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Foreword

Welcome to the 11th edition of the Journal of Student Research. The University of Wisconsin-Stout's own student publication has been committed to showcasing undergraduate and graduate students' research for over ten years. Since its inception in 2002, the Journal of Student Research continues to offer Stout students the opportunity to publish their research and thus allows them to experience one of the key components of the academy. The Journal of Student Research strives to publish exemplary student scholarship on a variety of topics and from an array of disciplines.

The Journal of Student Research is a prime example of the University of Wisconsin-Stout's commitment to further the student research enterprise and to support student-organized activities. Indeed, the Journal of Student Research is a joined effort between undergraduate and graduate students. All aspects of the production and publication process, such as printing, writing, and editing, are made possible only by the dedicated work of UW-Stout students.

Although this 11th edition will not be published in print, its online publication still provides a worldwide audience access to reading and viewing students' scholarly work. Such exposure allows students to take full advantage of the benefits associated with being published in an academic journal, and the dissemination of students' work can contribute to some of the ongoing discourses in the respective academic disciplines.

As you scroll through the pages of the current Journal of Student Research, you may notice that articles are organized based on the students' class standings. Since more and more students gain research experience at an earlier point in their undergraduate careers, it seems important to position their scholarship and level of experience among their peers. In addition, and continuing the trend of the previous edition, you will find a great variety of scholarship representing multiple departments and disciplines across campus. I am delighted to see that both undergraduate and graduate students continue to recognize the value and the opportunities provided by publishing in the Journal of Student Research.

Finally, I wish to express my gratitude on behalf of Research Services and the Journal of Student Research to the students whose hard work and determination made this 11th edition possible. I furthermore would like to thank faculty advisors for supporting and encouraging their students' submissions and faculty reviewers for volunteering their time and expertise. The latest Journal of Student Research is a symbol of dedication to excellence and to student research on this campus.

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Factors Affecting Positive Transitions for Foster Children

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Abstract

The majority of foster children are forced to endure a multitude of hardships and stress as they transition to new placements (Cole, 2005). This non-random pilot study investigated the foster mother's perspective on factors affecting positive transitions for foster children. The survey results support our hypothesis that foster mothers would find the quality of home life and emotional and physical caregiver availability to be the most important aspects affecting positive transitions. Implications for practitioners include slowly transitioning foster children to new placements and placing an emphasis on natural parenting in foster parent training. Future research would benefit from qualitative interviews and "mixed methods" to gather participants' lived experiences.

Keywords: foster children, foster care, foster parents, positive transitions

The majority of foster children are forced to endure a multitude of hardships and stress as they attempt to make successful transitions, moving from one foster caregiver to a subsequent or permanent placement (Cole, 2005). The label "foster child" typically indicates that the individual has had to transition to at least one new home and has endured some form(s) of abuse (Simmel, Barth, & Brooks, 2007). In addition to abuse, many foster children experience periods of neglect and over-monitoring. These harmful experiences usually result in feelings of powerlessness, behavioral issues, and a poor sense of autonomy (Schofield & Beek, 2009). Clearly, there is much room for improvement in the foster care system. By having conducted research on the factors that may affect the transitions for foster children,

we hope to have helped in a small way to make some progress towards this goal. The current study investigated the factors affecting positive transitions for foster children from the perspective of foster mothers licensed through a small Midwestern foster care agency.

Literature Review

A review of the literature was conducted through the use of the search engine EBSCOhost to investigate factors affecting positive transitions from current caregivers to subsequent or permanent placements for foster children. The five "best fit" articles related to our study were identified (Cole, 2005; Dozier, Lindhiem, Lewis, Bick, Bernard, & Peloso, 2009; Ponciano, 2010; Schofield & Beek, 2009; Simmel et al., 2007).

Cole (2005) examined the impact of environmental and relational factors on infants' levels of attachment security. This study revealed that attachment was more likely to be achieved in a well-organized home environment containing an assortment of stimuli and age appropriate educational materials. Attachment security is harmed by over-monitoring which causes the infant to exhibit disorganized/disoriented behavior, putting him/her at continued intellectual and relational risks. The study concluded that foster children come to expect the attachment style modeled to them in infancy from future caregivers.

Dozier et al. (2009) analyzed the attachments infants formed with their foster parents. The study found that infants placed in foster care before the age of one were able to make attachments much more easily than those who entered the system at a later age. This study provided foster parents with ten intervention sessions related to providing nurturance to their foster children. After these interventions, an increase in the children's willingness to seek support was noticed.

Ponciano (2010) investigated, largely from foster mothers' perspectives, how maternal sensitivity, adoption status, and foster mother experience affected the quality of attachment in the foster child-foster mother relationship. It noted maternal sensitivity as a very strong predictor of secure attachments. It was also discovered that the less-experienced foster mothers and those with plans of adoption often cultivated more secure attachments with their foster children.

Schofield and Beek (2009) employed the Secure Base Model to illustrate the importance of quality foster parenting. There are five parts to this model: availability, acceptance, co-operation, family membership, and sensitivity.

The study found that foster children need these five aspects in their lives in order to be able to thrive as adults. It was concluded that even the children in the study that had experienced abuse and neglect, if relocated to long-term foster homes employing Secure Base Model, could likely reach their full potentials.

Simmel et al. (2007) examined the behavioral differences between adopted children who had been in foster care and those who had not. Overall, it was discovered that adopted foster children had more behavioral issues than adopted non-foster children. Former foster children are more likely to have experienced abuse and neglect, leading to more behavioral issues.

Although recent literature illustrated the differences in the quality of attachment based on the foster parents' intention of adoption (Ponciano, 2010; Simmel et al., 2007), the environmental and relational factors affecting the child's quality of attachment and the steps foster parents can take to improve it (Cole, 2005; Dozier et al., 2009), and the important role foster parents play in a foster child's life (Simmel et al., 2007), recent literature did not focus on foster mothers' ideas for improving the transitions for foster children. According to Ponciano (2010), foster mothers are typically the primary caregivers for foster children. Therefore, it is important to gain foster mothers' perspectives as they would likely have the most contact with the children, and thus have a great deal of insight on factors affecting positive transitions. This study investigated what foster mothers believe should be done to ease the transitions for foster children, thus supplying the current studies with ways to improve foster children's transitions to new homes.

Theoretical Framework

The theoretical framework used in this study was attachment theory (Davila & Levy, 2006). Attachment refers to feelings of security that binds children to caregivers. Markers of attachment include behaviors such as clinging, crying, smiling, and exhibiting a preference for a few dependable caregivers. This theory states that children are likely to have a better sense of attachment if an adult providing loving and attuned care is present. Attachment theory explains that children use their attachment figure to confide in and turn to during difficult times. Children who lack a nurturing attachment figure often have trouble feeling secure in relationships.

In the context of our study, attachment theory would suggest that foster children need a trustworthy figure in their life. Foster children enter the

system due to an initial disruption in attachment; they do not have an adult in their life providing loving, constant, and persistent care. The theory states that children with a secure attachment figure are better able to develop healthy relationships throughout their lifetime. Therefore, attachment theory would predict having a secure attachment figure as a factor in easing the foster child's transition into a new home.

Purpose Statement

This pilot study was conducted with the intent of using a reliable survey instrument to identify foster mothers' perspectives on possible adjustments that would allow for more positive transitions for foster children. Additionally, we hoped to draw foster care agencies and providers' attention to changes that can be implemented to facilitate positive transitions. It is anticipated that this survey will enhance the limited amount of research conducted on improving foster children's transitions to new placements.

This study was centered around the research question, "What are foster mothers' perspectives on the factors affecting positive transitions for foster children?" We predicted, based on literature and theory, that foster mothers would consider the quality of home life and the emotional and physical caregiver availability to be the most important aspects affecting positive transitions for foster children. The literature reveals the quality of home life as a very influential factor affecting transitions for foster children, and attachment theory suggests higher levels of attachment occur when constant and persistent care is present which coincides with our hypothesis.

Method

Participants

The participants were 13 foster mothers providing care through a small, Midwestern foster care agency. Demographics accounted for were gender, age of the parent, and amount of foster parenting experience. The age ranges of the participants were as follows: two were 27 to 32, two were 33 to 38, five were 39 to 44, three were 45 to 50, and one was 51 to 56. Eleven participants reported having 1 to 5 years of foster parent experience, one had 5 to 10 years, and one had 10 or more years.

Research Design

A cross-sectional and non-random research design was used to obtain

the perspectives of foster mothers at one point in time. Online surveys, which were convenient for our specific sample, were administered using UW-Stout's secure online system "Qualtrics." This study was approved by the Institutional Review Board (IRB).

Data Collection Instrument

We designed a survey focused around investigating foster mothers' perspectives on factors affecting positive transition for foster children. The survey included a brief description of the study, definitions of any terms not commonly known such as "sensitivity," risks and benefits, time commitment, confidentiality, voluntary participation, contact information of the research team and the supervisor, and instructions for completing the survey.

The survey, informed by the literature and attachment theory, consisted of three demographic questions regarding the participants' gender, age, and years being a foster parent, and 14 closed-ended statements based on a 5-point Likert scale. The Likert scale measured the intensity of the participants' attitudes ranging from one (strongly disagree) to five (strongly agree). The survey also included two open-ended questions regarding ideas for improving transitions to new placements and factors that affect positive transitions for foster children. These questions served as a vital outlet for foster mothers to share their lived experience. Moreover, many qualitative responses closely related to the survey statements, indicating our survey had a high degree of relevancy.

The survey instrument had both face validity and content validity. The survey established face validity in that all statements and questions investigated foster mothers' perspectives on factors that affect positive transitions to new placements for foster children as described in the literature. In terms of content validity, the survey statements and questions addressed the numerous factors affecting positive transitions to new placements for foster children. After piloting our survey, the human services lead worker at the foster care agency we collaborated with advised us to write our survey at an eighth grade or below reading level and pointed out vague survey statements that needed revisions. Upon receiving this feedback, we adjusted some of the statements to make them more explicit. In following the suggestion of not testing for multiple variables in a single statement, we created two different statements from one of our original statements. However, we neglected to pilot our survey to foster mothers; this is a

limitation of the research and a recommendation for future research.

Procedure

The survey process began when we emailed foster care agencies seeking permission to survey foster mothers. After permission was granted, surveys were opened from March 17th, 2011 to March 29th, 2011 for foster mothers licensed through the collaborating agency to complete. Before data collection began, we numbered the surveys to ensure the anonymity of the participants. The human services lead worker at the foster care agency emailed an invitation for our online survey containing an attachment to the consent form as well as the IRB approval stamp to the foster mothers via blind carbon copy for confidentiality. The informed consent statement, ensuring the participants' privacy, appeared before the screen containing the actual survey. The participants' names were entered into the online system via blind carbon copy in order to allow them to stay anonymous. The human services lead worker emailed a copy of our survey to the foster mothers who could not access the online survey and then faxed us the completed surveys via blind carbon copy for confidentiality.

Data Analysis Plan

The data was first "cleaned" and checked for missing data and then "coded" using acronyms for each variable. All demographic questions were assigned a three letter acronym: *Gender of the respondents (*GEN*)*; *Age of the respondents (*AGE*)*; and *Years being a foster parent (*YRS*)*. A three letter acronym was also assigned to all of the survey statements: *Foster parent training courses are helpful in facilitating positive transitions for foster children* (FPT); *The quality of home life provided by the current caregiver affects the transitions between placements for foster children* (HML); *Caregivers who have come to terms with their own childhoods are better able to help foster children transition into new placements* (CGC); *Caregivers with more parenting experience are better able to help foster children transition into new placements than those with little or no parenting experience* (PEX); *The more sensitive caregivers are, the better able they are to help foster children transition into new placements* (SCG); *Physical caregiver availability is helpful in allowing children to achieve positive transitions* (PCA); *Emotional caregiver availability is helpful in allowing children to achieve positive transitions* (ECA); *Foster children who feel a sense of acceptance are more likely to have positive transitions*

into new placements (FCA); *Foster children are more secure when moving into a placement where there is an intention of adoption* (IOA); *Foster children are more secure when moving into a placement with three or fewer foster children* (MFC); *Foster children who have been taught problem solving skills by their caregivers have more positive transitions into new placements* (PSS); *County human service agencies should combine foster care programs* (ECC); *Foster parent training is adequate in preparing families to become foster parents* (PTP); and *Online training would be a valuable tool in helping foster families increase their skills in caring for foster children* (OTR). We also had two open-ended questions: *"What ideas do you have for improving transitions to new placements for foster children? What are the most important factors affecting positive transitions for foster children?"*

The data was analyzed using the computer program *Statistical Package for the Social Sciences* (*SPSS*). The individual was used as the level of analysis. Since groups were not compared, the data analysis included frequencies, mean comparisons, and correlations. Additionally, a Cronbach's Alpha reliability analysis was conducted.

Results

Correlations supported our hypothesis that foster mothers would find the quality of home life and emotional and physical caregiver availability to be the most important aspects affecting positive transitions. The frequency distribution analysis revealed missing data that was discarded. The variable analysis found that the majority of respondents agreed and/or strongly agreed that foster parent training courses, the quality of home life, foster children feeling a sense of acceptance, caregivers' acceptance of their own childhoods, the sensitivity of the caregivers, physical caregiver availability, emotional caregiver availability, teaching foster children problem solving skills, and online training are all important factors for providing positive transitions for foster children.

The variables regarding the helpfulness of foster parent training courses in facilitating positive transitions, belief in combining foster care programs, influence of physical and emotional caregiver availability, and quality of home life appear to have large significant relationships to the variable concerning the helpfulness of foster parent training courses in facilitating positive transitions. This can be explained in that all variables focus on training or relate to topics covered in training courses. The variables

regarding the adequacy of foster parent training to prepare families to become foster parents, belief in combining foster care programs, influence of physical and emotional caregiver availability, and parenting experience appear to have large significant relationships to the variable concerning the influence of the quality of home life. This correlation can be explained in that these variables have a contributing role in the quality of life experienced by the foster child. See Table 1 for additional correlations.

Table 1

Pearson Correlations Matrix

	FTP	HML	PEX	SCG	PCA	ECA	FCA	IOA	MFC	PSS	ECC	PTP
FPT		.809**			.570*	.646*					.621*	.567*
HML	.809**		.631*		.570*	.814**					.621*	
PEX		.631*										.565*
SCG								.659*				
PCA	.570*	.570*				.663*						
ECA	.646*	.814**			.663*							
FCA										.609*		
IOA				.659*								
MFC										.607*		
PSS							.609*		.607*			
ECC	.621*	.621*										.674*
PTP	.567*		.565*								.674*	

Note. (FPT) = foster parent training courses are helpful in facilitating positive transitions; (HML) = the quality of home life provided by the current caregiver affects the transitions between placements for foster children; (CGC) = caregivers who have accepted their own childhoods are better able to help foster children transition; (PEX) = caregivers with more parenting experience are better able to help children transition; (SCG)

= the more sensitive caregivers are, the better able they are to help foster children transition; (PCA) = physical caregiver availability helps children to achieve positive transitions; (ECA) = emotional caregiver availability helps children to achieve positive transitions; (FCA) = foster children who feel a sense of acceptance are more likely to have a positive transition; (IOA) = foster children are more secure when moving into a placement when there is an intention of adoption; (MFC) = foster children are more secure when moving into a placement with three or fewer foster children; (PSS) = foster children who have been taught problem solving skills by their caregivers have more positive transitions; (ECC) = county human service agencies should combine foster care programs; (PTP) = foster parent training is adequate in preparing families to become foster parents; (OTR) = online training would help foster families better care for foster children.

~ N=14; **Correlation is significant at the p<0.01 (two-tailed) *Correlation is significant at the p<0.05

A reliability analysis was run to indicate if the fourteen variables were a reliable index to measure the major concept: Foster mothers' perspectives on factors affecting positive transitions for foster children. Our Cronbach's Alpha, a measure of reliability, was 0.840, indicating that the survey questions were a reliable measure of the major concept.

Discussion

We found support for our hypothesis that foster mothers would consider quality of home life and emotional and physical caregiver availability to be the most important aspects affecting positive transitions.

Statistically significant correlations (p<0.01) were found which supported this study's hypothesis. There was a statistically significant correlation between the statements *The quality of home life provided by the current caregiver affects the transitions between placements for foster children*, *Emotional caregiver availability helps children to achieve positive transitions*, and *Physical caregiver availability helps children to achieve positive transitions*. These findings are supported by theory and literature. Attachment theory assumes that children are likely to have a better sense of attachment if an adult providing loving, consistent, and persistent care is present (Davila & Levy, 2006). Panciano (2010) found maternal sensitivity to be a very strong predictor of the security of attachment.

The frequency distribution also demonstrated support for this study's hypothesis. The majority of the respondents agreed or strongly agreed that the quality of home life, emotional caregiver availability, and physical caregiver availability are all important aspects in providing positive transitions for foster children. These findings are supported by Schofield and Beek (2009) who stated that the Secure Base Model, focusing on the importance of availability, acceptance, co-operation, and family membership, is beneficial to follow when caring for foster children.

The results, literature, and theory were all in concurrence regarding the

survey statements *The more sensitive caregivers are, the better able they are to help foster children transition; Foster children who feel a sense of acceptance are more likely to have a positive transition,* and *Foster children who are taught problem solving skills by caregivers have more positive transitions.* The majority of our respondents agreed or strongly agreed with these statements. In regards to the literature, Schofield and Beek (2009) agreed that feeling a sense of acceptance and sensitivity is necessary to facilitate positive transitions. Attachment theory supports this with the idea that a sensitive caregiver who creates an accepting and educational environment helps the child to feel a deeper sense of attachment (Davila & Levy, 2006).

The results regarding the number of foster children present in a particular placement did not fit with theory or literature. The vast majority of the respondents neither agreed nor disagreed with this survey question, pointing towards a lack of understanding on this particular issue. Attachment theory assumes that children have a better sense of attachment if an adult is consistently present (Davila & Levy, 2006). Through this, it can be inferred that the more children a foster parent is caring for, the more difficult it is to be consistently present and fully provide for each child's specific needs. As for the literature, Cole (2005) states that attachment is more likely achieved in homes with only a few other children.

Additionally, the responses gathered concerning the importance of an intention of adoption did not fit the literature. The majority of respondents either disagreed or neither agreed nor disagreed with the intention of adoption having significance. Simmel at el. (2007), conversely, found a negative relationship between the likelihood of adoption and foster children's behavioral issues.

The participants' responses indicated that parental experience is not an important factor in the foster child's transition. Panciano's (2010) hypothesis that foster mothers with more experience would be more likely to have securely attached children was proven wrong. Panciano (2010) reasoned that more experienced foster mothers are more frustrated with both the challenges of the foster care system and their foster children's behavioral issues. Additionally, they are more likely to have experienced the loss of prior foster children leaving their homes, leading to hesitation around getting emotionally attached, and resulting in less secure attachments. Furthermore, having just completed the difficult task of becoming certified, new foster mothers have much motivation to provide quality care.

The majority of respondents agreed that foster parents who have come to

terms with their own childhood are better able to help foster children's transition. Davila and Levy (2006) use attachment theory to explain that foster parents who have not dealt with their own childhoods are unlikely to cultivate positive transitions for their foster children. These parents have difficulties making attachments with others and are thus unable to model this behavior, making it challenging for their foster children to learn how to form secure attachments.

The majority of the foster mothers sampled agreed or strongly agreed that foster parent training courses are helpful in facilitating positive transitions for foster children. This corresponds with a study referenced by Ponciano (2010), which found that providing foster parents with extensive training results in fewer placement failures. The responses to the agency specific statements *County human service agencies should combine foster care programs, Foster parent training is adequate in preparing families to become foster parents*, and *Online training would help foster families better care for foster children* were quite varied, but there was a greater number of respondents who agreed than disagreed. While foster mothers are fairly positive about the current training, they are open to change. Ponciano (2010) supports this idea of change by advocating for separate training classes for experienced foster parents, with an emphasis on stress- and frustration-reducing techniques as well as tips on coping with loss.

Qualitative Analysis

We reviewed all qualitative comments and agreed upon common patterns and themes based on their content. The quotes taken from the qualitative comments from the respondents were transcribed word for word. Three of the six responses regarding ideas for improving transitions to new placements for foster children revealed that gradually transitioning children to new placements is ideal. One participant argued that a gradual move will support the child's need to "not lose those people that they are attached to because of the negative effects it will cause long term for that child to experience loss again and again." The literature supports this idea by stating that steps should be taken to make transitions as gradual as possible (Simmel et al., 2007).

Qualitative comments also included the importance of having quality foster parents with high levels of understanding and maturity. Participants recommended a focus on natural parent training, referring to teaching techniques for general child rearing, rather than overemphasizing the child's problems. This corresponds to our hypothesis that foster mothers would consider the emotional and physical caregiver availability to be important factors. Parents who are

mature and understanding are aware of their foster children's need for them to be both physically and emotionally present (Schofield & Beek, 2009). Additionally, Dozier et al. (2009) found that quality parent training courses can help parents recognize their children's need for them.

The qualitative comments regarding the most important factors affecting positive transitions for foster children declared the need for foster children to feel as though they are part of the caregiver's family. Suggestions included providing a place in the home that is the child's own, ensuring they feel safe and loved, and showing them kindness. Others noted the importance of establishing a routine and having belongings with the children in easing the transition. All of these responses verified that the quality of home life is an important factor, as predicted in our hypothesis. This is supported by attachment theory, which assumes that receiving loving, consistent, and persistent care helps children feel a better sense of attachment (Davila & Levy, 2006). Schofield and Beek (2009) also supported this idea by stating that helping children feel as though they belong is a critical aspect in aiding the development of the foster child.

Limitations

A limitation to this study is the small sample size and the non-random design. Another limitation is using the 1-through-5 Likert scale, as instructed. The large number of "neither agree nor disagree" responses leads us to believe that having a 1-through-7 Likert scale would add more variation to the responses. Furthermore, the sampling of only one agency added to the limitations of this study because the respondents received the same training, resulting in some shared parenting characteristics. We should have asked another demographic question to see if the participants had received training through any other agency. We had expected that the collaborating agency would have wanted to ask open-ended questions, but they chose to submit survey statements. This is a limitation in that they had a great deal of knowledge and insight on foster care and could have asked questions that would have likely yielded rich qualitative data.

Implications for Practitioners

The data from this study demonstrates that foster mothers see room for improvement in foster parent training courses. Practitioners should explore ways of altering training to better equip foster parents. This study also found that foster mothers believe that an effort should be made to slowly transition foster children to new placements. One final implication, derived from the qualitative comments and confirmed by the literature, of use to practitioners is to ensure that common

goals are created and are made clear to biological parents, foster parents, and foster children.

Implications for Future Research

It is recommended that future research would include a random, large, national sample in order to be able to generalize the findings nationwide. Based on the large number of "neither agree nor disagree" responses received, it would be useful to increase the variability of possible responses by using a 1-through-7 Likert scale instead of a 1-through-5 Likert Scale.

Another implication we found that would be beneficial for future research is to study the effects of the quality of the relationship between the foster family and biological family on foster children. For example, it would be particularly interesting to study the influence of the frequency of communication between all parties on the child's transition. In accordance with the literature, many foster mothers noted the birth-foster family relationship as being an important factor in promoting positive transitions to new placements for foster children in their qualitative responses.

Additionally, we would suggest conducting qualitative interviews and using "mixed methods" to enable participants to share their lived experiences. Participants could offer a personal account of their struggles and triumphs as well as pose their own questions and offer suggestions for practitioners and future research. One foster mother, for example, disclosed the difficulties she had experienced: "When you put your whole heart in a child even though you know they have a place to go it's real hard to lay your personal feelings aside and put what is best for them first. I believe the key in making the transition better is entirely the way the foster family can have closure with it." She went on to describe how her husband and God were crucial in gaining a sense of closure and questioned how people lacking these things gain closure. It would be fascinating to further explore that question and other questions posed by participants through qualitative interviews.

Conclusion

As noted in the current literature, the majority of foster children face many hardships in transitioning to new placements (Cole, 2005; Simmel et al., 2007). Our research found that an emphasis placed on improving such things as the quality of home life and physical and emotional caregiver availability can help allow foster children to achieve positive transitions. Foster mothers, because of

their direct personal experience with foster care, have great insight regarding how transitions to new placement can be improved for foster children; their voices need to be heard.

