who received the mastery-oriented instructions were more likely to indicate that they felt it would be easy to ask for help \((p=.02)\), felt comfortable asking for help \((p=.022)\), felt the experimenter encouraged them to ask for help \((p=.000)\), and felt that it was appropriate to ask questions about how to do the problems \((p=.024)\).

**Figure 2.** Main effects for difficulty of task on questionnaire items.
As can be seen in Figure 2, there were main effects for difficulty of task on knew how to complete these problems \((p=.000)\), solved these types of problems before \((p=.013)\), difficulty of the problems \((p=.000)\), and I needed help solving the problems \((p=.000)\). These results indicated that participants were more familiar with the easy than the hard problems and viewed the hard problems as more difficult than the easy problems. As can also be seen in Figure 2, compared to participants who received easy problems, participants who received the hard problems were more likely to indicate that they asked for help because they didn't understand what they were doing \((p=.002)\), they did not ask for help because they didn't want to challenge themselves \((p=.012)\), and they didn’t care whether they solved the problems \((p=.011)\).

4. CONCLUSIONS

The current study investigated whether giving mastery goal-oriented instructions, compared to performance goal-oriented instructions, would result in a higher amount of help-seeking behavior and more positive ratings of willingness to ask for help. Interestingly, although instructions did not affect actual help-seeking behavior, they did affect ratings of intentions to ask for help. Participants who received mastery goal-oriented instructions said they felt more comfortable, at ease, and encouraged to ask for help than those who received the performance goal-oriented instructions (average \(M_s=6.34\) vs. \(3.99\)). However, on a 9-point scale, an average rating of 6.34 may not have been high enough to result in actual help-seeking behavior. Although the mastery goal-oriented instructions made a difference in intentions, the instructions were not strong enough by themselves to cause participants to follow through with relevant help-seeking behaviors. The same type of effect occurred for difficulty of task. Participants who received the hard puzzles, compared to those who received the easy puzzles, recognized that the puzzles were more difficult, indicated that they would be more likely to ask for help because they didn’t know how to solve them, and that they would be more likely to need help in solving them (average \(M_s=5.36\) vs. \(2.45\)), but still did not ask for help. Again, the strength of need for help may not have been sufficient to persuade them to follow through with their intentions to seek help. It may be that the standard behavior in these types of situations is to not ask for help and a stronger manipulation, such as indicating specifically what types of help are available or making the environment more informal and friendly, is needed to overcome students’ hesitation to ask for help.

REFERENCES