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Isamu Noguchi's Utopian Landscapes: The Sculpture of Playgrounds and Gardens

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Abstract

This paper tells the story of Japanese-American sculptor Isamu Noguchi and highlights his lesser-known landscape works. Noguchi was an artist of profound integrity and insight. His landscapes include playgrounds, monuments, and Japanese-inspired gardens. He chose landscapes as a medium for their inherent social value and as an artistic contribution to society. He was interested in the use and function of sculpture and wanted sculpture to encompass a larger vision and communicate on a grander scale. Moving beyond the limiting tradition of sculpture for the sole purpose of aesthetic, his sculpture was for the common man Noguchi was inspired by his childhood in Japan, by the high modernist movement, and by his involvement in the New York School of abstract artists that became prominent in the 1930s. Examination of Noguchi's work allows artists and the larger community to question the nature and definition of art and design. Noguchi pointed us to a new way to understand art. His work breaks free of a stagnant aesthetic, bringing a fresh viewpoint to the ancient and profound.

Keywords: Isamu Noguchi, sculpture, landscape architecture, playgrounds, modern art, design

Artist and designer Isamu Noguchi was one of the best-known American sculptors during the 1960s and perhaps the first visual artist to sculpt public space. He had no training in landscape architecture, but used his intuitive and artistic understanding of space to create landscapes that he considered large sculptures. Interestingly, Noguchi called all his designs sculpture, creating significant works that encompassed academic and abstract sculpture, product design, set design, playground design, and landscape

architecture. His work was innovative and traditionally inspired, combining his background in academic sculpture, a unique modern aesthetic, and the influence of his Japanese-American heritage.

Noguchi advocated for sculpture to be a larger and more universal discipline, wanting to create art that was relevant to everyday people. These goals lead him away from academic sculpture to conceive of monumental landscape projects. Noguchi's lesser-known works include monuments, playgrounds, and gardens. Many of his designs are unrealized, expressed in models for projects that were never built; yet, the concepts are groundbreaking and visually stunning. Noguchi's landscapes are a profound contribution to art and design. Informed by a lifelong inquiry into form and its relationship to function, these large-scale works stretch the limits of what is considered art and functional object. Noguchi pioneered a concept that is still controversial. Design, successfully integrated into the larger discipline of fine art, becomes a pragmatic and inspirational model for innovation and creativity.

Noguchi refused to accept limitations in his work and was a prolific and tenacious designer. His approach to his profession may provide a map for designers seeking to create work that is unique and forward thinking. Noguchi's work often changed throughout his career and this diversity was one of his greatest strengths. His sculpture was fresh and innovative, as he was always creating something completely new. Noguchi wanted a new art that was free of what he called the "limiting categories of architects, painters, sculptors and landscapists" (Larivee, 2011 p. 56). A uniquely American art, his work was less about dogma and traditional limitations and more about imagination, as he actively shaped the world in which he wished to live. Noguchi's landscape works are noteworthy not only because they were his greatest passion, but also because they incorporated his largest scope and vision.

Born on November 17, 1904 in Los Angeles, California, Isamu Noguchi moved to Japan with his American mother to join his Japanese father when he was two years old (Hunter, 1978). He showed an early sensitivity to the visual environment and an interest in shaping his surroundings. He had an aptitude for creating gardens and water features from an early age. Noguchi created and cared for a garden in his childhood. In this garden grew peach trees and rosebushes. The boy fashioned a small brook by diverting overflow from a pump. His earliest memories were of flowering

trees, a pine grove, gardens, visits to temples, and a playground that was unwelcoming: "I came to know a playground, or open space, that filled me with foreboding" (Noguchi, 1967, p.12). Noguchi's childhood experiences, as well as those of his youth lead him to seek to fundamentally change his natural surroundings through his work.

As a young artist, living in New York City, Noguchi worked extensively on formal small-scale sculptures, often portrait heads, but was ultimately dissatisfied with making decorative objects for the elite. He found the work limiting and disapproved of its reliance upon vanity, its focus upon the individual. He wished for his sculpture to communicate more meaningfully to others and to function on a grander scale (Noguchi, 1967). This impulse turned his attention to a passion for the design of public spaces: landscapes, playgrounds, and monumental sculpture.

Noguchi was influenced by the modernist idealism of his friend inventor Buckminster Fuller, architect Louis Kahn, and seminal modernist architect Le Corbusier. He combined this contemporary aesthetic with influence gained in his childhood in Japan, incorporating the traditional simplicity of Japanese gardens and temples. He was a friend of the abstract painters Arshile Gorky and Willem de Kooning, as well as other members of the New York School of prominent abstract artists. This aesthetic informed his sculpture, as well as that of his mentor, influential sculptor Constantin Brancusi, with whom he briefly apprenticed in Paris (Noguchi, 1967).

Noguchi's career shows that the design of public space is inherently political and reveals the designer's aspirations and beliefs about the world, which are expressed through the aesthetic and functional aspects of each design. Noguchi saw landscape design as a way to merge art and function in a way that was truly democratic. Qualities of universality and neutrality are often desired in the design of public spaces, but these choices in themselves are impactful and ultimately political (Harrisson, 2003). The character of a public space, traditional or contemporary, economical or opulent, communicates visually and functionally to the user (Lawson, 2001). Landscape design conveys the values of a community and ultimately impacts whether individuals are welcomed or excluded from a space. Designed spaces can profoundly affect individuals, communities, and society at large.

Public places are ideally open to all people, regardless of class, race or economic status. Noguchi created spaces to accommodate a society that

celebrated art, freedom, and individuality. He wanted people to experience sculpture in their everyday lives, and public spaces were the perfect forum for this goal. His artwork was intended to communicate directly with people, and in order to do this he intentionally expanded the scope and definition of art (Noguchi, 1967).

Noguchi's early landscape designs began as several conceptual models. These generalized, rectangular reliefs include the designs for *Monument to the Plough* and *Play Mountain* and served as expressions of ideas that he developed in his later works (Noguchi, 1967). With an expansive vision, Noguchi saw the earth as a medium. Many of his projects included earth modulations, as he sought to literally sculpt the earth. *Monument to the Plow* was Noguchi's first large scale landscape design. Dedicated both to Benjamin Franklin and Thomas Jefferson who together invented the American plow, the plan called for a monumental earthwork, a shallow pyramid one mile across. One side of the pyramid would be tilled earth, one side would be left fallow, and one would be planted with seasonal crops. At the apex was a massive sculptural steel plow (Noguchi & Kahn, 1997). The design reflected Noguchi's vision of the American dream: agricultural land and traditional work ethic supporting technological innovation. The pyramidal shape of the earthwork was an important vision for Noguchi and was repeated many times in his future work. *Monument to the Plow* was not well received and the design, like many of his landscape works, was never realized (Noguchi & Kahn, 1997).

Monument to the Plow was conceived alongside several other landscape projects, including Noguchi's first playground designs. The artist saw playground design as a chance to create a democratic, utopian, public space. Noguchi's playgrounds were similar to "adventure playgrounds" that arose in England after World War II. Created with the objective to help build a peaceful post-war community, these designs were informed by ideals including pacifism, democracy, and participatory collectivity. Adventure playgrounds encouraged less-structured, more imaginative play by offering no standard play objects such as sandboxes, swings, and slides (Kozlovsky, 2007). Noguchi believed that

> . . . the playground, instead of telling the child what to do (swing here, climb there) becomes a place for endless exploration, of endless opportunity for changing play. And it is a thing of beauty as the modern artist has found beauty in the modern world. (Noguchi, 1967, pp. 176-177)

Noguchi saw the concept of "play" as a metaphor for freedom and sought to engage the observer's free will by providing a space for unlimited imagination (Noguchi, 1967).

Isamu Noguchi's lifelong interest in playgrounds grew from the precursor of his later playground designs, the 1933 *Play Mountain* (Figure 1). He claimed that the work was 'purely instinctive', not based on drawings or extensive preliminary work (Noguchi & Kahn, 1997, p. 132). This intuitive inspiration was a hallmark of Noguchi's work, as was his determination to artistically express his unique and forward-thinking ideas.

Figure 1. *Play Mountain*. (1933). Bronze from original plaster. (Watz, 2009).

Play Mountain was to take up one city block in New York City, the entire area functioning as one large play object. To maximize the amount of usable space, Noguchi imagined an inclined surface, a stepped pyramid that would house facilities and play space. The plan included an amphitheater, bandstand, spiral sledding hill, and a water slide that ended in a shallow pool. Sculptural concrete forms replaced traditional playground equipment (Noguchi, 1967). Noguchi sought to fundamentally change, through art, the traditional limited approach to playground design.

Noguchi's choice of the complex medium of playground made the

work inherently more difficult to realize. Noguchi dove headlong into a medium that was yet uncharted for visual artists (Larivee, 2011). Work for the commons, for the community, requires compromise, negotiation and is vulnerable to changing political and economic tides. In 1934, Noguchi presented *Play Mountain* to New York City Parks Department officials. Noguchi said, "We were met with thorough sarcasm" (Noguchi, 1967, pp. 21-22). The innovative plan was soundly rejected, but Noguchi's interest in playgrounds continued.

In 1939, Noguchi was commissioned to design play equipment for Hawaii's elaborate Ala Moana Park system. He created several models of *Playground Equipment*, including a climbing apparatus, a multiple-length swing set, and a spiral slide. These designs were sculptures that could be directly experienced with the body, touched and climbed upon (Noguchi, 1997). The Hawaii Parks Commissioner died before the project was completed, and it was never realized (Noguchi, 1967), though a version of *Playground Equipment* was built much later in Piedmont Park in Atlanta, Georgia (Noguchi, 1997).

Noguchi presented his designs for *Playground Equipment* to the New York City Parks Department, but officials rejected the plans due to safety concerns. In response, he created *Contoured Playground* in 1941. Again, the playground was to be one large play object; this time composed entirely of rounded land modulations. Slides, shelters, areas for games, and water features were built into the contours of the park. Studies have shown that the design of spaces affects how children functionally utilize their environment. Children prefer to play in environments that are not enclosed and allow for unstructured play. Environments that limit activities are of interest for a limited time. Children actually prefer play spaces that incorporate an element of danger (Cele, 2005). *Contoured Playground* was unique compared to playgrounds today; in 1941, it was truly revolutionary. New York Parks officials seemed open to the plan, and there was a possibility of locating it in Central Park. The onset of World War II interrupted the project, and it was never realized (Noguchi, 1967).

In 1948, discouraged with his inability to realize projects in New York City, Noguchi applied for and received a fellowship from the Bollingen Foundation. His goal was a book on the subject of leisure; however, the concept for the project encompassed much more. Noguchi wished to find a purpose for sculpture that was beyond the aesthetic. He observed that

sculpture has been used ceremonially throughout history through effigies, monuments, temple plazas, and dance halls. He wanted to discover how sculpture fit into a utopian world in which people had the time to view and appreciate art (Noguchi, 1967).

Noguchi felt that modern people, with increasing technological knowledge and fast-paced contemporary lifestyles, have a profound need for a new type of sculpture. His inquiry incorporated public art and the function of outdoor spaces (Cummings, 1973). Noguchi wanted to observe, in situ, the origins of use of sculpture. He visited prehistoric sites in England, including Stonehenge and ancient caves in Aylesbury. He went to Paris and Brittany to observe pre-historic caves, as well as the mysterious dolmens (portal graves). These sites illustrated how people used public art in ancient times. He traveled to Italy to observe gardens and piazze and then to Spain to study Gaudi in Barcelona. He went to Greece and traveled up the Nile to Egypt, to the Pyramids and tombs at Luxor. He stayed six months in India and visited various temples, including Angkor Wat, in Cambodia, and the island of Bali (Noguchi, 1967; Cummings, 1973).

Noguchi's playground designs and world tour were precursors for his garden designs. His interest in gardens arose from their inherent usefulness. He saw gardens as an opportunity to sculpt public space, moving beyond individual sculptures. He created these designs out of a need to belong, to improve a space, and to make life better for everyone. For Noguchi gardens were an answer to ecology and expressed his hope for humanity's survival in a post-atomic age (Noguchi, 1967). He believed that inspiration for successful art must come directly from nature (Cummings, 1973). Thus, perhaps his most compelling realized works are interactive gardens, complex natural spaces populated with sculptural objects.

Noguchi was mindful of the power the designer exercises over the many facets of a space and the impact each space has upon the observer. When perceiving a space, each person creates an interpretation in response to his or her unique awareness. Spaces have the power to influence our behavior and affect us through both a physical and social environment (Lawson, 2001). Noguchi's landscape works created functional spaces that invited the viewer to conceptually engage the ultimate questions of time, space, and human existence.

> I am excited by the idea that sculpture creates space, that shapes
> intended for this purpose, properly scaled in space, actually create a

greater space. There is a difference between actual cubic feet of space and the additional space that the imagination supplies. One is measure, the other an awareness of the void—of our existence in this passing world. (Noguchi, 1967, p. 160)

This awareness of the observer and the larger forces at work in a given space lends Noguchi's landscapes a unique power.

Noguchi's designs communicated traditional spiritual ideals of the East through the lens of modernist idealism. While Noguchi was a skeptic, his knowledge of Zen Buddhism profoundly influenced his work (Ashton, 1992). The concept of the void, an idea discussed in Zen Buddhism, was a repeated theme in Noguchi's work. The void encompasses emptiness and form, and form grows out of the void. This is expressed in the Heart Sūtra that states "that which is form is emptiness and that which is emptiness is form" (Yoshiko Seo, 2007, pp. 3-4). This ambiguous yet practical concept is mirrored in Dutch architect Herman Hertzberger's theory of design 'structuralism,' which considered objects and spaces not as 'tools' but as 'musical instruments,' implying that the structure of a space defines its basic function, but does not limit the many possibilities to play and create different types of "music" (Lawson, 2001, p. 201). The space functions to house activity and provides the freedom to choose. Noguchi expressed this concept by creating Japanese-inspired gardens intended to house people and sculptures, interrelated within a backdrop of natural surroundings.

In 1956, Noguchi designed a garden for the UNESCO Headquarters in Paris. Intriguingly, Noguchi described the work as an "ambulatory garden" and said that human movement activated his sculptures as one moved through the space. The observer was meant to contemplate the "relative value of all things" (Noguchi, 1967, p. 165). The UNESCO garden included the traditional features of a Japanese garden: stepping-stones, cherry trees, a vaulted bridge, and meticulously placed stones (Noguchi, 1997).

Noguchi's most outstanding landscape work was comprised of the unrealized plans for *Riverside Drive Park* (Figure 2). Since he had past difficulty realizing projects in New York City, Noguchi decided to enlist the help of an architect and invited Louis Kahn to collaborate (Noguchi & Kahn, 1997). Noguchi and Kahn were at the height of their respective careers, and there was renewed public interest in innovations in playground design (Larivee, 2011). They worked for five years on multiple proposals for the project, and each proposal was rejected in turn. Noguchi said, "Each

time there would be some objection—and Louis Kahn would then always say, 'Wonderful! They don't want it. Now we can start all over again. We can make something better'" (Noguchi & Kahn, 1997, p. 100).

Figure 2. *Riverside Park Playground.* (1960). Bronze from original plaster. (Watz, 2009).

French architect Le Corbusier, whose work was the conceptual prototype of high-modernist urban design, inspired both Noguchi and Kahn. Active from 1920 to 1960, Le Corbusier was highly influential in modern urban architecture (Johnson, 2008). High modernism sought to improve the infrastructure of cities by creating completely new systems. The modernist designer created an urban environment that was open and filled with fresh air and sunlight. The structures that allowed for this included vaulting skyscrapers, wide roads, and open paved plazas. High modernists called for complete destruction of existing structures, to start fresh, from a blank canvas (Johnson, 2008). In his unrealized plan for central Paris, the *Radiant City*, Le Corbusier completely replaced existing structures, making way for vast open spaces and sculptural forms most visually impactful from a distance. While visionary, his plans gave no credit to traditional architecture

or the aesthetic of the Parisian people. The design had no relationship to what existed in Paris and was ultimately rejected by the citizens of Paris (Johnson, 2008). Noguchi and Kahn's plan for *Riverside Drive* encountered similar problems integrating with the local community.

While the initial plan for the *Riverside Drive* playground was innovative and forward thinking, it called for a massive modernist monument comprised of geometric concrete shapes and very little green space. Existing trees and structures were to be destroyed (Noguchi, 1997). If the original plans had gone forward, a traditional grass park, shaded by trees would have made way for a monolith of modernist stonework (Noguchi, 1997). A revised plan was submitted to the Parks Department in June of 1962. The central structure was again a massive earthwork, a stepped pyramidal building. Designed to be a suntrap, providing warmth in winter, the roof functioned both as an above ground play area and a shelter for facilities below. Play objects would be made of colored concrete and built into the landscape (Noguchi, 1967; Noguchi & Kahn, 1997). This plan was also rejected. The project was thought to be too costly, too large in scale, and markedly avant-gardist (Noguchi & Kahn, 1997). Noguchi and Kahn offered another model, followed by three others. Five plans were proposed throughout the five-year process, with over a dozen models created (Larivee, 2011). As the modified plans became less grand in scope, Noguchi became less satisfied; he felt it no longer reflected his vision (Noguchi, 1967). Noguchi said of the unrealized project,

> the idea of playgrounds as sculptural landscape, natural to children, had never been realized. How sad, I felt, that the possibility of actually building one presented itself when it was past my age of interest. Why could it not have been thirty years before, when the idea first came to me. (Noguchi, 1967, p. 177)

The final version of the project was presented in 1965. Noguchi and Kahn had perfected a design that was accepted by the city, the plan was funded, and Mayor Wagner had signed the papers. Unfortunately, the process took too long, and the project was a casualty of political change. Republican John V. Lindsay who ran on the promise of fiscal responsibility defeated the Democrat, Mayor Wagner. The *Adele Rosenwald Levy Memorial Playground* was an obvious target.

Modern implementation of some of the ideas presented in the Noguchi-Kahn project has been successfully achieved. An example in

architecture is the *ACROS Fukuoka Building* (Figure 3) in Fukuoka City, Japan, designed by Emilio Ambasz & Associates in 1995. Fourteen stories high, each story is smaller than the next, mimicking Noguchi's stepped concept. Unlike Noguchi's initial design for *Play Mountain, ACROS Fukuoka* utilizes extensive green space, with each step planted with trees and gardens. Green space helps to lower the temperature of an area 3°C in contrast to paved areas, reducing the urban heat island effect in which paved areas create an increase in overall temperature in the urban environment (Goto & Gotoh, 2002). Like *Play Mountain,* the building utilizes the pyramidal shape for double use of a given area.

Figure 3. *Acros Fukuoka Building* (1995). Fukuoka City, Japan. (Acros, 2009).

Noguchi's ideas are also echoed in contemporary playground design. MSI Design created a solar-system themed playground, *Discovery Frontier,* in Grove City, Ohio in 2006. The design's complex interrelatedness and repetitive circles recall Noguchi and Kahn's models for *Riverside Park Playground*. This futuristic adventure playground includes a moon structure comprised of a 36-foot diameter dome complete with crater tunnels, which lead to an 11-foot high covered playroom. The central feature is a 50-foot diameter sculpture comprised of five 14-foot structures made of steel,

aluminum, and resin (Stretch, 2010), reminiscent of the shade structures Noguchi designed for *Kodomo No Kuni Park* near Tokyo, Japan.

Noguchi's vision of art and architecture in relationship with nature continued to occur in his work. The artist felt that it was tremendously important for a community to have quality public spaces to provide both meaning and continuity (Noguchi 1976). The garden for the Chase Manhattan Bank Plaza, 1965-1966, or *Sunken Garden* (Figure 4) in New York City is one of Noguchi's most accessible landscape works. It was created in collaboration with designer and architect Gordon Bunshaft of Skidmore, Owings and Merrill (Ashton, 1992). Located outside Chase's Manhattan headquarters, the piece is a water fountain, located in a circular well surrounded by a wide-open plaza. Left dry in winter, in summer the basin is flooded with water that cascades over the rim of the circular basin. Water shoots upwards from fountain at changing intervals, sending ripples over the water's surface. The geometric pattern of the tiled ground was meant to contrast with the natural forms of the rocks. Noguchi wanted this surface to be "like the wild and surging shell of the sea, and . . . floating on it would be the elemental rocks" (Noguchi, 1967, p. 171).

Figure 4. *Sunken Garden,* (1965-1966). New York, New York. (Witcher, 2011).

In 1975, Noguchi established a studio in Long Island City in Queens,

New York, which became his working studio with living quarters (Ashton, 1992). Later to become the *Isamu Noguchi Garden Museum* (Figure 5), the garden is an example of Noguchi's work in which he made no compromises. A cement path curves gently through the base of the garden, which is comprised of soft gray stone. Intentionally placed trees interrupt the stone, as well as a number of Noguchi's sculptures. One can feel a sense of place in Noguchi's garden. Each piece relates to the other, standing solemnly apart, but intimately related.
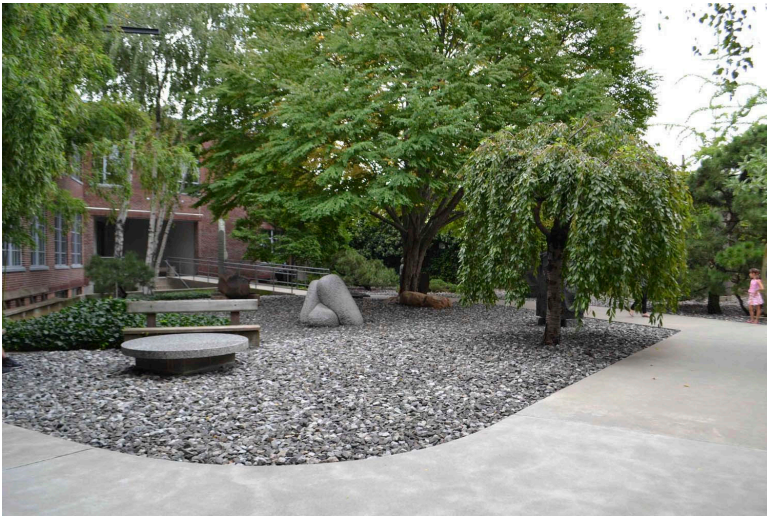
Figure 5. *Isamu Noguchi Garden Museum,* (1975-1988). Long Island City, New York. (Witcher, 2011).

In this garden is *The Well* (Figure 6), one of Noguchi's groundbreaking sculptures. A piece of deep brown rock is carved flat at the top, in its center a circle is cut, filled perpetually with water by an internal pump. The well overflows gently and the water glides first uniformly and then broken over the sides of the stone. It is an expression of perfection and harmony, reflecting the random wonders found in nature.

Figure 6. *Well*, (1982). Long Island City, New York. (Witcher, 2011).
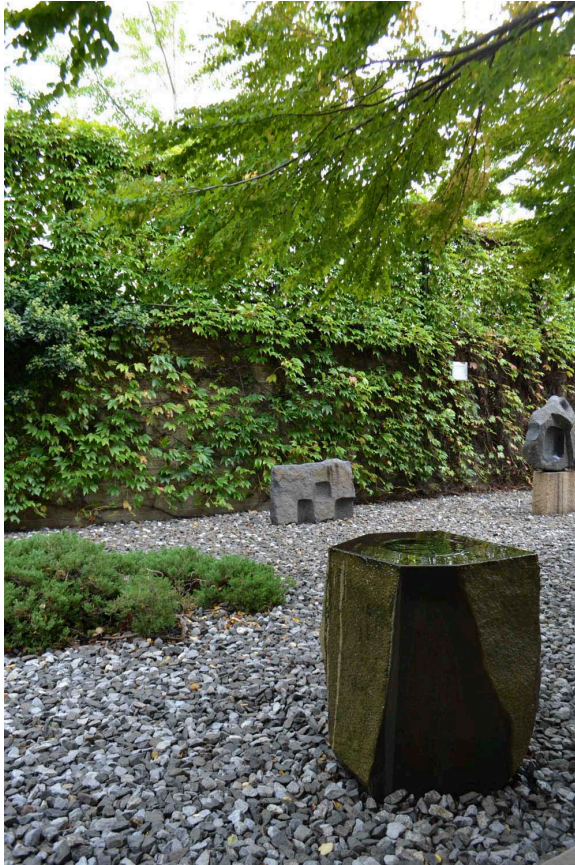
Later in his career, Noguchi integrated his varied experiences in landscape design, imagining that playgrounds could also be gardens. The artist's interest in playgrounds persisted, and during the last years of his life, he designed a park, *Moere-numa Koen* (Figure 7), in Hokkaido, Japan based upon *Play Mountain* (Noguchi & Kahn, 1997). Isamu Noguchi died just after presenting the final design. The project was completed, based upon his conceptual model, six years after his death. The park's playground includes a wide array of Noguchi's *Play Equipment*. A massive pyramidal homage to *Play Mountain* dominates the vista of the park. The large-stepped pyramidal hill serves as a place to view the countryside but does not function as an urban earth-sheltered building (Larivee, 2011). *Moere-numa Koen* is a final monument to Noguchi and his essential landscape works.

Figure 7. *Moere-numa Koen* , (1988-2004). Hokkaido, Japan. (Motoe, 2007).

Isamu Noguchi's career resulted in work of impressive diversity. His playgrounds, landscapes, and gardens are products of his most enduring passion. These large-scale works stretch the limits of what is considered art and functional object. Study of his work reveals his tenacity, creativity, and unwillingness to compromise his artistic ideals. These qualities resulted in groundbreaking landscapes that arose from a desire to sculpt the world, to create it, as he would like it to be. His work reveals both a childlike wonder and the maturity of an artist willing to push the limits of his field.

Noguchi was a resolute modernist, but returned always to nature for inspiration. The quality and availability of public space pragmatically affects our daily lives. Exploring Noguchi's landscape designs may challenge both artists and the larger community to question the nature and definition of art and its relationship to design. Noguchi pointed us to a new way to understand art. His work breaks free of a stagnant aesthetic, bringing a fresh viewpoint to the ancient and profound.

Designers and artists that integrate literary, cultural, and social issues into their work achieve a new measure of success. Noguchi modeled a willingness to imagine something new, a willingness to take on monumental projects, and finally a desire to create designs with the power to transform society. Noguchi listened to the inner voice that told him to return to his roots, to work hard, to persevere always with an open mind, and ultimately to not accept traditional boundaries. Indeed, Noguchi's true triumph and

contribution is that art and design are in fact one discipline, that those labels are essentially limiting, and that art and design are something larger than we imagine. His work is a call to action. Artists and designers must move forward to create something that is fresh, new, and meaningful and then do the work to functionally communicate that contribution to the world.

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Breaking the Chains: Student Organizations and Social Integration as means to the Development and Academic Emancipation of African American Students

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Abstract

As far as the United States has come in terms of racial equality, including the advent of the first African American president, African American college students continue to have some of the lowest retention rates in the country and struggle to succeed in college. Researchers look far and wide for resources to bring to campuses to improve success rates of these students. However, student organizations are an overlooked asset on college campuses and have been understudied in regards to African American student success. Data collected through interviews of African American students at a predominantly white institution was analyzed to shed light on the potential of student organizations to facilitate social integration and develop a healthy racial identity. This study has identified networking as a key in achieving social integration and a healthy racial identity among African American college students. These results can be used to inform policies to encourage African American students to become proactively engaged in student organizations and develop skills critical to their success in college and for universities to focus more resources toward these organizations.

Keywords: African American students, student organizations, racial identity, social integration, social solidarity

Imagine a college campus where student organizations consisted of students of all races and ethnicities coming together to express and share ideas, helping to construct a polyethnic future from which the whole of society could benefit. Far from an academic utopian dream, this is a tangible undertaking in which our contemporary society is capable of making great

inroads. However, despite great improvements across racial barriers, the idea of a truly diverse college campus remains unfulfilled today. African American college students continue to struggle with social integration, which is the strength of the attachment that we have to society (Goodman & Ritzer, 2004) on college campuses. The lack of social integration results in the alienation of African American students on campuses across the nation, translating to low retention rates. Research that focuses on social integration through student organizations and their effects on student success could lay the groundwork for the development of a new understanding of student organizations on campus. This research would be especially helpful to college administrators seeking to improve minority student social integration levels and success on campus.

The purpose of this study is to analyze how student organizations influence African American students' social integration, racial identity development, and ultimately their overall college experiences at predominantly white institutions (to be referred hereafter as PWIs). Of broader interest is the direct relationship between social integration levels among African American students and diversity on college campuses. Two social theories were used in this study; double consciousness theory is used to examine the concept of self-identity of African American students and how that varies in relation to student organization involvement. Additionally, the theory of solidarity was also used to explore the relationship between African American students and retention, and how student organizations could act as a catalyst to facilitate social solidarity among African American students at PWIs. Exploring the experience of African American college students with student organizations offers original and unique information in improving retention rates within one of the lowest graduating minority groups (National Center for Education Statistics, 2011).

Literature Review

Previous studies revealed that researchers have sought social integration as a strategy to improve retention and utilized a variety of approaches in an attempt to achieve these ends. Research can be broadly characterized into three categories: the examination of the historical roots of African American student efforts, venues for reconciliation of conflicting self-identities among African American students, and student organizations as settings of development for African American student leaders.

The activism of African American students in the 1970s' Black Power

Movement helped reshape the college experience for African American students and charted a new role for student organizations (Williamson, 1999). These African American student pioneers helped shape the first support networks inside college institutions for other African American students, including Black Student departments, academic support services, and student organizations such as the Black Student Union (Williamson, 1999). The Black Student Union was part of a larger group of ethnic student organizations that emerged in the 20th century American collegiate system. In addition to the emergence of these new organizations, institutions were also encouraged to redevelop and adjust internal structures to better suit the students' needs (Richardson & Skinner, 1990).

Of major concern to modern scholars and researches alike is the issue of self-identity among African American students. Research has identified a relationship between racial identity and race-related stress, specifically in regards to the internalization of racial attitudes (Arbona & Johnson, 2006). Research shows that internalization and development of healthy racial identities allows African Americans students to focus on achievement but that students have difficulty developing such identities (Ford & Grantham, 2003). Racial identity has different impacts depending on the gender of African American students. African American female students are highly influenced by societal definitions of race and gender, and their identity development and self-esteem are closely related to the campus environment. Joining student organizations can add positive effects to their identity development (Watt, 2006). Student organizations are identified as a major originator of leadership development of African American male students, and more development occurred in ethnic student organizations as opposed to mainstream organizations (Harper & Stephen, 2007).

Researchers identify social integration as the vessel through which African American education should be addressed. Tinto's theory of student departure identifies social integration as one of the primary reasons students leave campus (Draper, 2002). Social integration encompasses all aspects of the college setting, including classrooms, athletics, and living communities. Research on African American student involvement shows that in-class and out-of-class experiences positively impact student development (Flowers, 2004). In regards to development, studies point to ethnic student organizations as more effective than mainstream student organizations in developing black leadership among males and identified cross-cultural communication,

part of social integration, as a key skill these students developed (Harper & Stephen, 2007). Research on African American student organizations and the relationship to social integration finds that they promote networking and cultural connection and help them feel more comfortable (Guiffrida, 2003). Beyond social integration, research has interpreted the connection between student organizations and African Americans holistically (Harper & Stephen, 2007) and identified ethnic student organizations as safe zones for minority students that help facilitate cultural adjustment, cultural expression, and cultural validation (Museus, 2008).

Ultimately, the focus of this study pertains to African American student engagement in student organizations on college campuses. Previous research has shown that African American student social integration can be impacted by involvement in student organizations and that this impacts university diversity and minority retention rates (Flowers 2004; Guiffrida, 2003; Harper & Stephen 2007; Museus, 2008; Literte, 2010). However, not addressed in previous research is the meaning of a healthy racial identity among African American students, understood here as a recognition of positive identity within a racial group while identifying barriers and opportunities to integrate within other cultural, social environments (O'Connor et al., 2011). This study explores student organizations, social integration, and self-identity among African American college students, specifically targeting a rural Midwestern PWI, to better understand the meaning of a healthy racial identity and how that may be facilitated by student organizations.

Theory

This study takes a grounded theory approach and utilizes the inductive nature of qualitative research to explore the meaning people attach to their social reality, which is marked by a careful process of "reflexive or dialectical interplay between theory and data whereby theory enters in at every point, shaping not only analysis but how social events come to be perceived and written up as data in the first place" (Emerson, Fretz, & Shaw, 1995, p. 167). Two theoretical perspectives frame this study: both the double consciousness theory and the theory of solidarity bring clarity to the results of the research and structure to the analysis.

First, W.E.B. Du Bois (1897) developed a social theory he called "double consciousness" to explain the concept of African Americans viewing themselves simultaneously through their vision of the world and through the white person's view of the world. The dilemma and contradiction of

being both of African ancestry and an American at the same time can have profound effects on a person's psyche. In relationship to the collegiate experience, there is confusion in regards to identity for the African American student in the struggle to fit in with the social structure of their campus wherein "he simply wishes to make it possible for a man to be both a Negro and an American without being cursed and spit upon by his fellows, without having the doors of opportunity closed roughly in his face" (Du Bois, 1903, p. 2). Du Bois (1903) stated, "The problem of the 20th century is the problem of the color line." Double consciousness theory helps to ground this study in understanding students' perceived idea of the contradiction of being African American and being an American student and whether that is reconciled by student organizations.

The second theory utilized by this study is Emile Durkheim's theory of solidarity, stemming from his research in suicides. While suicide is an extreme reaction and far from the norm of African American students' response to their college experience, the idea of social integration that developed from its research is highly relevant to this study. Durkheim's theory involves two components, integration and regulation, but for the purpose of this study the focus is solely on the integration component. Durkheim defined integration as the strength of the attachment that we have to society (Goodman & Ritzer, 2004). It is important to note that social integration does not imply coerced assimilation or forced integration (United Nations, 2005). Two extremes of social integration exist on opposite ends of the spectrum and can be detrimental to the individual. On one hand, a person will feel complete alienation from society, and on the other hand, they will over-identify with their social group and be highly susceptible to rash action and group activities. African American students must seek social integration, but only to a degree in which they find balance between both ends of the spectrum. Social integration will lead to an increase in the larger concept of Durkheim's studies, social solidarity, or the changed way in which society is held together and its member see themselves as part of a whole (Goodman & Ritzer, 2004). Durkheim identified two types of solidarity, mechanical and organic. Of particular interest here with student organizations and social integration is mechanical solidarity in which people share a set of common activities and similar responsibilities, in this case, going to college and sharing a similar struggle of developing a healthy racial identity at a PWI. Durkheim's theory of solidarity acts as a gauge

with which to measure African American progress on campus and gives clarity to non-academic factors that can influence retention.

Methods

Social integration, self-identity, and student organizations are the primary variables of interest in this study. The goals of this study include exploring diversity and giving a voice to marginalized groups (Ragin & Amoroso, 2011). Qualitative methods were used to address two key questions:

1. What social issues prevent African American students from identifying with and participating in student organizations?
2. What is the meaning of college and racial identity to African American students?

Using previous literature, double consciousness theory, and the theory of solidarity, this study was informed by two guiding propositions that are linked to the above research questions:

1. Student organizations, specifically ethnic student organizations, help mediate the effect of double consciousness on confusion and contradictions in social norms for African American college students.
2. Social integration on campus improves the healthy racial identity among African American students, and facilitates a more comfortable and educational experience.

Methodology

Data in this qualitative study was collected through informal, structured interviews at the college campus which these African American students attended. This study used an emergent, grounded theory design which allowed the research to adapt or change after data collection. The research location of this study was a PWI, specifically a medium-sized public university. This study included student participants because African American undergraduate students were the target population at the research location. The participants featured a balanced gender selection, two female and two male subjects. Another important characteristic was variation in years of study, providing a simple cross-section of the African American student body. The small sample size speaks to the overall size of the African American student population at this PWI, which was under 100 students. The criteria for participation in this study included students' involvement in student organizations, class (year in school), sex, availability, willingness to

participate, and variation in perceived degree of success, which narrowed the participant field substantially. The four students that were selected included Nefertiti, a freshman, Amina, a sophomore, Mansa, a sophomore, and Shaka, a junior. Each participant has been given a pseudonym to maintain confidentiality.

The methodology used for the qualitative portion of this study was face-to-face interviews, using a voice recording device and fieldnotes recorded in a notebook. It is important to highlight the role of the primary researcher in this study, specifically to identify the researcher's background, values, and biases. Identifying and recognizing potential bias can add real-life experience to the study and enhance validity. There are many similarities in terms of background between the researcher, the participants, and the target population. These include: sharing the same racial identity, attending the same university, attending some of the same classes, and participating in the same student organizations with some of the participants during the research process. During this study, the researcher was active in multiple student organizations, serving as president of one organization, and as an officer of two others. This type of research has been referred to as "backyard research," studying one's friends, organization, or immediate work setting (Creswell, 2009).

Results

After conducting interviews and transcribing the results, the text and fieldnotes were coded and organized into themes and patterns. The dominant themes that were identified included "networking," defined as a "supportive system of exchange of information or services among individuals, groups or institutions" (Merriam-Webster, 2011), to develop and facilitate social integration. Next, "social pressure," or the tension and or stress caused by the presence of social contours and/or lack of a self-identity in a particular social environment that creates urgency or pressure to find belonging, was the second theme. "Social contours" are defined as barriers, bubbles, lines, or zones around people and/or opportunities created by societal norms that restrict social movement and or social integration (e.g., racial barrier, personal space bubble, the color line, friendship zone). Third was "adaptation," which is the process of adjusting to environmental conditions and/or a change in behavior of a person or group in response to new or modified surroundings make an individual more receptive to social integration (The Free Dictionary, 2009). "Acceptance" was the final theme, defined as the act of accepting or agreeing with one's identity.

The relationships among these themes suggested that a developed social network in a particular social environment helped to navigate social contours and negate the effects of social pressure, ultimately helping the students socially integrate while developing a healthy racial identity and successful college experience.

Networking was directly or indirectly referred to by all interview participants. Nefertiti referred to networking as a "tool" that can be utilized to "meet people and put your name out there," while Amina referred to it as "a safety net." These two statements refer to networking in opposing contexts: one as a proactive tool in an assertive context and the other as a safety mechanism in a passive context. Using networking in an assertive manner suggests the student seeks social integration in his or her social environment, making the student inclined to feel more comfortable with his or her college experience. As a passive strategy, networking suggests that the student seeks safety and is less inclined to pursue social integration. Ultimately, the way in which networking as a tool is used by students can impact how social forces affect them and their social integration in college.

Social pressure was expressed in several forms throughout the interview process. How students reacted to this pressure was the difference between utilizing networking in an assertive or passive manner when confronted with social integration. The following comment from Mansa illustrates one example of how African American students experience the concept of social pressure:

> When I'm new to the school or any environment you feel a little intimidated. Because of the environment you came into you feel isolated because you don't know anybody from that community, and you have this fear; will these people accept me or reject me?(Mansa, personal communication, April 14, 2011)

Mansa's statement was reiterated among other participants. Some participants called it pressure, others referred to it as tension. The pressure, as Nefertiti referred to it, was a direct reflection of the alienation on campus in which she felt "pressured to find other minority students instead of being in the general population with everyone else." Shaka said the tension he felt made him lose focus. These statements suggest that less social integration increased the amount of social pressure students felt. Much of the social pressure participants experienced was described by them as the effects of social contours they encountered in their social environments.

Social contours were a subtle theme in this study that explained the barrier between proactive networking and perceptions of pressure. The

participants explained them as "social bubbles," zones, or invisible lines, that generate pressure and tension. "[African Americans can excel] if they're willing to get outside their bubble," explained Amina, "I've been living outside my bubble since I was born. My mom's Black and my dad is white" (personal communication, April 11, 2011). Other participants experienced the contours as a "zone," as was the case with Shaka who described his particular experience: "I'm not going to have minorities to connect with, so I had to get out of my comfort zone (Shaka, personal communication, April 10, 2011)." In these two statements, engaging in social integration was used as a channel to overcome social contours, which was reflected in language such as "living outside" or "getting out [of their natural social environment]." The social contours remained when attempts of social integration were not successful. Nefertiti mentioned "[something] almost like a . . . dividing line" that she felt separates her from fellow, white students. Du Bois (1903) defined this as the "color line" in describing a barrier preventing blacks from participating in various activities with whites (p. 3). The color line is traditionally used in reference to the Jim Crow laws of segregation in the American South in the early 20th century, but it can apply to any barrier—real or perceived—of difference of opportunities separating whites and racial minorities. The presence of the color line speaks to the immense task African Americans feel exists in overcoming social contours present at PWIs. However, Amina and Shaka discussed how African American students must take initiative if they are to surmount these barriers through adaptation.

Before moving further into how integration was established through developing a healthy racial identity, it is important to distinguish between adapting and adjusting. Adapting involves a major change in environment, while adjusting involves only minor changes. African American students have to adapt to the environment of PWIs, which are often very different in terms of culture and diversity from their home environment. "[I have] adjusted, not adapted, to the situation that it is; this is not what I am used to" Nefertiti explained (Nefertiti, personal communication, April 9, 2011). Her statement suggests that adjustment is a strategy used by African Americans like a Band-Aid; it covers the issue but does not fully address the challenges they experience. In other words, adjustment alleviates social pressure but does not facilitate social integration. When Shaka discussed adaptation, he suggested that adapting leads to developing a healthy racial identity: "When

I first got to college I didn't feel comfortable, but I adapted; just learned to deal with it. I'm only here for my education . . . . Adapting for me was just like, accepting the campus, accepting that I'm a minority" (Shaka, personal communication, April 10, 2011)

Acceptance then was another theme which explains the link to adaption, being comfortable, and remaining in college for African American students. Amina expressed accepting her African American identity and using it to excel in school:

I didn't know I was Black until I was in 5th grade . . . . Interacting with other kids, I wanted to be the best example they could see. I didn't want them to be closed-minded to the images they saw on T.V. I saw it as a challenge." (Amina, personal communication, April 11, 2011)

Accepting a healthy racial identity was linked to participants feeling comfortable in their social environment and seeing networking as an assertive tool developed through social integration; they felt less tension and pressure from the social environment to be something they are not when they develop a healthy racial identity. For the three participants who expressed feeling comfortable on campus, or felt they were succeeding, acceptance of a healthy racial identity as a means to success was identified as the point in which their learning began to produce positive results. Taken as a whole, this research illustrates that acceptance dialectically builds upon assertive networking to increase social integration and overcome constraints surrounding social pressure and social contours for African American college students at a PWI.

Conclusion

This study identified networking as the link between social integration and a healthy racial identity for African Americans students. These results relate to previous literature that suggests student organizations build leadership and also reaffirmed the relationship between student organizations and social integration. It also builds off previous research, suggesting that healthy racial identities among African American and prospective student retention rates may increase when African American students link self-acceptance with networking. Networking is effective through assertive engagement in student organizations as opposed to passive engagement. However, both assertive and passive approaches have the same starting point, joining student organizations; therefore, careful attention must be paid to distinguish types of student behavior. Generally speaking, student organizations are a positive influence on African

American college students.

The overall question in studies such as this is the direction in which the causation runs: Are African Americans more successful and comfortable in college if they join student organizations, or do they join student organizations because they are more successful and comfortable in school? There is truth in both statements as both successful and less successful African American students are inclined to join student organizations, especially ethnic student organizations. Nefertiti, who felt less successful, joined a student organization because of lack of social interaction, while Amina, who felt more successful, joined in order to challenge racial attitudes. Nefertiti spoke of the pressure African Americans students feel regarding social integration, which suggests students may join student organizations because of social pressure, but this does not necessarily guarantee a successful development of a healthy racial identity. Additionally, Shaka, who now feels successful in college, confessed he did not feel comfortable when he first came to college. For him, student organizations appear to be a factor in linking social integration and success through assertive networking and developing a healthy racial identity. In general, student organizations appear to be an important first step towards social integration, especially for those who feel less comfortable and successful in college. However, other factors also play an important role in social integration, developing a healthy racial identity, and being successful in college. While some social contours and double consciousness may always exist in society for racial minorities, African Americans can use proactive networking to surmount some of these barriers.

In addressing the first research question regarding social issues that prevent African American students from identifying with and participating in student organizations, this study suggests that joining student organizations is less of a problem than how students participate in them. Being a member of a student organization is not in and of itself enough to facilitate meaningful and effective social integration as Nefertiti's experience demonstrates; students likely need to be assertively engaged in the organization to make their membership successful. Being proactively engaged in student organizations appears to help develop a healthy racial identity and may lead to retention. This revelation addresses the second question regarding the meaning of college for African American students. The focus of African American students in college, according to the results of this study, should be the development of a healthy racial identity which will not only lead to a comfortable, successful college experience but would likely also be useful beyond college.

Student organizations already exist on college campuses, with little to no financial startup costs, but are not considered key to students' success. By understanding the importance of these organizations and utilizing them more effectively, colleges will save money, time, and other resources. African Americans and their student organizations could be supported by complementing services of university offices such as a Black Studies Department or Student Services offices specializing in racial minority needs. Offices also provide stability to student organizations because they are rooted in the college system, with a higher degree of longevity. The absence of such offices on university campuses may hinder the success of student organizations.

A greater amount of interviews, focus groups, and survey research that is informed by the findings here would offer a more holistic and generalizable picture of the challenges African American students face in college. Further research to investigate how other minority groups (e.g., in terms of gender, social class, sexual orientation, and other ethnicities) are affected by student organizations could also add breadth and depth to findings here.

Student organizations encourage student activism and help facilitate social integration and solidarity with other students on campus. Most importantly, student organizations can encourage African American students to take a more active role in their own experience, giving them a sense of responsibility and control over their futures. The results of this study serve as a call to action to African American students to engage in student activism and involvement. We see historical examples of this with the students of the Black Power Movement who created the first African American student organizations and used student organizations as a vessel to ultimately control the conditions of their academic success. African American struggles for freedom and equality in the United States have always embodied the ideas of proactive networking and healthy racial identities. This study adds further empirical verification of such patterns, and it specifically shows how student organizations serve as an avenue to academic emancipation.

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The U.S. Adoption System: Media Depictions and Why They are Ignored

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Abstract

This study investigated the U.S. adoption system, media influence, and welfare spending. It was undertaken to understand how the media frames adoption and the U.S. adoption system and how certain factors influence how the public views welfare spending (welfare spending including foster care and adoption programs). The media presents the adoption process as long and complex, suggesting that social welfare programs that handle adoption and foster care may be underfunded. However, such presentation has not prompted a response from the public, suggesting that opinions about adoption are influenced by factors other than media portrayal. This research suggests that political leanings, family income, and confidence in the media are all partially influential to how people view how much money is spent on welfare programs. This research also suggests that other avenues would be more successful than the media in raising awareness about problems in adoptions, such as using conservative-leaning NGOs to inform conservative-leaning citizens.

Keywords: adoption, media, welfare spending

According to Engels, Phillips, and Dellacava (2007), 80% of children adopted internationally are adopted into the United States; this is despite large numbers of children in the United States waiting to be adopted. The disparity between the numbers of international adoptions and domestic adoptions raises many questions about what influences parents' decisions in adoption. One way to understand this disparity surrounds how the media's portrayal of adoption and the adoption process in the United States shapes parents' perceptions of domestic adoption. Many causes of parental

preferences have already been explored, including the relationship between parental preferences and race, gender, age, and health (Quiroz, 2008; Zhang & Lee, 2011). The perceptions of race, gender, age, and health have a direct relationship to which children are adopted and whether the adoption is international or domestic (Hogbacka, 2008; Lee, Grotevant, Hellerstedt, & Gunnar, 2006). Focusing on domestic adoption, an area of concern is the funding of adoption. The amount of government funding put towards the foster care and adoption system is an important factor influencing how quickly adoptions are processed and how the public views the adoption process. One of the areas that remains understudied is how changes in adoption policy have impacted the presentation of adoption in the media, as well as how that presentation in the media is related to opinions of adoption and welfare spending.

The importance of this study lies in considering the welfare of children being adopted and children waiting to be adopted. Parents seeking to adopt children often consider their own preferences in children before the needs of children waiting to be adopted (Hogbacka, 2008; Roby & Shaw, 2006). Socially-constructed perceptions about the differences between adopting domestically versus internationally are also influential in the choices of parents seeking to adopt. The purpose of this transformational sequential mixed methods study was to explore the portrayal of the adoption process in the media and opinions of welfare spending in relation to adoption, using the social constructionist theory to frame the analysis. This paper explores the topic by reviewing previous relevant literature, describing qualitative and quantitative methods used, describing the results, and presenting conclusions based on the research.

Adoption is shaped by the preferences and tastes of parents. These preferences are varied and can be based on age, sex, race, cultural background, or healthiness (Hogbacka, 2008; Kahan, 2006; Quiroz, 2008; Zhang & Lee, 2011). Often these preferences are the deciding factor in whether parents pursue international adoption or domestic adoption. These preferences are conditioned by the structure of the parents' society and culture. Social norms and values assist in building the background of these preferences (Hogbacka, 2008). Parents' beliefs, attitudes, behaviors, and ideas about issues such as race play an integral role in both international and domestic adoption decisions (Lee, Grotevant, Hellerstedt, & Gunnar, 2006).

A variety of reasons exist for why parents choose to adopt interna-

tionally. Zhang and Lee (2011) found that many parents believe that an internationally-adopted child offers an interesting challenge while a domestically-adopted child presents problems difficult to resolve. Quiroz (2008) has shown that international adoption has been preferred partly because of the perception of international children as "remediable and salvageable," and the perception that children in the United States have behavioral and emotional problems that are difficult to resolve. However, also having an effect are perceptions of age, gender, race, and health. Hogbacka (2008) found that parents in both domestic and transnational adoptions favor the youngest children. Older children are harder to place and more likely to have behavioral problems (Zhang & Lee, 2011). Despite a rising trend toward multiethnic and multiracial families, parents continue to prefer children that are similar to them in race and ethnicity (Bonilla-Silva, 2004; Kahan, 2006; Lee, Grotevant, Hellerstedt, & Gunnar, 2006; Simon, 2009). Gender also influences adoptions; girls are sought after more than boys due to perceptions of adjustment and difficulty in raising. Hogbacka (2008) also found that parents favor the healthiest children. Wegar (2000) researched how media frames adoption and found that adoption is often portrayed in a negative light to elicit emotions and capture audiences' attention. Tyebjee (2003) suggests that people who have actually adopted should be used in the media instead of ideological subtext when presenting adoption. Parents are sometimes willing to adopt problematic children, but express frustrations with the way the system is set up (Spake, 1998). Frustrations could in part be caused by the amount of government spending handling foster care and processing adoptions (Reitz, 1999). This information suggests we still need to study how adoption is presented in the media today and what that presentation in the media might mean for people's support of increased funding for a better adoption system (Geen, Boots, & Tumlin, 1999; Reitz, 1999).

Previous research in this area has integrated the social constructionist theory (Zhang & Lee, 2011), and this theory is also applied to this study. The social constuctionist theory is based on the belief that reality is socially constructed (Berger & Luckmann, 1967). It is constructed through interaction, life experience, and social acceptance; actions are based on subjective interpretations of reality. Therefore, meanings are not inherent but defined by experiences and interactions. Parents interact with society and draw from those personal experiences to create their preferences. As

part of these personal experiences, parents interact with media, which also shapes how they perceive and understand adoption and the adoption process. Ultimately, this theory provides guidance to analyzing how different aspects of society interact and shape meaning toward adoption and adoption-oriented welfare funding.

Methods

This study explored how the media's portrayal of adoption and the adoption process affects the perceptions of adoptive parents. It also focused on welfare spending and investigated the factors affecting public opinion of welfare spending. The goals of this research were to identify general patterns and relationships and interpret cultural and historical significant phenomena. Based on these goals, this study was informed by the following research questions: (1) How do media frame adoption and the adoption process?, (2) How do political party affiliation, confidence in the press, and family income affect public opinion of welfare spending?

The first question led to considering what factors influence how people view media presentations, especially of the adoption system, and informed the second question which looked at three factors that influence the public's view of welfare spending. This study was based on two guiding propositions which are informed by both social constructionist theory and previous literature on adoption and its process. These guiding propositions connect to the research questions mentioned above and outline the study.

1. The way that the media portrays adoption and the adoption process influences the perceptions that the public associates with domestic adoption.
2. Political party affiliation, confidence in the press, and family income are all factors influencing public opinion of welfare spending.

This is a mixed-methods study that contains both a quantitative and qualitative analysis, giving both depth and breadth to the study. More specifically, this study is a sequential exploratory design mixed methods study where the quantitative analysis was framed by the qualitative analysis. There are benefits in performing both methods of analysis. The benefits of doing qualitative research are manifested in several ways. Qualitative research provides a holistic account that includes considering context-relevant information. It also benefits the study through its use of inductive analysis and emergent design. The collection and analysis of data here was shaped as it progressed due to the study's inductive nature. The

quantitative research provided a certain amount of generalizability to this mixed-methods study. Overall, combining the two approaches broadened the perspective of the paper.

As with all research, I brought several biases to the collection and analysis of data. I was biased towards domestic adoption and believed that it is a relevant way to build a family, although I have never been adopted or adopted a child. In my limited experience with adoption, I have observed it as mostly a positive experience and do not associate many negative feelings with it. In order to keep my biases from skewing the data, I focused analysis on the meanings of adoption provided by media representatives studied instead of personally-constituted meanings.

Qualitatively, a content analysis on a series of articles from The New York Times was conducted. The New York Times was chosen because it is widely known and has a large circulation. The research is sequential; five articles were examined longitudinally over a twenty-year stretch to identify dominant patterns. The articles started in 1990 and another one every five years, ending in 2010. The articles were not chosen randomly, but were chosen because they addressed domestic adoption and the adoption process. A codebook was developed based on the research questions and guiding propositions.

The quantitative analysis looked at factors that influence public opinion of welfare spending. Specific factors included confidence in the press, political party affiliation, and total family income; these are frames of references that condition how parents socially construct their adoption perceptions. Opinion of welfare spending was the dependent variable. Descriptive statistics of independent and dependent variable(s) showed general distributions of responses for each variable. Cross-tabs were used to explore the relationships between the variables, testing for significance and general patterns in the relationships. Finally, a regression analysis looked at the combined effect of confidence in the press, total family income, and political party affiliation on opinion of welfare spending. To simplify the political party affiliation variable, the variable was recoded in order to start the measurement at 1 instead of 0 and to eliminate the option "other," since it is unclear what "other" actually means. Also, the total family income variable was recoded to reduce the categories of income offered in order to make the table easier to interpret. Choice in collapsing variables was informed by distribution of responses offered by descriptive statistics.

Secondary data came from the General Social Survey 2010 to focus on the United States because it offered the most recent data on the variables of interest. Welfare spending is prone to changes from year to year, and the most recent data offers the clearest picture of current perceptions. Variables were chosen based on the literature review, research question, and qualitative analysis. Since the qualitative analysis looked at the way that the media frames adoption, looking at confidence in the press provided more insight to the ways that media influences adoption. The other two independent variables were chosen because of their likely conditioning of parents' socially constructed perceptions of adoption and welfare spending.

Results

The most dominant pattern from the qualitative analysis over the five articles was the presentation of the adoption process or the legal transfer of guardianship from biological parents or state to adoptive parents. The major pattern across the articles was the meaning of the adoption process as long and problematic.

Ms. Smith, an adoptive mother, said that New Jersey child welfare workers twice tried to discourage her from adopting her foster son. 'There were a lot of postponements, a lot of promises made that weren't kept, a lot of unreturned phone calls, a lot of dates set up and not done,' she said. When the adoption centers closed, her son's paperwork was lost for several weeks, and the new workers were poorly trained, she said. 'I think at one point he kind of didn't believe me that we were trying to adopt him,' she said of her son. (Kelley & Jones, 2005, p. 1)

All five articles contained references to the length of time and difficulty of the adoption process that needed to be changed, perhaps through new bills. Verhovek (1990) stated "this bill aims to speed things up for the purpose of administrative convenience" and "adoptions can take years" (p. 27). In addition, a second meaning of torture and cumbersome procedure to both parents wanting to adopt and children waiting to be adopted was emphasized. In the article by Kelley and Jones (2005), the domestic adoption process was described as "a tortuous procedure" and "cumbersome adoption procedure" (p. 1).

There were points in our lives in the past year where we wanted to just end this [adoption] and say we're not doing it anymore,' said Ms. Smith, who is 56 and lives in Vineland, about 40 miles south of Philadelphia. 'Or go back to our own lawyer to see if he could fix this mess'. (Kelley

& Jones, 2005, p. 1)

The link in meanings from speed to tortuous/cumbersome procedure illustrated that there has been a gradual increase in complexity and decrease in skills to deal with such complexity. "'What happened was the system changed and there was insufficient training', Kevin Ryan (New Jersey state advocate for children) said, 'That's a recipe for a very bad outcome, one the state is working very hard to reverse'" (Kelley & Jones, 2005, p. 1). Other important themes of adoption included transracial/multiethnic families created by adoption. Holmes (1995) writes about parents frustrated with the adoption system for denying them the right to adopt children on the basis of race, color, and nationality. Although one article made mention of parents desiring "white babies," this mention was made in reference to parents wanting to raise a child from the beginning (Sengupta, 2000, p. 1). This theme was not mentioned in later articles, suggesting that the system became more open to parents adopting children of different race, color, or nationality.

Other themes emerged regarding the number of children waiting to be adopted. The large numbers of children waiting to be adopted were presented in over half of the articles. Kelley and Jones (2005) write, "So far this year, according to the panel's report, there were 2,192 children available for adoption, and they waited about 10 months before being placed with a family" (p. 2). Children waiting to be adopted were generally presented in a positive light; however, there were mentions of children referred to as hard-to-adopt. Hard-to-adopt children are described as older children, children with physical and emotional problems, and children that are not white. In the articles, the patterns of children waiting were synonymous with the description of hard-to-adopt.

> The faces are achingly familiar, for they are the famously hard-to-adopt foster children in the city's custody, many of them older, some of them with physical or emotional problems, all of them legally severed from their birth parents but lacking adoptive homes of their own. (Sengupta, 2000, p. 1)

A final theme is the issue of finances in relation to adoption. Many parents choose foster care adoption because private adoption is financially out of reach.

> Katherine and Larry, the only white couple in the room that night, had driven in from Highland falls in upstate Orange County, to look through

the family album. They, too, had unsuccessfully tried for years to have their own child. They, too, had heard that private adoptions would be beyond their financial reach (Sengupta, 2000, p. 1)

Financial reasons are not the only explanation for why people adopt through the foster care system. A key point brought out in two of the articles is that many of the parents adopting foster children are/were foster parents.

But money is only part of it, they say. Like Ada Jurado, 48, who has taken in several foster children over the years, many would-be adoptive parents say they are driven by their consciences and determined to act on those consciences locally. (Sengupta, 2000, p,1)

Here we see that finances may be important in some situations, but other reasons such as a drive to help children in foster care can also be a motivator in choosing to adopt through the foster care system.

To summarize, the most dominant patterns regarding the themes of adoption included the length of process, the torturous and cumbersome complexity of the process, hard-to-adopt children, and the financial aspect of adoption. The articles generally reflected the need of children to be adopted, the desire of parents to adopt, and the barriers complicating the matter. This analysis shows that the media portrays a broken adoption system in need of attention and suggests that one of the issues could be that the system is underfunded. If the public truly listened to the media, it would logically follow that there would be more support for increased government funding for adoption. However, the continued presentation of a broken system leads to the idea that the lack of support is not due to media portrayal but the result of other factors such as, but not limited to, political ideology, family income, and amount of confidence in the media. Although other possibilities regarding the lack of response could be a disinterest in the system because of its complexities leading parents to choose other avenues to adopt.

These quantitative results build upon the qualitative results and particularly address the second research question. Mainly, how do political party affiliation, confidence in the press, and family income affect public opinion of welfare? The dependent variable, opinion of welfare spending, has three answers ascending as follows: too little, about right, and too much. The mean was 2.18 and the standard deviation was 0.79. Although welfare is often considered limited to assistance for needy families, this definition of welfare is broad and includes foster care and adoption programs. The second variable was confidence in the press with three possible answers:

1- a great deal, 2- only some, and 3- hardly any. The mean was 2.34 with a standard deviation of 0.66. The third variable was political party affiliation; its answers ranged from 1-Strong Democrat to 7-Strong Republican. The mean was 3.65 (somewhere in-between Near Democrat and Independent) and the standard deviation measured 9.95. The fourth variable was total family income; it was measured on a continuous scale with possible answers from 1-12. One measured less than $1,000 and the answers proceed up to twelve which measured $25,000 or more. The mean was found at 3.39 and the standard deviation was 1.76. These results are shown in Table 1.

Table 1

Frequencies: Opinion of Welfare Spending	Frequency	Percent
Too Little	234	11.4
About Right	338	16.5
Too Much	408	20
Total	980	47.9
Missing	1064	52.1
Frequencies: Confidence in Press		
A Great Deal	140	6.8
Only Some	621	30.4
Hardly Any	594	29.1
Total	1355	66.3
Missing	689	33.7
Frequencies: Political Party Affiliation		
Strong Democrat	348	17
Not Strong Democrat	348	17
Independent, Near Democrat	265	13
Independent	360	17.6
Independent, Near Republican	197	9.6
Not Strong Republican	277	13.6
Strong Republican	184	9
Total	1979	96.8
Missing	65	3.2
Frequencies: Total Family Income		
LT $1,000-$9,999	205	10
$10,000-$19,999	246	12
$20,000-$24,999	141	6.9
$25,000 or more	1213	59.3
Total	1805	88.3
Missing	239	11.7

To begin, we can reject the null hypothesis that there are no significant relationships between or among these variables. In order to understand the relationships between the dependent variable and the independent variables, a multivariate ordinary least-squares regression analysis was conducted. The software used to run the analysis was SPSS. The first model of the analysis studied the effect of confidence in the press on opinion of welfare spending. The number of responses measured 548 and the resulting correlation was positively and statistically significant at the 5% level. The results in Table 2 show a positive relationship such that for a one unit increase in confidence in the press there was a .122 increase in opinion of welfare spending. In other words, people that were not confident in the press were more likely to think that welfare spending is too high.

Table 2: Regression statistics for effects of level of Confidence in the Press, Political Party Affiliation, and Total Family Income on opinion of welfare spending.

	1	2	3
Confidence in Press	.122*	.079	.077
Political Party Affiliation		.118***	.112***
Total Family Income			.088**
R-Squared	.01*	.093***	.104**
Df	1	2	3
N	548	548	548

*p<.05, **p<.01, ***p<.001, two tailed tests
Source: General Social Survey: 2010

In the third model of the regression analysis, all three independent variables were used, and it yielded interesting results. The effect of confidence in the press on opinion of welfare spending, controlling for political party affiliation and total family income, changed from a .122 increase to a .077 increase in opinion of welfare spending for every one unit increase in confidence in the press. The significance of this relationship was drastically affected by both political party affiliation and total family income, leaving the relationship not significant in Models 2 and 3. On the other hand, when analyzing the effect of political party affiliation on opinion of welfare spending, controlling for confidence in the press and total family income, a .112 increase in opinion of welfare spending occurs for every one unit increase towards more republican. A move from democrat to more republican corresponds with an increase in thinking that too much

money is put toward welfare spending. This relationship was significant at the 0.1% level. Finally, the effect of total family income on opinion of welfare spending, controlling for confidence in the press and political party affiliation, shows that a one-unit increase in total family income leads to .03 increase towards thinking welfare spending is too high. Similar to the relationship between political party affiliation and opinion of welfare spending, an increase in family income generally leads to an increase in thinking that welfare spending is too high. This relationship was significant at the 5% level. In Model 1, about 1% of the variance in answers on opinion of welfare spending is explained by the confidence in the press. By adding political party affiliation and total family income, the variance explained jumps to 10.4%.

Of particular note is the change in level of significance in the relationship between confidence in the press and opinion of welfare spending from Model 1 to Model 3. The addition of political party affiliation and total family income as independent variables suppresses the effect of confidence in the press. Due to the suppression of confidence in the press by political party affiliation and total family income, it seemed useful to explore the relationship between these three factors. Several interaction effects were attempted, but they yielded no significant results. However, crosstabs did give some insight into the relationship between confidence in the press, political party affiliation, and total family income. The relationship between confidence in the press and total family income was negative; as income increased confidence in the press decreased, illustrated in Table 3. This crosstabulation was significant at the .05 level using a chi-square test of significance.

Table 3: Crosstabulation of Confidence in Press and Total Family Income

			Total Family Income				
			Less than $1,000-$9,999	$10,000-$19,999	$20,000-$24,999	$25,000 or more	Total
CONFIDENCE IN PRESS	A GREAT DEAL	Count	25	14	17	72	128
		% within Second total family income	17.9%	9.4%	17.2%	8.9%	10.7%
	ONLY SOME	Count	60	66	46	373	545
		% within Second total family income	42.9%	44.3%	46.5%	46.0%	45.5%
	HARDLY ANY	Count	55	69	36	365	525
		% within Second total family income	39.3%	46.3%	36.4%	45.1%	43.8%
Total		Count	140	149	99	810	1198
		% within Second total family income	100.0%	100.0%	100.0%	100.0%	100.0%

The relationship between political party affiliation and confidence in the press also gave some insight into the two variables' relationship. People answering anywhere in the Republican answers seem to have decreasing confidence in the press; people answering in the Democrat range of the answers tend to have more confidence in the press, as shown in Table 4. This relationship is significant at the 0.1% level.

Table 4: Crosstabulation of Confidence in Press and Political Party Affiliation

			Political Party Affiliation							
			Strong Democrat	Not Strong Democrat	Independent Near Democrat	Independent	Independent Near Republican	Not Strong Republican	Strong Republican	Total
CONFIDENCE IN PRESS	A GREAT DEAL	Count	36	32	22	18	12	13	6	139
		% within political party	15.3%	13.4%	12.2%	7.7%	9.4%	7.1%	5.0%	10.6%
	ONLY SOME	Count	106	114	87	118	51	88	39	603
		% within political party	45.1%	47.9%	48.1%	50.6%	39.8%	48.1%	32.8%	45.8%
	HARDLY ANY	Count	93	92	72	97	65	82	74	575
		% within political party	39.6%	38.7%	39.8%	41.6%	50.8%	44.8%	62.2%	43.7%
Total		Count	235	238	181	233	128	183	119	1317
		% within political party	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Discussion

Previous studies have been done on how adoption is perceived by parents, social workers, and members of the judicial system. That previous literature covers how certain characteristics interact with parents, influencing their opinions and perceptions of adoption and the adoption process. The lack of knowledge lies in the area of examining the media's presentation of adoption and the relationship between that presentation and other socially-construct-ed perceptions of adoption. The qualitative portion of this study focused on answering the first research question, which addressed how media frames adoption and adoption processes. A content analysis of five articles from the New York Times from 1990 through 2010 presented the adoption process growing increasingly complex. Adoption was presented as long and problematic, increasingly over the twenty-year span of analysis. The system and policy of adoption may need to be overviewed and changed to more easily accommodate children and parents wanting to adopt, according to this meaning of adoption offered by the media. Finally, challenges with numbers of children needing adoption, hard-to-adopt children, and costs of adoption were dominant meanings in these later articles, and these challenges can be linked to prevalent meanings of a long and arduous adoption process as described above. This suggests that adoption as a welfare system is likely underfunded.

The results and conclusions of the qualitative portion of the study informed the quantitative analysis, which was also linked to the second

research question and guiding proposition. The analysis looked at the factors influencing public opinion of welfare spending. The logic behind doing so was informed by a social constructionist perspective that even though the media was presenting a message that the adoption system was broken, the public would not believe the legitimacy of such a message. Instead, people socially construct reality according to a variety of social, cultural, political, and economic influences. Different people will interpret the legitimacy of the messages in the media in different ways. The results indicate that confidence in the press has a direct influence on opinion of welfare spending. However, that influence is suppressed and no longer significant when considered in conjunction with political party affiliation and total family income. This loss of significance has interesting implications to consider. With more conservative political party affiliation, confidence in the press declined and opinion of welfare spending tended toward believing too much money goes to welfare. The results were similar relating total family income to confidence in press and opinion of welfare spending. As total family income increased, confidence in the press decreased, and the opinion of welfare was that too much money was going to welfare spending. This leads to the practical conclusion that the media or press would not be the best way to reach conservatives or wealthy elites about the underfunding of adoption. In other words, the press may suggest that adoption is underfunded, but this venue would not be an effective way to raise awareness among more conservative or wealthier people. This suggests that other avenues should be pursued to show to certain groups that adoption is underfunded. Conservative-leaning NGOs might be a possible solution to spreading news about adoption being underfunded. The public may be more willing to believe adoption is underfunded when presented by an NGO versus the media.

While what is offered here is significant for understanding the challenges to adoption in the United States, this research also provides a foundation for further research expanding on this knowledge. Further directions could take the form of investigating how different forms of media have different levels of impact on how people view the amount of money spent on welfare. Particularly important would be a study of whether conservatives and wealthy elites would have more confidence in information about the adoption system needing help when presented by conservative leaning NGOs instead of the media. In the end, the hope from this study is that any further research will be undertaken with the applied goal of improving the adoption process for both children and parents.

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Parents' Attitudes towards On-site Child Care

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Abstract

There is a large body of research analyzing parents' participation in the labor force and the type of child care used in the United States, but very little is known about a trend in organizations that provides a different child care option for parents: on-site child care (Connelly, Degraff, & Willis, 2002). This non-random pilot study examined the attitudes of parents towards on-site child care by surveying 19 parents using an on-site facility at a small, Midwestern university. It was predicted that work/academic performance would be positively impacted because of using on-site child care and that the dependability of the on-site child care would positively impact parental satisfaction. Survey data was statistically analyzed and results indicate support for the first hypothesis. Implications for future research consist of using a larger and random sample to generalize findings. Implications for practitioners include considering adding on-site child care to their facility to decrease absenteeism and increase worker performance.

Keywords: on-site child care, employer-sponsored child care, child care

Today, whether by choice or circumstance, many parents in the United States work. With child care being one of the primary functions of a family, this leaves a lot of parents looking for care for their children. In 2009, 44% of all families included children (sons, daughters, step-children, and adopted children) under the age of 18 (U.S. Department of Labor: Bureau of Labor Statistics [BLS], 2009). Within this group, 87.8% had an employed parent. In 58.9% of families consisting of married couples with children, both the mother and father were employed. Child care is a necessity for many of

these working parents. When looking for child care Poms, Botsford, Kaplan, Buffardi, and O'Brien (2009) stated that parents are most satisfied with child care when there is a high level of communication between the child care facility and the parent and when the care is dependable. The cost of quality child care creates another concern for families, especially those with a low income for which the increasing cost of child care is likely unbearable. Most parents make an effort to choose a safe and nurturing environment for their children; however, child care in the United States is expensive. There is a large quantity of research analyzing parents participating in the labor force and the type of child care used in the United States, but very little is known about a new trend in organizations that provides a different child care option for parents called on-site child care (Connelly, Degraff, & Willis, 2002). On-site child care consists of child care programs that occur in facilities where parents are on the premises (Child Care Aware, 2006). Connelly, Degraff, and Willis (2004) declared that employers who offer child care benefits reported child care programs positively impact their workers' performance. This included a decrease in turnover, absenteeism, and recruitment costs. In addition to this, savings in wage costs made up a large percentage of employer benefits. The current study investigated parents' attitudes towards on-site child care at a facility located on the campus of a small, Midwestern university.

Literature Review

A review of the literature was conducted to determine the impact of on-site (employer-sponsored) child care on employees. Articles were retrieved from search engines EBSCOhost, JSTOR, and Project MUSE. The research studies unanimously identified the struggle between work and family when the employees have children (Connelly et al., 2002; Connelly et al., 2004; Goff, Mount, & Jamison, 1990; Morrissey & Warner, 2009; Poms et al., 2009).

Morrissey and Warner (2009) explored child care arrangements and the parents' experience with the employer's child care voucher program. The sample was taken from a large university; employees with children completed questionnaires in order to gather information about their child care arrangements and their experience with the employer's child care voucher program. Results showed that non-recipients of the child care voucher program, those whose children were not in formal care but with other caregivers, reported greater satisfaction with child care arrangements

than the voucher recipients. Although this study did not directly relate to on-site child care, it addressed relevant issues surrounding the use of employer-sponsored child care programs.

Poms et al. (2009) discussed the relationship between work-family conflict and child care satisfaction. In this study, data from two independent samples was collected through self-report surveys. Both samples consisted of employed mothers working 30 hours per week or more outside of the home, with one or more children in day care. Four factors of child care satisfaction were measured: caregiver attentiveness, communication, dependability, and child care-related financial considerations. Results showed that financial considerations predicted child care satisfaction to a greater extent than caregiver attentiveness, communication, and dependability.

Connelly et al. (2004) completed a study on employer-sponsored child care due to its attempt to reduce work-family conflict**.** Data was collected from three firms, two of which had on-site child care and one of which did not. A closed-ended qualitative format was used as a way to reduce responses that may be biased**.** Qualitative evidence proposed that as a result of on-site child care, worker performance improved, benefitting both the employees and firms.

An earlier study by Connelly et al. (2002) investigated on-site child care at three related firms, two of which offered an on-site child care facility. This study focused primarily on the factors for use of employer-based on-site child care. The data they collected through employee interviews indicated that many parents chose on-site care when available. In this study, the location, convenience, and reliability of the on-site care facility were factors for parents choosing the care. These findings also indicated that parents with two or more preschool-aged children preferred to have their children at the same center, and the child's age was not a significant factor for choosing a facility.

Goff et al. (1990) completed a study in 1990 which is still referenced in current literature because it focused specifically on on-site child care. The research was conducted at a large firm which had an on-site child care facility. They surveyed employees at the firm who were parents of children ages five and under. They received 62 surveys from parents who used the on-site center and 191 surveys from parents who did not. This facility cost employees about 80% of the market value of child care. Eight variables were studied: absenteeism, work/family conflict, primary responsibility for

child care, availability of care for sick children, satisfaction with child care arrangements, supervisor support, number of children under the age of five, and use of a child care center at work. The results concluded that on-site child care was not shown to reduce absenteeism. The study also determined that two variables were related to child care concerns: satisfaction with care and supervisor support.

Research is limited that specifically addresses the benefits of on-site child care in the United States. Findings in the current literature included when and why parents would choose on-site child care (Connelly et al., 2002; Connelly et al., 2004; Goff et al., 1990), if parents valued the on-site care (Connelly et al., 2004), factors of child care satisfaction (Poms et al., 2009), and how a child care voucher program was used by employees (Morrissey & Warner, 2009). This current study aimed to contribute to the current body of literature in the United States. It specifically addresses student and worker performance, an extremely important aspect of on-site child care.

Theoretical Framework

The theory used to inform this study was the family ecology theory (Strong, DeVault, & Cohen, 2005). This theory assumes that families both impact and are impacted by their environment. The family ecology theory identifies four different environmental levels that impact the family. These include the microsystem, mesosystem, exosystem, and macrosystem. Included in the microsystem are the immediate settings and people that an individual is influenced by on a daily basis. Interactions between microsystems create the mesosystem. For example, an ill child that needs care can cause a parent to miss work. The exosystem includes environments that influence the development of an individual, although the individual is not actively a part of those environments. An example of this is a spouse's employment situation which could limit the hours of parent-child interaction, negatively affecting the child. The societal and cultural laws, attitudes, beliefs, norms, and traditions make up the macrosystem. An example of this is that a family's cultural values may expect the mother to stay home and care for the children.

As applied to our study, this theory would predict that a parents' attitude towards child care would be impacted by many factors including the location and convenience of the child care facility. Parental attitudes would be affected by factors relating to on-site child care because according to this

theory, child care and employment would both be in the mesosystem for the parent(s), and they would interact together to influence the parent(s).

Purpose Statement

The purpose of this study was first, to examine the attitudes of parents towards on-site child care; second, to develop a reliable survey instrument which measures those attitudes; and third, to increase the awareness of child care providers, employers, and universities of the potential impact of having an on-site child care center on their premises.

The research question investigated was "What are parents' attitudes towards on-site child care?" We predicted that the results would indicate that the use of on-site child care would positively impact the parents' academic/work performance. Further, we predicted that the dependability of the on-site care would positively impact parental satisfaction with the care. These hypotheses are based on evidence from different literature articles, as well as insight from theory.

Method

Participants

This study was conducted at a university in Northwestern Wisconsin. The participants were 19 parents utilizing the on-site child care facility; within this group, three of the parents were community members, nine were faculty/staff, and seven were students. Of our 19 participants, 16 were female, 2 were male, and one did not identify gender. One individual was age 20-24 years old, six individuals were ages 25-30, and 12 individuals were over age 30. Participants were then asked how many children they had under the age of five in order to see how many children were not "school-aged" in the home, assuming that most children over the age of five would be in school instead of a child care facility. Eleven participants had one child under the age of five, five participants had two children under the age of five, two participants had three children under the age of five, and one participant had zero children under the age of five. Participants were also asked how many miles away from the facility they resided. Fifteen participants lived less than 15 miles away, three participants lived 15-29 miles away, and one lived more than 30 miles away.

Research Design

This non-random pilot study used a cross-sectional design in order to capture attitudes of parents at one point in time. Self-administered questionnaires were used for data collection. The rationale for using this method was that self-administered questionnaires are convenient, have a low cost and quick return of the data, and are best suited for gathering data within a university setting due to time constraints for data collection to complete the study within one semester.

The population for this study was parents who utilize on-site child care facilities in Northwestern Wisconsin. The sample used was the students and employees of the university who have their children enrolled at the on-site child care facility. The responses from community members were not used as the child care facility would not be considered on-site for them. The ethical protection of human subjects was provided through the completion of the Institutional Review Board's (IRB) human subjects training.

Data Collection Instrument

The survey was designed in order to investigate the attitudes that parents have towards on-site child care. The survey included a brief description of the study, definition of any terms not commonly known, risks and benefits, time commitment, confidentiality, voluntary participation, contact information of the researchers and supervisor, and instructions for completing the survey.

The survey consisted of five demographic questions regarding the participants' gender, age, student, employee, or community member status, number of children under the age of five, and distance from campus. It included 12 closed-ended statements based on a 5-point Likert scale used to measure the intensity of the participants' attitudes ranging from one (strongly disagree) to five (strongly agree). In addition to this, there were six open-ended questions that related specifically to the agency surveyed, along with an area for additional comments. Statements and questions were informed by the literature, family ecology theory, and feedback from the director and employees of the on-site child care facility.

The survey demonstrated face validity since most of the statements were inspired by literature addressing the attitudes of parents towards on-site child care. The criteria for content validity are met in that the instrument statements addressed the breadth of concepts within the literature having to do with on-site child care. The survey was piloted to the director of the child care facility surveyed and also to the staff at the facility to determine if

they believed the survey would be clear to the parents who use their facility. The director and staff made suggestions to improve the clarity of the survey. They also made suggestions as to how the agency-specific questions could better fit the needs of the specific facility.

Procedure

We initiated contact with the director of the child care center by email, included information regarding our research topic, and asked for her collaboration. We met with the director to discuss the objectives of the research and specific information that would benefit the facility. Later, one of us met with the staff of the child care center to introduce the research, determine if there were any concerns, and to get ideas for statements/ questions to be used on the survey. The survey was adjusted as appropriate according to the feedback.

A letter introducing the researchers and stressing the importance of reading the implied consent was attached to the printed surveys along with a sealable envelope. We met with the director of the child care center again to read through the implied consent and determine the best method of survey distribution. Approximately two weeks later, 74 surveys were distributed to the children's mailboxes and a sealed box was left near the check-in area of the child care center for completed surveys. The box containing the 19 completed surveys was picked up four days later and locked at one of our homes until data analysis.

Data Analysis Plan

First, the data was "cleaned" and checked for any missing responses. The surveys were then "coded" using acronyms for each variable. All demographic questions were given a three letter acronym: *Gender of the respondents* (GEN); *Age of the respondents* (AGE); *Student, faculty, or community member status* (STS)*; Number of children under age five* (CHI); *Distance from residence to campus* (DIS). Each survey statement was also given a three letter acronym: *It is important for me to have my child on-site while I am at school or work* (IMP); *I am satisfied with the overall quality of care my child receives* (QUA); *The fees charged for on-site child care are reasonable* (FEE); *Having on-site child care available is convenient* (CNV); *I chose on-site child care because it is convenient* (CHO); *I chose on-site child care because it is high quality care and education* (EDU); *My on-site child care facility is dependable* (DEP); *I have other dependable options for*

child care (OPT); *The hours of my on-site child care facility meet my needs* (HRS); *My child receives an adequate amount of attention from caregivers* (ATN); *My work and/or academic performance is positively impacted by having child care available on-site* (PER); *I am absent from work or school less frequently because I use on-site child care* (ABS*)*.

The computer program *Statistical Package for the Social Sciences (SPSS)* was used to analyze the data after it was collected, with the individual as the level of analysis. The data analysis included frequencies, mean comparisons, correlations, and a Cronbach's Alpha reliability analysis.

Results

The variables were subjected to statistical analyses including frequency distribution, correlations, and a reliability analysis. Support was found for our first hypothesis: Work and/or academic performance is positively impacted by having child care available on-site. Support was not found for our second hypothesis that the dependability of the on-site child care will positively impact parental satisfaction, as variables DEP and QUA were essentially measuring the same concept.

Support for the first hypothesis is demonstrated by 87.5% of respondents agreeing with the statement *My work and/or academic performance is positively impacted by having child care available on-site.* This is also supported by the literature. According to Connelly et al. (2004), on-site child care resulted in improvement of worker performance which benefits both the employees and the firm.

The frequency distribution showed no missing data. The distribution showed that the majority of respondents agreed or strongly agreed with all 12 following variables: *Important for me to have child on-site*; *Satisfied with overall care received; Fees charged are reasonable; Having on-site care is convenient; Chose because it's convenient; Chose because of high quality care and education; Facility is dependable; Other dependable child care options; Hours meet my needs; Child receives adequate amount of attention; Work/academic performance is positively impacted;* and *Absent from work or school less frequently*.

Although the number of participants for this study was below 50, for experimental reasons given that this is a pilot study, correlations were run on all 12 variables. Correlations between many variables showed large significant relationships.

Table 1: Pearson Correlation Matrix

Variable	IMP	QUA	FEE	CHO	EDU	DEP	OPT	HRS
CNV			0.816**					
DEP		1.000**						
HRS		0.618*			0.618*	0.618*		
ATN		0.683**			0.683**	0.683**		0.524*
PER	0.861**			0.642**				
ABS							-0.676**	

Note. IMP=It is important for me to have my child on-site while I am at school or work; QUA=I am satisfied with the overall quality of care my child receives; FEE=The fees charged for on-site child care are reasonable; CNV=Having on-site child care available is convenient; CHO=I chose on-site child care because it is convenient; EDU=I chose on-site child care because it is high quality care and education; DEP=My on-site child care facility is dependable; OPT=I have other dependable options for child care; HRS=The hours of my on-site child care facility meet my needs; ATN=My child receives an adequate amount of attention from caregivers; PER=My work and/or academic performance is positively impacted by having child care available on-site; ABS=I am absent from work or school less frequently because I use on-site child care.

~N=19; **Correlation is significant at the $p<0.01$ (two-tailed), *Correlation is significant at the $p<0.05$ (two tailed)

A reliability analysis was also run in order to indicate whether or not all 12 variables were a reliable index to measure the main concept: Parents' attitudes towards on-site child care. The Cronbach's Alpha measure of reliability in this analysis was 0.468. If variable OPT would have been eliminated from the survey, the reliability would have increased to 0.677; the survey would have been moderately reliable.

Discussion

The results from our study supported one of our hypotheses: Work/ academic performance is positively impacted by having child care available on-site. We did not find support for our second hypothesis: The dependability of the on-site child care will positively impact parental satisfaction. Multiple variables resulted in statistically significant correlations which will be discussed later in this section. The focus of variable analysis will be on the frequency distribution, as these are true reflections of the results in this non-random pilot study.

Poms et al. (2009) and Connelly et al. (2004) group availability, reliability, and convenience together as important factors for parents when considering a child care facility. They each go further to state that high quality care and fees must be considered and combined with availability, reliability, and convenience to create a child care facility that is overall successful. We have multiple significant correlations between eight of our survey statements, which all indicate the connection between availability, reliability, convenience, high quality care, and fees as supported by the literature. Correlations between variables significant at the $p<0.01$ level include *Fees charged are reasonable/Having on-site care is convenient*, *Chose because of high quality care and education/Child receives adequate amount of attention*, *Satisfied with overall care received/Child receives adequate amount of attention,* and *Child receives adequate amount of attention/Facility is dependable*. Correlations significant at the $p<0.05$ level include: *Satisfied with overall care received/Hours meet my needs, Chose because of high quality care and education/Hours meet my needs, Child receives adequate amount of attention/Hours meet my needs*, and *Hours meet my needs/Facility is dependable.*

Supported with a correlation significant at the $p<0.01$ level was the variable *My work and/or academic performance is positively impacted by having child care available on-site* in conjunction with both *It is important for me to have my child on-site while I am at school or work* and *I chose on-site child care because it is convenient*. Although these specific correlations were not found in the literature, Connelly et al. (2004) collected qualitative data that indicated improvement of worker performance in the employees who participated in the employee-sponsored child care program available at the companies they studied. They attributed the overall increased work performance to a variety of factors working together which might include how parents value on-site child care and the convenience of the child care. In order to try to explain these connections further we consulted the family ecology theory (Strong et al., 2005). According to this theory, a parent's mesosystem would include both work life and family life. As the family ecology theory states, elements of an individual's mesosystem interact to directly affect the way a person feels and behaves in his or her everyday life. This could be extended to assume that when an individual feels that their family needs are being met, in this case by having the child on-site (because it is important to them) and by having a convenient place to send their child

to receive care, their work performance is directly affected by this feeling of satisfaction with their familial needs being met. The correlations between these variables can be explained by this interaction.

The frequency distribution demonstrated that the majority of respondents agreed or strongly agreed with all twelve variables. Six variables were supported in the literature: *Fees charged are reasonable* (FEE), *Having on-site care is convenient* (CNV), *Chose on-site care because it is convenient* (CHO), *Facility is dependable* (DEP), *Chose because of high quality care* (EDU), and *Hours of facility met my needs* (HRS). According to Connelly et al. (2004), in order for parents to be satisfied with on-site child care, high-quality care and moderate prices must also be associated with availability, reliability, and convenience. The factors CNV*,* CHO*,* EDU*,* and DEP were also supported by Connelly et al. (2002), who found that factors in parental choice of on-site child care include convenience, reliability, and the quality of care.

The majority of respondents agreed with variable QUA, *Satisfied with overall care received*, which was also supported in the literature. Parental satisfaction with the care one's child receives can lessen the work/family conflict that a family deals with (Goff et al., 1990). In addition to this, support from the supervisor can also lessen the conflict a person has between work and family life.

Poms et al. (2009) discussed that caregiver attentiveness, caregiver communication, and caregiver dependability play a large role in how parents feel about the child care used. This supports variable ATN, *Child receives adequate amount of attention*, and variable DEP, *Facility is dependable*.

It was difficult to find support in the literature for why it is important for parents to have their child on-site while at school or work (IMP), but the family ecology theory (Strong et al., 2005) offers a way to make sense of this finding. The theory assumes that each individual has a microsystem which consists of things that the individual experiences on a daily basis. For a working parent it would be likely that two of their microsystems would be their employer and their child's care provider. Therefore, it seems logical that a parent would find it important to have these two prominent parts of their life combined together. They create a mesosystem for the parent, each playing a vital role in the life of the parent both separately and in the ways that they interact with one another.

According to Connelly et al. (2004), employers offering on-site child

care expected cost savings due to increased worker productivity, reduced turnover, and reduced absenteeism. This supports variable PER, *Work/ academic performance is positively impacted*, and variable ABS, *Absent from work or school less frequently*. However, the study only expected these to result in cost savings. Whether or not on-site child care results in reduced turnover and reduced absenteeism are still important research questions (Connelly et al., 2004). This could explain why many parents indicated they neither agreed nor disagreed with variable ABS. The data seems to be inconclusive.

In addition to this, variable OPT, *I have other dependable options for child care*, was also addressed in the literature. According to Connelly et al. (2002), 22.4% of children not using on-site child care had regular secondary arrangements compared to 10.0% of children using on-site care. This suggests that on-site child care reduces the necessity of having back-up child care arrangements. This may explain why a large percentage of respondents indicated that they neither agreed nor disagreed with the statement.

Limitations

A limitation to this study is the small sample size and the non-random design. There were also a number of participants who responded neither agree nor disagree which alludes to limitation of the 1-through-5 Likert scale. In addition to this, several 1.0 correlations were found between variables, indicating that those variables are very similar. To decrease repetitiveness, the survey statements could be analyzed, removing or rewording statements that appear to be similar.

Implications for Practitioners

This study offers employers and universities knowledge on parents' attitudes towards on-site child care. The data demonstrates that on-site child care positively impacts parents' work/academic performance. This finding indicates that providing on-site child care could potentially benefit employers, employees, students, and universities. Universities and employers could experience enhanced student/ worker productivity, and students/employees could benefit by having better grades and higher work satisfaction.

Implications for Future Research

It is strongly recommended that future research would include a larger

and random sample in order for findings to be generalized nationwide. The use of a 1-through-7 Likert scale could be beneficial in order to increase variability across the scale. It is also suggested that qualitative interviews be conducted to gain deeper insights into parent perspectives of on-site child care. Additional research could be conducted on the variables in which large, significant correlations were found. The relationship between variables IMP (*Important for me to have my child on-site*) and PER (*Work/academic performance is positively impacted*) would be interesting to explore further because of the lack of information on this relationship in current literature. This research would help demonstrate what contributes to parents' attitudes towards their on-site child care and would also indicate what specific factors increase a parent's work or academic performance.

Conclusion

On-site child care is an option that could be of great value for parents. It is something that some employers have already implemented and many others are considering. There is a vast amount of literature surrounding child care, but very little examining on-site child care (Connelly et al., 2002). This study provides a unique perspective by surveying the parent perspective about their on-site child care experience. Overall, this study suggests that parents appreciate the opportunity to use on-site child care. The investigated child care facility was seen as convenient, high quality, affordable, and dependable. It should be noted that this survey suggested parents were absent less often and had improved school/work performance because of this on-site care. This function of on-site childcare should be of interest to all employers.

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The Relationship between Vehicle Ownership and Quality of Life for Low-income Households

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Abstract

Transportation difficulties are consistently cited by low-income individuals as an obstacle to achieving financial sustainability (Anderson & Van Hoy, 2006; Brabo, Kilde, Pesek-Herriges, Quinn, & Sanderud-Nordquist, 2003; Fletcher, Garasky, Jensen, & Nielsen, 2010; Garasky, Fletcher, & Jensen, 2006; Lichtenwalter, Koeske, & Sales, 2006). This non-random pilot study investigated whether reliable, private vehicle ownership improved the quality of life for low-income households by surveying participants of a program in West Central Wisconsin that assists low-income individuals with purchasing reliable vehicles. It was hypothesized that reliable, private vehicle ownership would improve the quality of life for low-income households. Survey data was analyzed using frequencies. Results indicate quality of life was improved by owning a reliable vehicle. Future research would benefit from a larger sample that generalizes based on immediate environment, takes into account the psychological effects of barriers on quality of life, and utilizes qualitative and/or longitudinal studies.

Keywords: poverty, low-income, transportation, policy, employment barriers

Since the passage of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) in 1996, the work search has become a requirement for low-income families to receive Temporary Assistance for Needy Families (TANF), food stamps, and other welfare benefits (Fletcher et al., 2010). While studies conducted following the passage of PRWORA found an increase in employment for former welfare recipients, a high proportion of these individuals continue to work for poverty-level wages and few benefits (Lichtenwalter et al., 2006). As attention shifts from investigating welfare-

to-work experiences to investigating pathways to financial sustainability, it is important to examine why families that are seemingly doing everything right continue to live in poverty and dependent upon public assistance.

The need to address this issue has resulted in extensive research on the barriers low-income families face in their move from poverty post "welfare-to-work" (Fletcher et al., 2010). While several barriers have been identified, transportation difficulties are consistently cited by low-income individuals as an obstacle to achieving financial sustainability (Anderson & Van Hoy, 2006; Brabo et al., 2003; Fletcher et al., 2010; Garasky et al., 2006; Lichtenwalter et al., 2006). However, the transportation issue extends beyond the need to get to work. In "An Escape Route from Poverty," Friedmann and Sandercock (1995) assert, "the poor are defined according to their ability to consume" (para. 6) in the larger market—a definition that is not only the basis for current poverty measures, but also the catalyst for programs that assist the poor. They argue this conventional wisdom ignores the work performed "inside the household economy" (para. 9). That is, the mundane tasks of everyday life: running errands, grocery shopping, pursuing an education, finding adequate child care, being an active member of the community, socializing with family and friends—tasks made difficult or even impossible without reliable transportation. Therefore, it is important to explore transportation not only as a barrier for families in poverty, but also as a pathway to empowerment. The current study investigated the quality of life for low-income individuals who purchased reliable vehicles with assistance from a West Central Wisconsin community-based organization.

Literature Review

A review of the literature was conducted to explore the relationship between transportation and poverty outcomes. There was a consistent finding within the literature that suggested access to transportation alone did not move families out of poverty, but those who had access to reliable, private vehicles had improved employment outcomes. However, there was little found on the relationship between transportation and quality of life, especially in areas other than those related to employment (Anderson & Van Hoy, 2006; Brabo et al., 2003; Fletcher et al., 2010; Garasky et al., 2006; Lichtenwalter et al., 2006).

Fletcher et al. (2010) analyzed findings from three studies of rural, low-income households in Iowa to investigate the transportation experiences of these individuals. The first study found several transportation barriers. Nearly half of the participants did not own a vehicle. Of those who did, old and unreliable vehicles were typical, but the respondents were unable

to afford repairs. They found the lack of transportation was a barrier, not only to employment, but also to child care, education, and healthcare. The second study included both county workers and welfare recipients. They found both county workers and welfare recipients cited transportation as a barrier to employment, education, and child care for low-income households. The welfare recipients reported the high costs of insuring, repairing, and maintaining older vehicles as a barrier to employment. The third study was informed by the previous two studies and focused on transportation access and barriers as a predictor of employment. They found nearly 50% of respondents reported transportation issues that resulted in financial difficulty.

Anderson and Van Hoy (2006) examined the welfare-to-work experience of seventeen women in rural and urban Oregon after the passage of PRWORA. While both the urban and rural group of women shared many of the same concerns regarding moving from welfare to work, the rural group expressed concerns with reliable transportation, the lack of education and training opportunities, and limited job availability in their community. These concerns were not shared with the urban group as they had the opportunity to utilize public transportation to access those opportunities.

Garasky et al. (2006) examined the transportation barriers low-income households experienced and how the availability of reliable, private transportation influenced employment. They found that access to a private vehicle was an "important determinant" (p. 83) of the employment outcomes for low-income individuals. Eleven per cent of the low-income households examined did not own or have access to a private vehicle. Of those that did, 48% had difficulty making repairs, staying up to date with insurance, paying for gasoline, and making car payments. In addition, 57% of the unemployed respondents did not always have access to a reliable vehicle while almost 75% of those who were employed did.

Lichtenwalter et al. (2006) investigated whether travel supports for low-income women in an urban setting connected them to better jobs, and if reliable vehicle ownership improved employment outcomes beyond alternative forms of transportation. They found reliable vehicle ownership had a positive relationship with overall employment, positive employment characteristics (such as benefits), and higher wages, while those using public transportation had lower wages and fewer employee benefits. They also found that 44% of the participants had difficulty reaching important destinations like the grocery store, medical appointments, parent-teacher meetings, and visitation opportunities for non-custodial parents.

Brabo et al. (2003) evaluated the success of JumpStart, a program that assists low-income households with purchasing reliable vehicles. They found 100% of respondents reported an improved quality of life since purchasing their vehicles. In addition, respondents credited the vehicles with an increase in wages, the ability to acquire better jobs, more involvement with extended family, and the ability to find better child care.

Although current literature has established transportation difficulties as a barrier to moving out of poverty and an overall decreased quality of life in both urban and rural settings (Anderson & Van Hoy, 2006; Brabo et al., 2003; Fletcher et al., 2010; Garasky et al., 2006; Lichtenwalter et al., 2006), the current literature does not directly address how reliable, private vehicle ownership enhances the quality of life for low-income households from the perspective of family members, which was the purpose of this study.

Theoretical Framework

The theoretical framework applied to this study was the family ecology theory. This theory assumes a family's development is influenced by the surrounding environment which is comprised of four spheres: the microsystem, which is the immediate environment; the mesosystem, which is comprised of the interactions between the elements in the family's microsystem; the exosystem, which are the indirect influences on the family; and the macrosystem, which is the culture, values, expectations, and lifestyles of society at large.

The application of family ecology theory to this study would predict that the availability of transportation alone does not aid families in moving out of poverty, as there are several influences working for and against the family at any one time depending upon the family's environment. However, reliable and private vehicle ownership empowers individual family members to access employment opportunities and services and reach destinations in all levels of the environment, something low-income families without reliable, private vehicles have difficulty or inability to access.

Purpose Statement

The purpose of this study was, first, to examine the relationship between quality of life and reliable, private vehicle ownership as perceived by low-income individuals who purchased vehicles with the assistance of a community-based organization; a second goal was to develop a reliable survey instrument which measures low-income individuals' attitudes

toward various quality of life markers. And the study's final purpose was to increase policymakers' awareness of poverty issues and the need for policy that addresses the barriers faced by low-income individuals in their path to meaningful employment. The question "How does reliable, private vehicle ownership affect the quality of life for low-income households?" was central to this study. Based upon both literature and theory, it was hypothesized that reliable, private vehicle ownership would improve the quality of life for low-income households.

Method

Participants

This study was conducted at a community-based organization in West Central Wisconsin. The participants were two male and eight female participants of a program that assists low-income individuals with purchasing reliable vehicles at reduced cost. Three of the participants were 18-24 years of age, five were 35-54 years of age, and two were 55-64 years of age. Eight of the participants were employed at least part-time, while two were recently laid off and collecting unemployment compensation. Two of the participants had an annual household income less than $10,000, two between $10,000 and $14,999, four between $15,000 and $24,999, and two had annual household incomes over $40,000. Finally, seven of the participants had at least one child living in the home and three lived alone.

Research Design

The purpose of this study was to investigate the relationship between reliable, private vehicle ownership and quality of life as perceived by participants of a program that assists low-income individuals with purchasing reliable vehicles at reduced cost. A cross-sectional research design was used in order to capture attitudes of the participants of the program at one point in time. Telephone surveys were used for data collection, as they were best suited for gathering data across the program's service area when quick return was necessary due to time constraints for gathering data; mailing surveys was cost-prohibited.

The population for this study was low-income individuals who access services from a community-based organization in West Central Wisconsin. The sample consisted of individuals who purchased a vehicle through a program that assists low-income individuals with purchasing reliable

vehicles at reduced cost. The sample design for this study was non-random and purposive.

Data Collection Instrument

To identify family members' attitudes toward reliable, private vehicle ownership and its relationship to quality of life, a survey was designed with a brief description of the study, risks and benefits, time commitment, confidentiality, voluntary participation, contact information for counseling services and the supervisor, and instructions for completing the survey.

The survey consisted of seven demographic questions regarding the date of purchase of the vehicle and the participants' gender, age, household composition, employment status, annual income, and sources of income, as well as 13 closed-ended statements based on a 5-point Likert scale used to measure the intensity of the participants' attitudes ranging from one (strongly disagree) to five (strongly agree). Statements and questions were informed by literature, theory, and program participants' feedback provided to me by the program manager at the community-based organization.

The survey instrument has both face validity and content validity as there is a logical correlation between the survey statements and the research question, and the statements address quality of life barriers commonly cited, but not investigated, in studies of the low-income population.

Procedure

The survey process began with a meeting with employees of the community-based organization to describe the purpose of this research and ask for permission to survey their clients. In addition, we discussed the need the program addressed in the community and what areas of life participants felt were improved by participating in the program. The program manager granted permission to survey their clients and provided a list of telephone numbers and first names of participants of the program. Surveys were administered via telephone, and calls lasted approximately 10 minutes. Of the participants that were reached, one chose not to participate in the survey due to time constraints.

Data Analysis Plan

The data was first cleaned and checked for missing data and then coded using acronyms for each variable. The first seven questions were demographic variables which included gender, age, employment status,

annual household income, sources of income, household composition, and year of vehicle purchase. The following 13 closed-ended statements were given a three letter acronym: *Prior to purchasing my JumpStart vehicle, I had difficulty finding or maintaining reliable transportation* (BRT); *Prior to purchasing my JumpStart vehicle, I had difficulty getting to work* (BGW); *Prior to purchasing my JumpStart vehicle, I had difficulty making it to medical and other important appointments* (BMA); *Prior to purchasing my JumpStart vehicle, I had difficulty finding convenient child care* (BCC); *Prior to purchasing my JumpStart vehicle, I had difficulty visiting with extended family and friends* (BVF); *I have little to no difficulty maintaining my JumpStart vehicle* (CMT); *I have little to no difficulty making the loan and insurance payments for my JumpStart vehicle* (CLI*); Since purchasing my JumpStart vehicle, I have gained better employment* (CBE); *Since purchasing my JumpStart vehicle, I am better able to make it to medical and other important appointments* (CMA); *Since purchasing my JumpStart vehicle, I have more convenient child care for my child* (CCC); *Since purchasing my JumpStart vehicle, I am better able to visit with extended family and friends* (CVF*); Since purchasing my JumpStart vehicle, I need less public assistance* (CPA); and *Since purchasing my JumpStart vehicle, my quality of life has improved overall* (CQL).

The computer program *Statistical Package for the Social Sciences* (*SPSS*) was used to analyze the data. Data analysis included frequencies. Correlations were not run due to the small study sample.

Results

All variables were subjected to frequency distribution analysis. Results indicated that there was no missing data. For variables BRT, BGW, and BMA, the majority of respondents agreed or strongly agreed they had difficulty finding or maintaining reliable transportation, difficulty getting to work, and making it to medical or other important appointments prior to purchasing their vehicles. For variable BCC, the majority of respondents neither agreed nor disagreed they had difficulty finding convenient child care prior to purchasing their vehicle. For variable BVF, respondents were mixed on whether they had difficulty visiting with extended family and friends prior to purchasing their vehicle. For variables CMT and CLI, the majority of respondents agreed or strongly agreed they had little to no difficulty maintaining and paying the loan and insurance payments on their vehicles. For variables CBE and CMA, the majority of respondents agreed or strongly agreed they were able to secure better employment and make

it to medical and other important appointments since purchasing their vehicles. For variable CCC, the majority of respondents neither agreed nor disagreed that they were able to find more convenient child care since purchasing their vehicle. For variable CVF, the majority of respondents agreed or strongly agreed that they were better able to visit with extended family and friends since purchasing their vehicle. For variable CPA, respondents were mixed on whether they needed less public assistance since purchasing the vehicle. For variable CQL, the majority of respondents agreed or strongly agreed that the purchase of the vehicle improved their quality of life overall.

Table 1

Frequency Distribution

Variable	SD	D	U	A	SA	Total
BRT	10.0%	20.0%	10.0%	40.0%	20.0%	100.0%
BGW	10.0%	20.0%	10.0%	40.0%	20.0%	100.0%
BMA	20.0%	20.0%	0.0%	50.0%	10.0%	100.0%
BCC	30.0%	0.0%	60.0%	10.0%	0.0%	100.0%
BVF	20.0%	20.0%	20.0%	0.0%	40.0%	100.0%
CMT	0.0%	10.0%	10.0%	40.0%	40.0%	100.0%
CLI	10.0%	0.0%	0.0%	40.0%	50.0%	100.0%
CBE	0.0%	10.0%	30.0%	50.0%	10.0%	100.0%
CMA	0.0%	20.0%	30.0%	20.0%	30.0%	100.0%
CCC	0.0%	10.0%	70.0%	20.0%	0.0%	100.0%
CVF	0.0%	20.0%	20.0%	10.0%	50.0%	100.0%
CPA	10.0%	20.0%	40.0%	20.0%	10.0%	100.0%
CQL	0.0%	10.0%	10.0%	60.0%	20.0%	100.0%

Note. BRT = Prior to purchasing my JumpStart vehicle, I had difficulty finding or maintaining reliable transportation; BGW = Prior to purchasing my JumpStart vehicle, I had difficulty getting to work; BMA = Prior to purchasing my JumpStart vehicle, I had difficulty making it to medical and other important appointments; BCC = Prior to purchasing my JumpStart vehicle, I had difficulty finding convenient childcare; BVF = Prior to purchasing my JumpStart vehicle, I had difficulty visiting with extended family and friends; CMT = I have little to no difficulty maintaining my JumpStart vehicle; CLI = I have little to no difficulty making the loan and insurance payments for my JumpStart vehicle; CBE = Since purchasing my JumpStart vehicle, I have gained better employment; CMA = Since purchasing my JumpStart vehicle, I am better able to make it to medical and other important appointments; CCC = Since purchasing my JumpStart vehicle, I have more convenient childcare for my child; CVF = Since purchasing my JumpStart vehicle, I am better able to visit with extended family and friends; CPA = Since purchasing my JumpStart vehicle, I need less public assistance; CQL = Since purchasing my JumpStart vehicle, my quality of life has improved overall.

In addition, qualitative comments were received at the end of several surveys and will be discussed.

Discussion

Support was found for the hypothesis that reliable, private vehicle ownership improves the quality of life for low-income households. The frequency distribution demonstrated support for this study's hypothesis. Indeed, the majority of respondents agreed or strongly agreed their quality of life was improved by the purchase of a low-mileage, high efficiency vehicle through the organization's program, a result also found in Brabo et al. (2003), where 100% of respondents reported an overall improvement in their quality of life.

In an effort to get a more comprehensive view of quality of life, the 12 remaining statements dealt with transportation barriers and other quality of life markers, and whether those barriers had been alleviated after purchasing the vehicle. The baseline for this study is whether or not respondents had difficulty finding reliable transportation prior to their vehicle purchase. Sixty percent of respondents agreed or strongly agreed they experienced this difficulty, while a fairly significant number responded they disagreed or strongly disagreed (30%). This coincides with the literature. Fletcher et al. (2010) found the majority of low-income households did not have access to reliable transportation, even though a significant number of low-income households did own or had access to a vehicle. In addition, Garasky et al. (2006) found that although only 11% of respondents did not own or have access to a vehicle, of those who did, 62% described their vehicles as "reliable," while 48% reported financial difficulties related to the maintenance and ownership costs of the vehicle.

The literature illustrates reliable transportation for low-income households is an important factor in quality of life, and extends beyond owning a vehicle to maintaining, insuring, and making payments on the vehicle. The majority of respondents in this study indicated they agreed or strongly agreed they had little to no difficulty maintaining, insuring, and making car payments on the vehicles purchased through the organization's program. This reiterates the importance of access to reliable vehicles for low-income households, as the financial burden of owning a vehicle is cited as a transportation barrier. Indeed, Fletcher et al. (2010) found nearly 50% of low-income individuals had transportation issues that resulted in financial difficulty.

With regard to employment, the majority of respondents agreed or strongly agreed they had difficulty getting to work prior to the purchase of the

vehicle and found better employment since the purchase of the vehicle. This coincides with research that suggests the lack of transportation is a barrier to employment and the lack of reliable transportation is a barrier to better employment (Anderson & Van Hoy, 2006; Fletcher et al., 2010; Garasky et al., 2006; Lichtenwalter et al., 2006). Furthermore, Lichtenwalter et al. (2006) found reliable transportation not only had a positive relationship with employment, but also corresponded to better benefits and higher wages, presumably because more employment opportunities arise as one has the ability to travel further from one's immediate environment. In addition, Brabo et al. (2003) found the majority of respondents who purchased reliable vehicles saw an increase in wages and the ability to acquire better employment.

Fletcher et al. (2010) found that the lack of reliable transportation was a barrier to child care, while Brabo et al. (2003) found that the purchase of a reliable vehicle allowed the majority of respondents to find better child care. However, the respondents of this study were mixed in their response for these two points. The majority of respondents neither agreed nor disagreed that they had difficulty finding convenient child care, or that they were able to find more convenient child care since the purchase of their vehicle. In regard to having difficulty prior to the purchase of the vehicle, 30% strongly disagreed while 10% agreed. Since the purchase of the vehicle, however, 10% disagreed they were able to find more convenient child care, while 20% agreed they were able to since purchasing the vehicle. While these responses are not consistent with the literature, few of the respondents to this study had child care-aged children.

Respondents were also mixed on whether there was difficulty visiting extended family and friends prior to the purchase of the vehicle. Forty percent of respondents strongly agreed they had difficulty visiting with extended family and friends prior to purchasing the vehicle, while 40% strongly disagreed or disagreed. However, when asked if they were better able to visit with extended family and friends since the purchase of the vehicle, the majority of respondents either agreed or strongly agreed this was the case. Brabo et al. (2003) found the majority of respondents credited their vehicle with the ability to have more involvement with extended family and friends, supporting this finding. However, with such a small majority of respondents expressing difficulty visiting with family and friends prior to the purchase of the vehicle, it is important to consider that visiting with

family and friends was not of great concern to the respondents of this study.

The goal of the PRWORA of 1996 was to move welfare recipients off the rolls and into jobs (Anderson & Van Hoy, 2006). The assumption guiding this inquiry was that low-income workers without reliable transportation to and from work would need more public assistance to compensate for decreased earnings. However, the majority of respondents of this study neither agreed nor disagreed that they needed less public assistance since purchasing their vehicle, while 30% strongly disagreed or disagreed, and 30% strongly agreed or agreed. Brabo et al. (2003) found that while 74% of respondents of their study received some form of public assistance, 36% reported a decrease in benefits since the purchase of their vehicle.

The responses to this statement illustrate two things: First, either the majority of respondents did not receive public assistance of any kind, or their level of assistance had not changed since the purchase of their vehicle. Second, though literature has shown reliable transportation is a barrier to employment (Anderson & Van Hoy, 2006; Brabo et al., 2003; Fletcher et al., 2010; Garasky et al., 2006; Lichtenwalter et al., 2006) and that reliable, private vehicle ownership is a determinant of employment outcomes (Garasky et al., 2006; Lichtenwalter et al., 2006), having employment does not necessarily diminish one's need for public assistance. Indeed, though 85% of respondents in Brabo et al. (2006) were employed, 74% still needed some form of public assistance. In this study, 80% of respondents lived at or below the 2011 Federal Poverty Level for a family of 4 (United States Department of Health and Human Services, 2011), even though 70% were employed either full- or part-time.

Qualitative Analysis

The qualitative comments were analyzed and themed, and themes were evaluated according to frequency. The major theme that emerged was that the program was helpful (5 out of 10). Comments included "I couldn't get a loan anywhere else," "I'm glad [the program] was there when I needed help," "[the program] was what I needed to the max," and "I was dependent on an unhealthy person to get to work. [Buying the vehicle] gave me more independence and I have less stress."

Though the bulk of the qualitative comments did not expand on the survey statements, the last comment regarding independence and stress is something that warrants further study. Unfortunately, the psychological aspects of owning a reliable vehicle did not emerge from the literature, and

thus were not included in this study as a quality of life marker.

Limitations

There were several limitations to this study. First, the small sample size and the non-random design makes it difficult to generalize its data regionally. A second limitation was the use of the 1-through-5 Likert scale which did not allow for answers to statements that did not apply to particular respondents' circumstances. A study of this nature would lend itself well to a qualitative interview to allow for more in-depth answers on issues that concern the respondents. Third, the time constraint did not allow for continued attempts at contacting participants of the program which could have resulted in a larger sample.

Implications for Practitioners

The results of this study illustrate the effects of a successful program aimed at low-income individuals that improves the lives of its participants while underscoring that there is no one solution to poverty. Policies need to acknowledge employment alone is not a pathway out of poverty as this study and countless others suggest. Indeed, though the majority of the respondents of this study were employed, they remained at or below the poverty line despite transportation barriers being eliminated. Reliable transportation, suitable child care, and education are central to not only gaining employment, but securing employment with the wages and benefits necessary to move out of poverty. In addition, the impact of the environment on the family cannot be ignored; the needs of rural families are not necessarily the needs of urban families as suggested by previous research and informed by family ecology theory. Policy must address the needs of families within the context of the environment in which they live and develop programs, like the one studied, that empower individuals themselves to develop solutions to their problems rather than simply handing out aid that sustains them in their current situation.

Implications for Future Research

It is recommended that future research would include a large sample in order to generalize the findings regionally. However, it is important to note that research has illustrated the needs and experiences of low-income individuals vary just as the individuals themselves and the environments in which they live vary. As such, results of such research cannot be generalized nationally if solutions to poverty issues are to be successful. In addition, future studies on transportation and other barriers should take into account

the psychological effects of those barriers on quality of life. Finally, it would be useful to conduct qualitative and/or longitudinal studies in an effort to gather information on issues that are important to the particular person being surveyed.

Conclusion

Research in the area of poverty generally investigates what is going wrong rather than what is going right. This study investigated how the quality of life of low-income individuals is affected through a successful program aimed at empowering its participants—creating partners in the process of moving out of poverty, rather than continuing to perpetuate their role as aid recipients.

There is a psychological aspect to poverty not addressed in the literature or this study. As a country, through policies and practice, we have moved from trying to eradicate poverty and its sources to blaming those in poverty for their lot in life. It is easy to tell another to pull themselves up by their own boot straps, but what do we do when that person has no boots? We blame them, tell them they are not working hard enough, and tell them to do more. What we do not do is empower them. We do not give them access to the tools necessary to pull themselves out of their situation. When one has been beaten down by one's circumstances, society, and policies, one loses the will to continue to fight.

This study aimed to humanize the low-income individual. Rather than deconstruct the population down to yet another list of needs and barriers, this study addressed situations and circumstances that take place regardless of socio-economic status and provided a glimpse into how one simple thing, having a reliable vehicle, can improve quality of life. It is hoped that future research will adopt this tone, which in turn, may prompt policies that better the lives of individuals rather than reinforcing blame and causing guilt for needing assistance.

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The Relationship between Gender and Perceived Cyber-bullying Behaviors

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Abstract

Technology has changed the way people live, work, and socialize, including the way people bully (Akbulut, Sahin, & Eristi, 2010; Dilmac, 2009; Walker, Sockman, & Koehn, 2011). According to Walker et al. (2011), the prevalence of cyber-bullying in our society has brought the long-lasting detrimental effects on victims to the forefront. Feelings of anxiety, depression, and suicidal thoughts have been described by victims of bullying (Walker et al., 2011). This cross-sectional research investigated gender differences in the perception of cyber-bullying behaviors by surveying 140 college students at a small, Midwestern university. Using the symbolic interaction theory, we hypothesized that male and female college students would interpret cyber-bullying behaviors differently because genders are socialized differently (Strong, DeVault, & Cohen, 2008). Survey data was analyzed using frequencies, cross-tabulations, mean-comparisons, independent t-tests, and a reliability analysis. Results indicated significant gender differences in four out of the ten variables. Implications for practitioners will include creating effective education and prevention programs which address the wide range of cyber-bullying behaviors and the gender differences in the perception of these behaviors. Future research would benefit from a large and randomized sample as well as qualitative interviews to capture the lived experience of cyber-bullying.

Keywords: cyber-bullying, bullying, social networks

Technology has changed the way people live, work, and socialize, including the way people bully (Akbulut, Sahin, & Eristi, 2010; Dilmac,

2009; Walker, Sockman, & Koehn, 2011). Traditional bullying involves face-to-face interaction in which individuals are targeted based on physical appearance, perceived weakness, and unpopularity (Dilmac, 2009). This type of bullying usually occurs in schools or during the day. Advancement in technology allows for constant social connectivity, so bullying can happen at any time of the day. Unlike traditional bullying, the messages and images used to bully in the cyber-world can be quickly spread to many people. Technology allows bullies to be anonymous in the cyber-world. Cyber-bullying is defined as " the use of interactive technologies such as social networking sites, cell phones, instant messaging, email, or other technology-based communication tools to deliberately send insulting, harassing, and obsessive messages that result in harm to the recipient" (Walker et al., 2011, p. 37). According to Walker et al. (2011), the prevalence of cyber-bullying in our society has brought the long-lasting detrimental effects on victims to the forefront. Feelings of anxiety, depression, and suicides have been outcomes of bullying (Walker et al., 2011). Since there is little research on this topic, it is important to add to the existing knowledge regarding cyber-bullying. The current study investigated gender differences in the perception of cyber-bullying behaviors in a sample of college students at a small Midwestern university.

Literature Review

A literature review was carried out to investigate the gender differences of cyber-bullying behaviors perceived by college students. Since there was little literature on cyber-bullying and college students within the United States, the search was broadened to include other countries. There was a consistent finding within the literature that behaviors defined as cyber-bullying were experienced, and often by college students (Walker et al., 2011; Nocentini et al., 2010; Akbulu et al., 2010; Dilmac, 2009; Finn, 2004).

Walker et al. (2011) studied the experience of cyber-bullying by college students in the United States. The study found that 54% of all respondents knew someone who had been cyber-bullied. The most common undesirable behaviors experienced online were pretending to be someone he or she was not, sending tokens of affection, and 'friending' someone to get personal information. The study also found that more than 30% of the participants had experienced unwanted communication online, yet only 11% reported being cyber-bullied. This finding points to a discrepancy between undesirable

behaviors and the label cyber-bullying.

Nocentini et al. (2010) studied students' perceptions of terms used to label cyber-bullying and the different forms of cyber-bullying in three European countries. The purposes of the study were to identify a term that best described cyber-bullying and to clarify if certain behaviors fit the cyber-bullying construct. Individuals in this study agreed that if an action affected them negatively, then the action would be considered bullying. The participants from Spain and Germany found that if a phrase or action was interpreted as a joke, then cyber-bullying did not occur.

Akbulut et al. (2010) explored the prevalence of cyber-bullying behaviors experienced among Turkish online social utility members based on different demographics. The results showed that more than half of the participants had experienced cyber-bullying victimization. The most popular cyber-bullying behaviors experienced were cursing in instant messaging programs, pretending to be someone else in order to make that person look bad, and receiving harassing emails and/or instant messages. When genders were compared, males reported more instances of cyber-bullying victimization than females.

Dilmac (2009) analyzed the relationship between cyber-bullying and the psychiatric symptoms that influenced actions of bullying in Turkish college students. The study found that 22.5% of participants said they had cyber-bullied at least once. The study also determined that hostility was correlated with cyber-bullying. Finally, the study reported that males were more likely than females to report that they would engage in cyber-bullying in the future.

Finn (2004) studied the prevalence of cyber-stalking among college students in the United States. Cyber-stalking was defined as making threats or harassing an individual online. This study examined cyber-stalking in three ways: threats, messages, and stealing someone's identity. The research found that 13.1% of college students continued to be harassed even after they asked the bully to stop. The research found that most college students who were cyber-stalked did not report the incident.

The current literature described which behaviors students considered cyber-bullying. The literature also indicated that college students experienced cyber-bullying behaviors frequently. Finally, the literature looked at psychiatric symptoms contributing to cyber-bullying as well as gender differences in perpetration and victimization. This study explored

gender differences in college students' interpretation of online behaviors to see if these behaviors fit their definition of cyber-bullying; it thus contributes to the existing literature regarding cyber-bullying and college students.

Theoretical Framework

The theory used to inform this study was the symbolic interaction theory. This theory assumes that people interact with each other through words, symbols, and gestures (Strong, DeVault, & Cohen, 2008). This theory also assumes that an interaction is reciprocal, involving two or more people. When an interaction occurs, there is interpretation by those individuals involved in the interaction. For instance, if a mother asks her son to clean his room, and he ignores her, an interaction has taken place. The mother could interpret her son's response by believing he did not hear her request. The mother could also interpret her son's response as defiant behavior. Each interpretation would elicit a different response from the mother. Individuals interpret interactions differently based on their previous life experiences, which often vary depending on gender.

As applied to this study, this theory would predict that males and females will perceive different behaviors as cyber-bullying. This theory indicates that interactions online will be interpreted differently depending on the individual. Historically males and females are socialized differently in society, so there are likely to be gender differences in the interpretation of online interactions.

Purpose Statement

The purposes of this study were (1) to explore male and female college students' perceptions of cyber-bullying behaviors, (2) to develop a survey which measures what males and females define as cyber-bullying behaviors in a reliable manner, and (3) to highlight bullying behaviors occurring through technology and further the prevention of cyber-bullying.

The research question in this study was "Are there gender differences in the perception of cyber-bullying behaviors?" We predicted that males and females would interpret different behaviors to be cyber-bullying. The literature shows that cyber-bullying occurs when an individual interprets an interaction as offensive, and symbolic interaction theory assumes that individuals interpret situations differently (Strong et al., 2008). Since males and females are socialized differently in our society, it can be hypothesized that cyber-bullying would be interpreted differently based upon a person's gender.

Method

Participants

This study was conducted at a small, Midwestern university. The participants were 140 undergraduate male and female students.

Table 1

Demographics

	Number of Participants	Participant Percentage
GEN	48 Males	34.0%
	90 Females	64.0%
AGE	2 No Response	2.0%
	67 18-19 Year Olds	48.0%
	58 20-21 Year Olds	41.0%
	7 22-23 Year Olds	5.0%
	5 24-25 Year Olds	4.0%
	1 26+ Year Olds	1.0%
	2 No Response	1.0%
CBP	37 Yes	26.0%
	101 No	72.0%
	2 No Response	2.0%
CBV	76 Yes	54.0%
	62 No	44.0%
	2 No Response	2.0%

Note. (GEN)= Gender; (AGE)= Age; (CBP)= Have you been cyber-bullied in the past?; (CBV)= Have you ever know anyone who was a victim of cyber-bullying?

Research Design

Survey research was conducted in order to generalize to a larger population

with similar characteristics so inferences could be made about the gender differences in the perception of cyber-bullying. A cross-sectional research design was used to obtain college students' attitudes at one point in time. Data was collected through self-administered questionnaires which were used because they are convenient, have a low cost, and allow data to be gathered easily.

The population for this study was the university student population. The sample was the male and female students in general education courses. The study used a non-random purposive sampling design which allowed the researchers to be inclusive in the classroom and access a balance of male and female students. This study was approved by the Institutional Review Board (IRB).

Data Collection Instrument

The survey was designed to investigate gender differences among college students' perceptions of cyber-bullying behaviors. The survey included a description of the study, definitions of cyber-bullying, interactive technologies, perception, risks and benefits, time commitment, confidentiality, voluntary participation, contact information of the research team and supervisor, and instructions for completing the survey. The survey asked demographic questions about age, gender, and experiences with cyber-bullying. Also included in the survey were 10 closed-ended statements based on a 5-point Likert scale which measured the intensity of the participants' perceptions ranging from one (strongly disagree) to five (strongly agree). Finally, the survey included two open-ended questions about the motivation of cyber-bullies and prevention of cyber-bullying. The survey statements and questions were informed by cyber-bullying literature.

The survey instrument has both face validity and content validity. Face validity is the extent that each survey statement is logically linked with the research question and concepts in the literature. The survey showed face validity because the survey statements were based on literature, and thus reflected the relationship between gender and perceived cyber-bullying behaviors. Content validity refers to how well the survey statements cover the full range of concepts in the literature. The survey statements covered the wide range of cyber-bullying behaviors described within literature. The survey was piloted to two college females; both individuals stated the survey was clear and easy to understand.

Procedure

The data for this study was collected from two general education

classrooms. A purposive sampling design was used, which led to general education courses because these courses would have a balance of male and female students. The researchers did not randomize because inclusiveness was needed in the classroom.

Students in both general education classes followed along as specific parts of the informed consent were read. Students were instructed to keep the first two pages of the document and put the completed survey in an envelope in the front of the classroom. The researchers expressed appreciation and left the classroom along with the professor to ensure the students did not feel pressured to take the survey. The finished surveys were collected and stored in the supervisor's office until data analysis.

Data Analysis Plan

Data was "cleaned" and then checked for missing data. The "cleaned" surveys were "coded" using acronyms for each variable. Since groups were compared, the independent variable was gender. The demographic questions were given three letter acronyms: *Gender of the respondents* (GEN); *Age of the respondents* (AGE); *Have you been cyber-bullied in the past* (CBP); *Have you ever known anyone who was a victim of cyber-bullying* (CBV). Each survey statement was also given a three letter acronym: *I consider cyber-bullying to be: Sending threatening messages via interactive technologies* (STM); *Falsely representing oneself as a different person or gender via interactive technologies* (FRD); *Sending demanding messages such as pressuring to see someone or aggressively requesting a date with someone via interactive technologies* (DMP); *Harming another person's reputation by spreading rumors through interactive technologies* (HRS); *Using discriminatory language such as slut, fag, man-whore, etc. in a joking manner via interactive technologies* (DLJ); *Posting an embarrassing picture on social networking sites, such as Facebook, without that person's consent* (PEC); *Adding a person as a 'friend' on a social networking site to gain personal information about another person* (AFS); *Purposefully excluding someone from an online group or event* (PEO); *Sending personal nude pictures or videos without that person's consent via cell phone* (SPC); and *Sending unwanted text messages of affection such as suggesting a sexual relationship* (UTS).

The level of analysis of this study was the individual. The data was analyzed using the computer program *Statistical Package for the Social Sciences (SPSS)*. Since groups were compared, the data analysis included

frequencies, cross-tabulations, mean-comparisons, independent t-tests, and a reliability analysis, the Cronbach's Alpha.

Results

A frequency distribution analysis was run. The category 'self-identify gender' was deleted from the independent variable because none of the participants identified under this category. Four participants were eliminated from the sample because of missing data in their surveys. One participant was eliminated for confidentiality reasons. The final number of participants used for this study was 135.

Cross-tabulations were run with the independent variable GEN. There appeared to be gender differences for the variables FRD, DLJ, and PEC. For FRD and DLJ, the majority of females either agreed or strongly agreed, while the majority of males neither agreed/disagreed. For PEC, females had a higher percent who agreed or strongly agreed than males. For STM, DMP, HRS, AFS, PEO, SPC, and UTS, there appeared to be no difference between genders.

Table 2

Cross-Tabulations

STM

GEN	SD	D	U	A	SA	Total
Male	4.2%	2.1%	10.4%	35.4%	47.9%	100.0%
Female	4.6%	1.1%	1.1%	27.6%	65.5%	100.0%

FRD

GEN	SD	D	U	A	SA	Total
Male	10.4%	10.4%	39.6%	27.1%	12.5%	100.0%
Female	2.3%	6.9%	34.5%	39.1%	17.2%	100.0%

DMP

GEN	SD	D	U	A	SA	Total
Male	2.1%	10.4%	12.5%	45.8%	29.2%	100.0%
Female	4.6%	4.6%	13.8%	37.9%	39.1%	100.0%

HRS

GEN	SD	D	U	A	SA	Total
Male	4.2%	0.0%	8.3%	37.5%	50.0%	100.0%
Female	3.4%	0.0%	1.1%	18.4%	77.0%	100.0%

DLJ

GEN	SD	D	U	A	SA	Total
Male	4.2%	27.1%	43.8%	12.5%	12.5%	100.0%
Female	6.9%	6.9%	17.2%	23.0%	46.0%	100.0%

PEC

GEN	SD	D	U	A	SA	Total
Male	2.1%	12.5%	33.3%	27.1%	25.0%	100.0%
Female	5.7%	6.9%	19.5%	32.2%	35.6%	100.0%

AFS

GEN	SD	D	U	A	SA	Total
Male	16.7%	20.8%	39.6%	18.8%	4.2%	100.0%
Female	5.7%	16.1%	46.0%	24.1%	8.0%	100.0%

An independent samples t-test was run to compare mean scores for males and females. There were four significant mean differences between the genders for the variables FRD, HRS, DLJ, and AFS at p<.05.

Table 3

Independent T-tests

		Gender			
Variable	Males	Females	t	df	Sig.
FRD	3.21	3.62	-2.28	133	*0.024
	(1.13)	(0.93)			
HRS	4.29	4.66	-2.34	133	*0.021
	(0.94)	(0.82)			
DLJ	3.02	3.94	-4.59	112.02	*0.000
	(1.04)	(1.24)			
AFS	2.73	3.13	-2.18	133	*0.031
	(1.09)	(0.97)			

Note. FRD =Falsely representing oneself as a different person or gender via interactive technologies; HRS =Harming another person's reputation by spreading rumors through interactive technologies; DLJ =Using discriminatory language such as slut, fag, man-whore, etc. in a joking manner via interactive technologies; AFS =Adding a person as a 'friend' on a social networking site to gain personal information about another person.*significant @ p<=.05, two tailed. Standard deviations appear in parenthesis below mean.

A reliability analysis was run to indicate if the dependent variables were a reliable measure of the relationship between gender and perceived cyber-bullying behaviors. Cronbach's Alpha is a measure of reliability, and the analysis was 0.886. This value indicated the survey statements were a reliable measure of the major concept.

Discussion

The hypothesis that male and female students would interpret cyber-bullying behaviors differently found mixed support. Statistically significant mean differences (p<0.05) were found for the statements: *Falsely representing one's self as a different person or gender via interactive technologies; Harming another person's reputation by spreading rumors through interactive technologies; Using discriminatory language such as slut, fag, man-whore, etc. in a joking manner via interactive technologies;* and *Adding a person as a friend on a social networking site to gain personal*

information about another person. These finding are supported by the symbolic interaction theory which assumes, when an interaction occurs, there is interpretation by those involved in the interaction (Strong et al., 2008). Since males and females are socialized differently in society, this may have influenced the difference in perception of cyberbullying behaviors.

In the cross-tabulations, gender differences were found in three of the survey statements. The majority of females agreed that cyber-bullying includes falsely representing one's self as a different person or gender via interactive technologies and using discriminatory language in a joking manner via interactive technologies, while the majority of males neither agreed/disagreed. The majority of males and females agreed that cyber-bullying includes posting an embarrassing picture on social networking sites without that person's consent. However, the response rate was higher for females who agreed than for males. These gender differences were supported by the symbolic interaction theory (Strong et al., 2008). For example, females may have been more likely to view the intent of posting an embarrassing picture online without consent to cause harm. Thus, each gender may have defined this behavior differently based on their interpretation of the intent.

For the statement, *I consider cyber-bullying to be, using discriminatory language in a joking manner via interactive technologies*, females agreed more often than males. However, the literature stated if a behavior is interpreted as a joke, then the interaction is not considered cyber-bullying (Nocentini et al., 2010). The data from this study did not support research findings in the literature. Females may have believed that using discriminatory language even when joking can result in harm, and so they categorized this behavior as cyber-bullying. The majority of males neither agreed/disagreed with this statement. This could be because using discriminatory language in a joking manner among friends is socially acceptable for males. According to symbolic interaction theory, individuals interpret interactions differently based on previous life experiences which often vary by gender (Strong et al, 2008). Males may interpret the use of discriminatory language as an acceptable way to interact.

The majority of males and females agreed that cyber-bullying is sending threatening messages via interactive technologies and posting embarrassing pictures on social networking sites without that person's consent. The findings from this study were congruent with the existing literature. Nocentini et al. (2010) found that Italian, Spanish, and German participants considered

written-verbal behaviors and visual behaviors to be forms of cyber-bullying. Written-verbal behaviors were defined as harassing phone calls, text messages, emails, instant messaging, social networking communities, and websites. Visual behaviors were defined as posting, sending or sharing compromising pictures and videos. Exclusion was defined as purposefully excluding someone from an online group. In the current study, the majority of participants agreed that purposefully excluding someone from an online group or event is cyber-bullying. This is inconsistent with Italian participants in Nocentini's study (2010), but consistent with Spanish participants in the same study.

For harming another person's reputation by spreading rumors through interactive technology, the majority of males and females agreed. These findings are reflected in the literature. In a study by Wolak, Mitchell, and Finkelhor (2007) cited by Dilmac (2009), participants reported experiencing instances of cyber-bullying, defined as using interactive technologies to hurt or embarrass another person, within the last year. Hurting or embarrassing another person can result in a negative reflection of that person's reputation.

The majority of males and females agreed that sending nude pictures or videos without that person's consent via cell phone and sending unwanted text messages of affection are cyber-bullying. These findings are congruent with the symbolic interaction theory (Strong et al., 2008) because individuals may have learned that it is wrong to send nude pictures and thus gave a negative meaning to this behavior from past knowledge. For sending unwanted text messages of affection, individuals may have interpreted this behavior as a form of sexual harassment which individuals learn can cause harm, and so they interpreted this behavior based on past knowledge.

Walker et al. (2011) found when participants were asked about their experiences with undesirable and obsessive communication in the cyber world, 'friending' people you know to get personal information about you, and sending excessively 'needy' or demanding messages were two of the top behaviors reported. While participants reported experiencing these behaviors, only a small percentage reported also experiencing cyber-bullying. This may indicate that participants were unsure whether these behaviors qualify as cyber-bullying. In our study, the majority of males and females neither agreed/disagreed that adding a person as a 'friend' on a social networking site to gain personal information about another person is cyber-bullying. However, the majority of participants in our study agreed that

sending demanding messages via interactive technologies is cyber-bullying which is not consistent with the existing literature.

For three of the survey statements, a large percentage of both males and females neither agreed/disagreed. The statements in which this trend occurred were *Posting an embarrassing picture on social networking sites without that person's consent, Adding a person as a 'friend' on a social networking site to gain personal information about another person,* and *Purposefully excluding someone from an online group or event.* This trend may have resulted from participants interpreting the intent of the behavior under different contexts. For example, posting an embarrassing picture without that person's consent could be intended to be humorous, or it could be intended to harm the recipient. Thus, the behavior may be interpreted differently depending on the context. The survey statements did not address the intent of the behavior, so this could explain the indecisiveness of the participants.

Qualitative Analysis

For the open-ended questions, a content analysis was done to identify general themes from the participant comments (Esterberg, 2002). When participants were asked how they had been cyber-bullied, the most common theme was *mean comments/discriminatory language,* consisting of 11 out of the 21 responses. This theme also held true when participants were asked how people they knew had been cyber-bullied; in 32 out of the 58 responses, participants indicated the use of *mean comments/discriminatory language.* The next most reported themes used to cyber-bully people participants knew were *threatening messages*, with 9 responses, and *harming reputation through rumors*, with 8 responses. Our findings reflected the themes sending threatening messages and harming another person's reputation by spreading rumors, which the majority of participants agreed are cyber-bullying behaviors. However, our participants were more divided when asked about discriminatory language used in a joking manner, which may point to the importance of the intent behind the behavior.

The qualitative comments regarding the question "What is your perspective on the motivation of individuals who bully someone in cyberspace?" reflected three main themes: *The bully feels bad about themselves,* with 42 out of 127 responses; *The bully is afraid of face-to-face confrontation,* with 27 responses; and *The bully feels powerful when victimizing others,* with 21 responses. Dilmac (2009) found that engaging in

behaviors which hurt others and gaining sympathy, affection, and emotional support positively predicted cyber-bullying. Dilmac's (2009) study reflects the qualitative findings that cyber-bullies are able to gain power through hurting others. Also, cyber-bullies may feel bad about themselves, motivating them to look for sympathy, affection, and emotional support through bullying. The theme that individuals are motivated to cyber-bully because they are afraid of face-to-face confrontation was not mentioned in the literature. This may be the case because, unlike the other two themes, which may also be considered motivation for traditional bullies, fear of face-to-face confrontation is unique to cyber-bullying.

The qualitative comments addressing prevention of cyber-bullying resulted in two main themes: *The need for education in schools,* with 24 out of 125 responses, and *Ban/block the cyber-bully while also being selective of whom you add as a 'friend,'* with 31 responses. Many participants recommended educating students about cyber-bullying. If cyber-bullying becomes an issue on social networking sites, participants recommended blocking the cyber-bullies. One participant stated, "Be smart about what you do/who you talk to online. You don't have to add every person on Facebook just because they request you."

The qualitative comments showed that mean comments or discriminatory language are most often used to cyber-bully. Participants believed low self-esteem is the main reason why individuals cyber-bully. In order to prevent cyber-bullying, participants recommended banning or blocking cyber-bullies and carefully choosing one's 'friends' on social networking sites.

Limitations

A limitation to this study is the small sample size and the non-random design. Also, the number of female participants was greater than male participants. Using a 1-through-7 Likert scale instead of a 1-through-5 scale would have allowed for more variation of responses, thereby decreasing the number of "neither agree nor disagree" responses. Another limitation was that participants were given the survey at the beginning of class, thus time restrictions may have contributed to potential pressure to complete.

Implications for Practitioners

This study has implications for future research in that it raises the issue of perception of cyber-bullying by gender, which could lead to more

knowledge for practitioners including educators and school counselors. The results from this study could be used to develop more effective education and prevention programs by defining the wide range of cyber-bullying behaviors and highlighting the gender differences in the perception of these behaviors.

The implications to be considered from this study would include mandating cyber-bullying curriculum for middle and high school students. This curriculum should include the definition of cyber-bullying, information on the different types of cyber-bullying behaviors, along with the serious consequences for victims. This curriculum should also address the different interpretations of cyber-bullying behaviors by males and females, so individuals are better able to understand how their actions online may be perceived by the opposite gender.

Implications for Future Research

For future research, a large and randomized sample is recommended in order to generalize the findings to a larger population. In order to decrease the number of neither agree/disagree responses, it may be helpful to increase the Likert scale to include seven categories instead of five.

Since the findings from this study show gender differences in the interpretation of cyber-bullying behaviors, research on specific behaviors males and females most commonly use to cyber-bully would be helpful to increase knowledge. Further research about the gender differences surrounding cyber-bully is needed to increase understanding about why males and females cyber-bully and what can be done to decrease these behaviors. Qualitative research on this topic such as in-depth interviewing would be helpful in clarifying specific gender differences in the interpretation of cyber-bullying behaviors.

Conclusion

Bullying in the cyber world is becoming more prevalent in our society. With the rapid advancement of communication through technology, continuous research on cyber-bullying is needed to keep up with the latest trends. Cyber-bullying has the potential to cause public humiliation on a large scale and can have detrimental effects on victims such as suicidal thoughts. This study demonstrates the importance of understanding the interpretation of cyber-bullying behaviors. In some cases, individuals may not realize their online behaviors are perceived as harmful by others. We hope

that with additional research, education and awareness about cyber-bullying will increase in schools and universities, and cyber-bullying behaviors will decrease as individuals begin to think about their actions in the cyber world.

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Rye Cover Crops Limit *Alliaria petiolata* Growth and Promote Prairie Restoration

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Abstract

Alliaria petiolata (garlic mustard) is a non-native invasive species that invades intact, high-quality native ecosystems, outcompeting and extirpating native plants. Important questions in ecology and applied restoration are (1) How does *A. petiolata* affect plant species richness? and (2) How can *A. petiolata* be suppressed when attempting to restore native vegetation to a degraded site? We investigated the relationships between *A. petiolata* and plant species richness and tested the efficacy of two different cover crops, annual rye (*Lolium multiflorum*) and perennial rye (*Lolium perenne*), in inhibiting *A. petiolata* along an area of the Stokke Trail in Menomonie, Wisconsin. We hypothesized that *A. petiolata* would suppress plant species richness and that rye cover crops would be effective in suppressing *A. petiolata*. The percent cover of *A. petiolata* positively correlated with the species richness, possibly due to favorable conditions such as availability of nutrients, moisture, or sunlight. *L. multiflorum* did negatively affect the growth of first year *A. petiolata;* however, *L. perenne* did not. This suggests that competitive allelopathic annuals such as *L. multiflorum* could be used to suppress invasive species in other areas. Future research should investigate using aggressive annuals to outcompete invasive species.

Keywords: Alliaria petiolata, cover crop, prairie restoration*, Lolium perenne, Lolium multiflorum*

Garlic mustard, *Alliaria petiolata*, is a non-native invasive species that affects all of Eastern North America, including Western Wisconsin. It grows

in very dense patches, which can limit growth of native species (Prati & Bossdorf, 2004). *A. petiolata* also limits the growth of trees through the excretion of allelopathic chemicals that disturb mycorrhizal fungi required for tree growth (Stinson et al., 2006). Allelopathy is the ability of a plant to produce chemicals that provide competitive advantage by suppressing the growth of other species. Allelopathy can include killing mycorrhizal fungi or preventing seed germination (Prati & Bossdorf, 2004).

A. petiolata is a non-native biennial introduced from Europe to North America in the 19th century. Its range has expanded rapidly to cover the understory of mesic forests of the Northern United States and Southern Canada. It can reduce the abundance and richness of native species in the area of infestation (Prati & Bossdorf, 2004). However, other researchers have found that regions with high native plant species richness also favor invasive plant species richness (Stohlgren, Barnett, & Kartes, 2003). The effects of invasive plant species on other species remain a question.

There are many options for control of *A. petiolata*, including herbicide and mechanical treatments, but it would be beneficial to find another non-invasive plant species to act as a control over *A. petiolata* growth. Conventional controls are expensive and labor intensive; repeated applications are frequently needed. Chemical herbicides may pose risks to wildlife and human health, whereas mechanical methods disrupt soil communities and bring up new seeds from the soil seed bank. Herbicide application or fire may damage native vegetation and actually increase the abundance of *A. petiolata* (Bauer, Anderson, & Anderson, 2010). In ecological restoration from seed, a cover crop acts as ground cover to reduce soil erosion, provides an environment that supports seed germination, and helps suppress weeds (Creamer, Cardina, Stinner, Regnier, & Bennet, 1996). We hoped to find a cover crop that provides biotic control for *A. petiolata* and also promotes successful prairie restoration from seed.

We investigated the effects of *A. petiolata* abundance on plant species richness and the impacts of different cover crops on both *A. petiolata* abundance and plant species richness in a prairie restoration along the Stokke Trail in Menomonie, Wisconsin. The rye cover crop species used in the experiment were *Lolium multiflorum* (annual rye), which is commonly used as an agricultural cover crop (Clark, 2007), and *Lolium perenne* (perennial rye), both of which have allelopathic properties that prevent other plants from germinating and establishing (Newman & Rovira, 1975). These

allelopathic properties may help to suppress the infestation of *A. petiolata* but could also limit the amount of native seed germination. Our hypotheses consist of (1) *A. petiolata* will suppress plant species richness, and (2) as an annual, *L. multiflorum* will out-compete *A. petiolata*, perhaps providing a suitable environment for native seedlings.

Methods

The research area and restoration was along the Stokke State Trail in Menomonie Wisconsin, which used to be a railroad bed (Figure 1). Although the trail does allow for southern exposure to the sun, it is surrounded by a forest composed mainly of box elder (*Acer negundo*), and *A. petiolata* is strongly established in the area. We established plots in the prairie restoration area for two different cover crop treatments (*L. perenne* and *L. mutiflorum*) and a control with no cover crop. The 180 m trail section was divided into 10 m x 10 m plots, for a total of 18 plots.
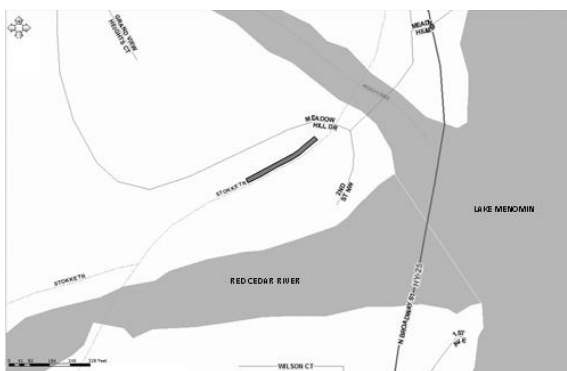
Figure 1. Area of prairie restoration along the Stokke Trail. The prairie restoration runs along 180 m of the north side of the trail (dark gray segment with dark outline).

We surveyed each plot for percent cover of first and second year *A. petiolata*, the percent cover of other vegetation, and the number of plant species (species richness) in ten 0.5 m^2 circular subplots located along two transects (Figure 2). After the plots were surveyed, the City of Menomonie treated the entire section with Roundup herbicide (glyphosate) in the spring and early summer to provide vegetation control and prepare the seed bed for the prairie seeding in the fall. The entire area was covered with a mix of native seeds in the fall so that the seeds would break dormancy over the

winter. The seed mix included Canada wild rye (*Elymus canadensis*), Indian grass (*Sorghastrum nutans*), big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), switchgrass (*Panicum virgatum*), western sunflower (*Helianthus occidentalis*), purple prairie clover (*Dalea purpurea*), wild bergamot (*Monarda fistulosa*), New England aster (*Aster novae-angliae*), spiderwort (*Tradescantia ohiensis*), pale purple cone flower (*Echinacea pallida*), black-eyed susan (*Rudbeckia hirta*), and sky blue aster (*Aster oolentangiensis*). After one year of growth, each plot was surveyed again using the same survey method. We used linear regression for the relationship between *A. petiolata* abundance and plant species richness and ANOVA to assess the effects of our treatments on first and second year *A. petiolata* abundance and species richness.
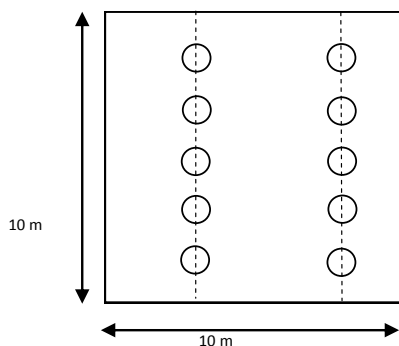
Figure 2. Arrangement of subplot samples within the plots. The plots are 10 m by 10m. The dotted lines are transects, which were spaced at 2.5 m and 7.5 m. The circles are 0.5 m2 subplot samples.

Results

Plant species richness was significantly positively related to first-year *A. petiolata* percent cover (Figure 3), and the same relationship was apparent at the subplots scale, ($P = 0.029$, $R^2 = 0.026$, df = 178, species richness = 7.67 + 0.02 (first year *A. petiolata*)).
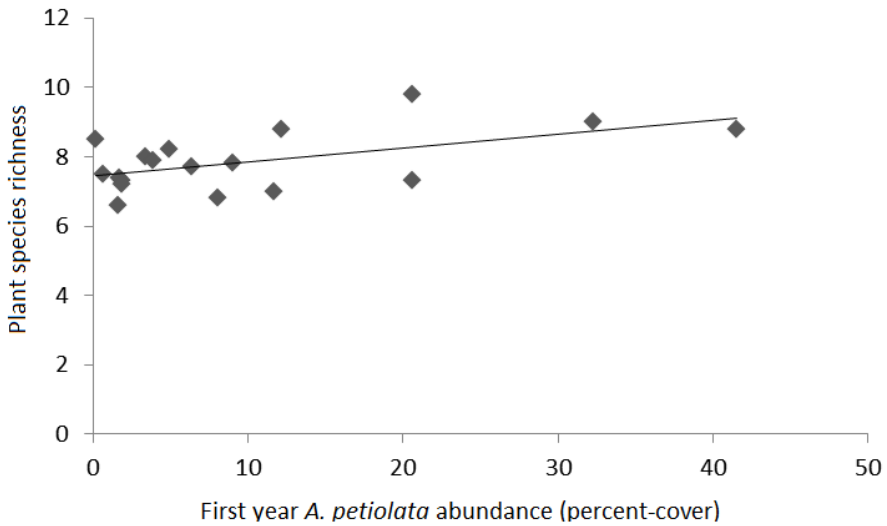
Figure 3. Relationship between species richness and first year *A. petiolata* at the plot scale (*P* = 0.020, R^2 = 0.296, df = 16, species richness = 7.46 + 0.0397(first year *A. petiolata*)).

We investigated the relationship between *L. perenne* and *L. multiflorum* at the plot and subplot scales. However, the subplot scale is pseudorepli-cated (Hurlbert, 1984), and so the statistical results are invalid (violating the assumption of sample independence). *L. multiflorum,* but not *L. perenne,* inhibited *A. petiolata*. Although the relationship was not significant at the plot scale (n = 18, Figure 4), this relationship was significant at the subplot scale (*P* = 0.002, R^2 = 0.053 df = 178, first year *A. petiolata* = 12.1 – 0.123(*L. multiflorum*)).
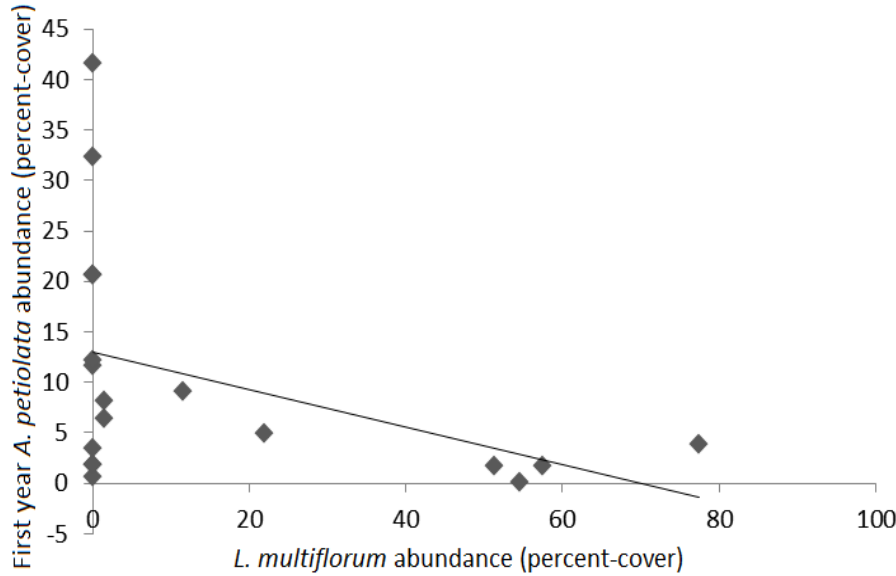
Figure 4. *Alliaria petiolata* and *L. multiflorum* percent cover at the plot scale. The relationship was not significant, but had a negative relationship ($P = 0.091$, $R^2 = 0.168$, df = 16, first year *A. petiolata* = 13.0 - 0.186(*L. multiflorum*)).

There was no significant difference between first year *A. petiolata* cover, other vegetation cover, or species richness and cover crop treatment type (Figure 5). However, *L. multiflorum* did substantially decrease first year *A. petiolata* (Figure 5A). The abundance of other vegetation increased with cover crop treatment (Figure 5C).
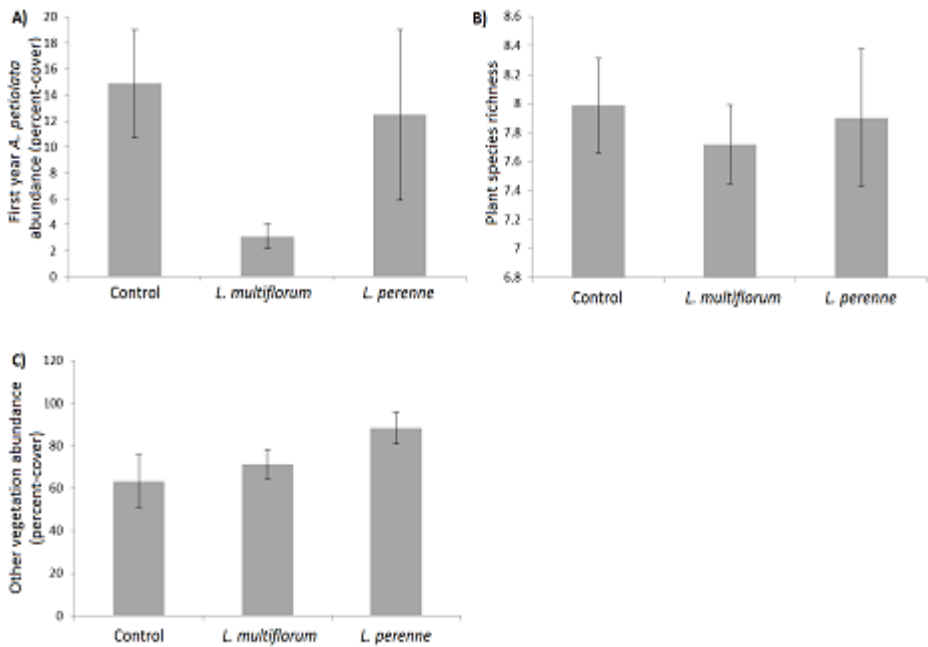
Figure 5. Mean A) first year *A. petiolata* percent-cover, B) species richness, and C) other vegetation percent cover for the different cover crop treatments (n = 6 for each treatment). Error bars are 95% confidence intervals.

Discussion

On both the plot and subplot scale, the percent cover of *A. petiolata* had a significant positive relationship with plant species richness. This finding supports the idea that areas that are susceptible to invasive plant infestations also have high species richness: the "rich get richer," (Stohlgren et al., 2003). This relationship may be due to favorable conditions such as availability of nutrients, moisture, or sunlight. Our study did not differentiate between native and non-native species richness, which means that *A. petiolata* may simply be correlating positively with other non-desirable weeds that also favor disturbed conditions.

L. multiflorum did negatively affect the growth of first year *A. petiolata* in our sampling site, although the difference was not significant due to small sample size. These data support our hypothesis that *L. multiflorum* is effective at suppressing *A. petiolata*. Our results may be due to the allelopathy or the quick germination of *L. multiflorum*, which is an annual species and therefore more likely to germinate quickly (Gurevitch, Scheiner & Fox 2006). Our research suggests that competitive allelopathic annuals, such as *L. multiflorum*, could be used to suppress invasive

species in other areas. However, the allelopathic characteristics of *L. multiflorum* may also inhibit the germination of native prairie seeds if seeded at the same time. Due to the small size of any germinating prairie species, we were unable to include them in our survey.

In the future, we will continue to monitor the site to track the success of the prairie seeding. We will differentiate between native and non-native species in our investigation of the effects of the cover crops and *A. petiolata* on species richness. More research should also be conducted into other vegetation that could be used to suppress infestation of invasive plants.

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Madonna Medusa: The Snake Weavers its Way through Dust and Legend

Justin Cameron
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Advisors
Charles Matson Lume, MFA
Tim Tozer, MFA

My artwork is inspired by the interchange between ideas, materials, and process. I have questioned and experimented with the boundaries between painting and drawing for the bulk of my undergraduate career. I believe that the material an artist chooses to work with should be in the service of concepts, and despite its entrenched history, painting/drawing is no exception. One exploratory path that I have committed myself to for the last two years has been my work with lemon juice. The lemon juice paintings/drawings appropriate the Greek myth of Pegasus' birth, and Christian artistic traditions, with connotations springing from an aesthetic that is reminiscent of the untamed Western United States. Think of it as a story in which the plot is the Greek myth, the clergy is the cast of characters, and it is in the archetypical West plains setting. A few starting points that are helpful as a way into these spaces are that Medusa was defeated through the use of a mirror and that Pegasus was born from a drop of Medusa's blood when it hit the ocean.

To speak more specifically about the processes, I would like to add that the lemon juice is pressed with a hot iron to give it a singed color. This searing of the paper hints at branding and damning, since the stain is being locked into the material. Also, the juice is difficult to see when it is applied, which also speaks truth to the methodology of abuse. It is a sort of gentle washing, with a soothing and aromatic food acid, in preparation for the shock of pressure and heat.

Anvil Top, Lemon juice, graphite and nail polish on paper, 24" X 10", 2011
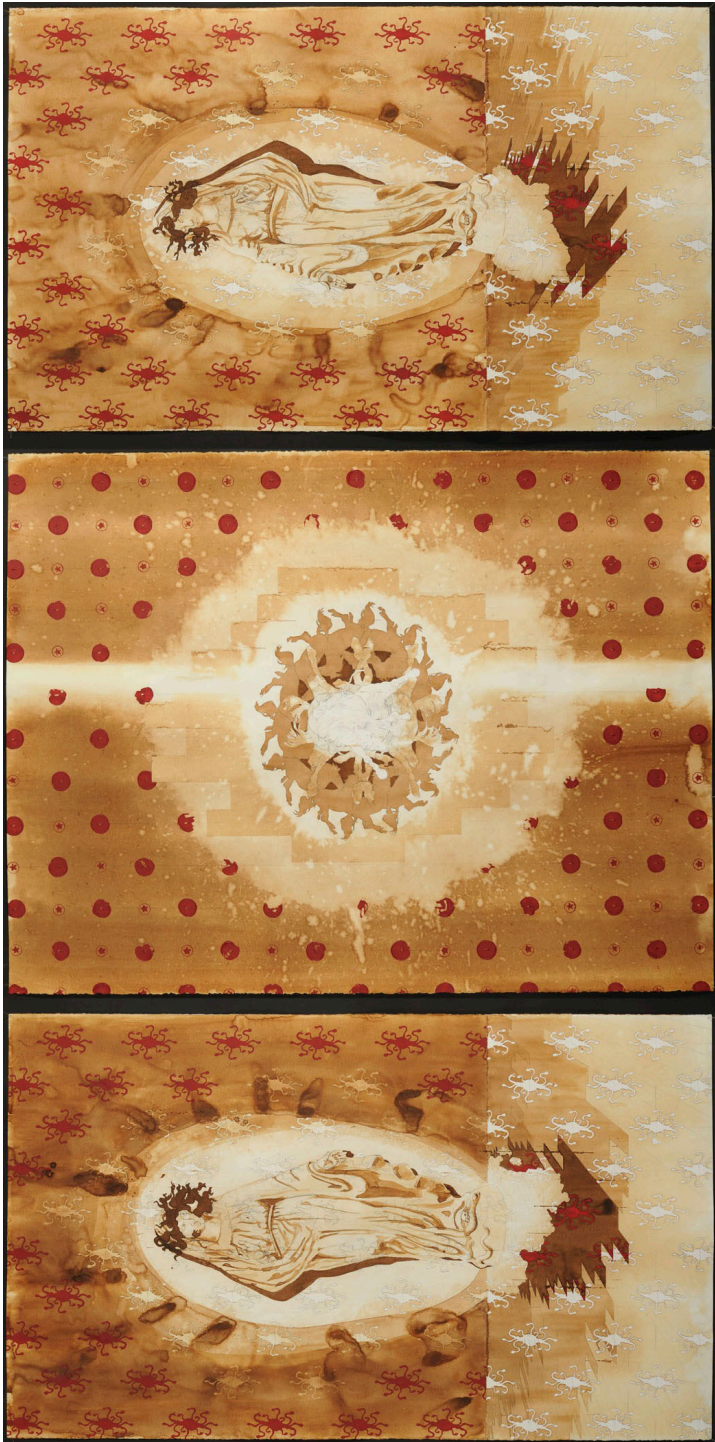
PM Nest, Lemon juice, graphite and oil paint on paper, 100" X 50", 2010

Nostalgia, Lemon juice, graphite and house paint on paper, 24" X 10", 2011
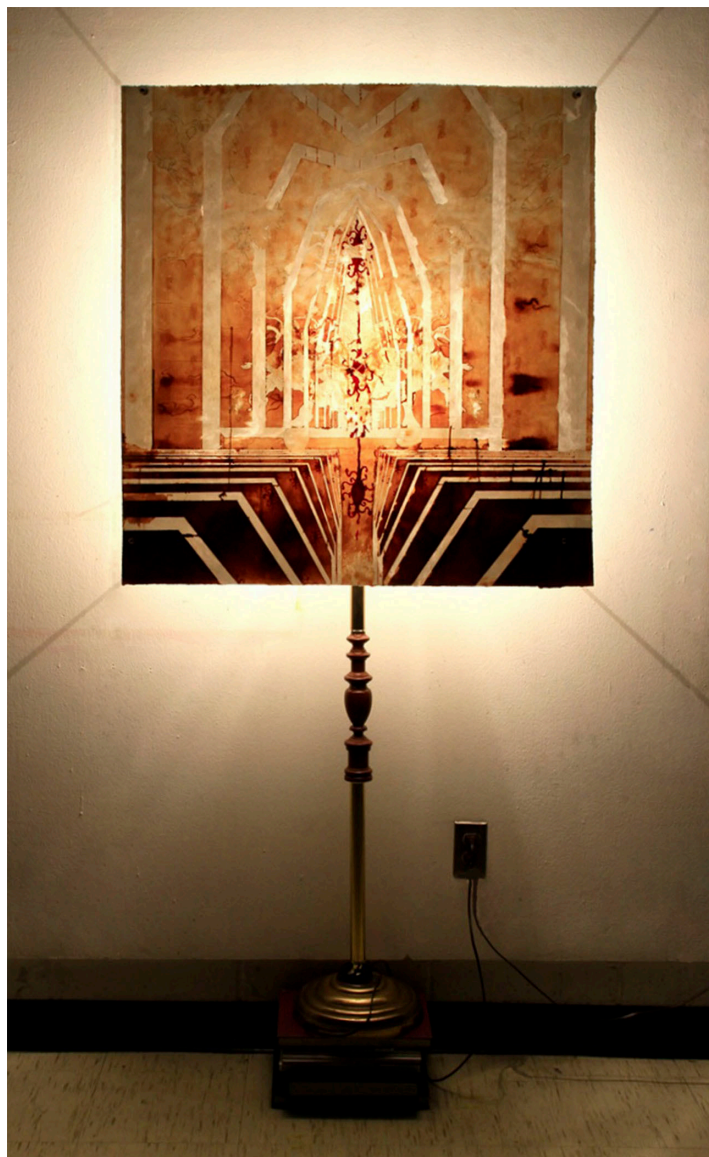
New and Improved! Maxi Pegasus With Wings! Mixed
media installation, 7' X 5' X 1', 2011

Young Wisconsin Artists

Julia Guettler
Senior, Fine Art-Sculpture

Advisor
Lars Jerlach, MFA

Art history, and finding my place among the countless voices that have come before, is at the root of my practice. As an artist, I am connecting past narratives told throughout art history with my own contemporary voice. I see a connection to the past through the perpetual similarities human emotion holds throughout all of history and literature. The creation of characters by others and myself reflects these sentiments within the mixed media I choose to communicate in.

I currently am exploring the formation of an artistic movement. Young Wisconsin Artists, a play on the Young British Artists (YBA) formed in the late 80s, uses the Midwestern region to our advantage. With Charles Saatchi's *Sensations* exhibition contest that created the YBA expanding to the United States, the time for a shift of focus to Young American Artists is now. We are the best representation of young artists in America right now, coming straight from the heart of the country.

I have taken my exploration of characters from literature and film into the creation of my own character, Riley Whitney. Riley is also a commentary on contemporary art as she poses as a famous contemporary artist and frequently tweets famous artists, critics, and institutions. She also uses the website YouTube to lecture about contemporary art, connecting to people worldwide.

The origin of artwork and the artists who made them strongly influences the work I create. History immortalizes artists and makes their process, work, and personal lives still accessible hundreds of years later. I use this information to build a conjunction between the viewer and my own personal identity.

I try to access the mindset of the living or dead contemporary artists I admire through research. Procuring details of their lives through recorded history, I try to find some kind of common ground between the artist and myself. Sophie Calle, Cindy Sherman, and Tracey Emin are some of the artists I hold in the highest regard, as their work navigates particular aspects

of society I wish to commentate on. Through the use of personal mythology they connect with the viewer, blurring the line between fact and fiction.

My work revolves around translating this research into a visual language through familiar motifs used in storytelling and art. There then it becomes an inherent knowledge through films and literature that the viewer possesses. This inherent knowledge and my own translation leave the viewer reflecting upon their own place in history.
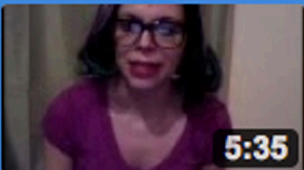
Mother Monster Series
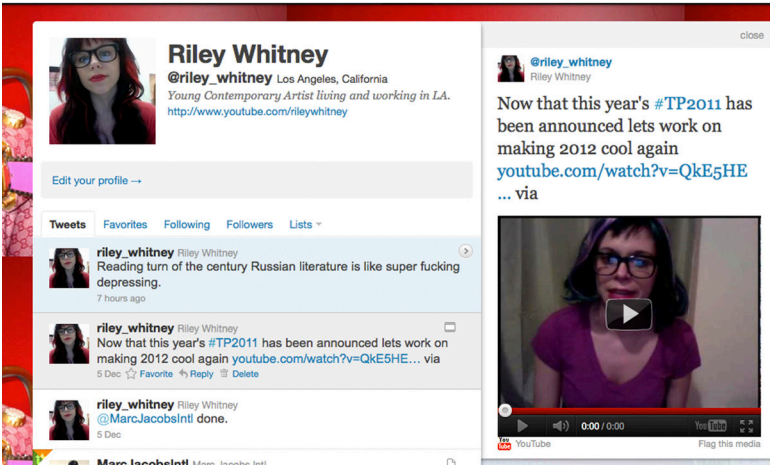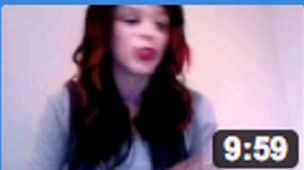
Riley Whitney Twitter Page

Riley Whitney Youtube Lecture Series

Teenage Dreams Series- Lady Gaga

Senior Thesis-Ware

Mark Parker
Senior, Fine Art-Ceramics

Advisor
Geof Wheeler, MFA

My work explores the potential of an object's communicative value as functional craft. Through the creation and presentation of objects, I test the similarities of the language developed between user and maker to the language established by artist and audience. As a craftsman, I feel my addition to the dialogue of contemporary art is most effective when presented quietly and subtly. For that reason, I choose to make objects that speak from the place of a common, utilitarian object.

I am attracted to the vocabulary available through the inherent gestural quality of crafting clay. That vocabulary provides a special opportunity to speak from modest objects, and I am intrigued by the subtlety offered in that language. Similarly, I am excited by the way that language can be applied in practical interaction as the objects integrate into the user's life.

Within that language exists a vocabulary specific to crafting clay. The casual marks are a direct result of the thoughtful methods used to make each object. Presenting the user with a bare clay surface and thoughtful glazing, I bring them into that process more intimately. By creating process-based visual elements, the ideals I hope to share with my audience occur as graceful and efficient marks of gestural craft. Through attractive forms and surfaces, I hope to invite the audience to share in this process and provoke thoughts that extend the dialogue between craftsmen, artists, users, and audience.

The imagery on my pots is an extension of objects that serve a function consistent with the purpose of my tableware. The cinderblock, for instance, is an object of structural integrity in which I find interesting and beautiful spaces. Those spaces, after the cinderblock is used to build, serve as support to a greater functioning structure. For that reason, I enjoy the conceptual relationship that links the building object to handmade ceramic ware.

As these thoughts manifest into objects through my craft, I find satisfaction in my ideals expressing themselves through usable objects. Similarly, as the voices of contemporary art address specific spaces, I also find myself attracted to the efficiency of the gallery. To complement the

quiet voice described in my utilitarian work, I also have created work that addresses the audience through the formal presentation allowed by the gallery walls. My drawing *"Untitled"* speaks as and articulate and succinct object, while addressing the folk craft present in my pots. The intellectual clarity made available both by the gallery and the imagery on my pots, is an opportunity for me to clarify the craft-based values I have developed as an artist, and highlight the especially subtle elements that are important in my pots. I want my work to be articulate without being exclusive. With these insights, I believe my process creates objects that are both inviting and effective.

Untitled, Found Laminate, OSB, Latex Paint, Felt-tip Pen,
Wood Screws, Florescent Light, 27" X 32".

Teapot and Cups, Stoneware, Slip, Glaze, Dimensions Variable

Mug, Stoneware, Glaze, Underglaze, Gold Leaf, 4'' X 3''.

Platter with Drawing, Stoneware, Slip, 12''.

The Seven Deadly Sins

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Advisor
Geof Wheeler, MFA

Instinctively, I draw from nature and my past to exemplify my thoughts, while still permitting myself the liberty of exploiting my personal beliefs and history. Clay is my medium, and I approach each piece with humor, imagination, and the attempt to see beyond what I know about myself. I try to allow my intuition to soar past my perceived limitations. The large, humorous, spirited animals that I create are used to explore self-portraiture by the use of theological and psychological themes. My pieces are intended to invite the viewer to imagine what animals could express if they had personality disorders, sinful natures, and an innate need for self-centered-ness and power. Through facial expressions, body language, and texture, I emulate human body language and its relation to the way one responds to it.

Historically, the hare symbolizes fertility, rebirth, rejuvenation, resurrection, intuition, transformation, and overcoming limiting beliefs. I choose the hare as a model not only for the historical symbolism, but also because there is a popular assumption that rabbits are innocent, quiet, and cuddly. Through this, I am led to explore my character, identity, and spirituality and what others perceive of me, while I note the spiritual parallels human beings share with the hare's symbolism.

The Seven Deadly Sins series is a group of seven severed rabbit heads each with a different, slightly humorous facial expression meant to depict each of the seven sins. I place each severed head atop a wooden shelf, as many people place special things for safekeeping. However, behind each shelf is silver platter that casts a reflection to the back of each head and the face of the observer. The intention of this trophy-like display is meant to cause the viewer to make a connection between what people hold dear, exploit, and hide.

The Seven Deadly Sins

Lust

Anger

Envy

Correlation of Biochemical and Biophysical Data from Microbes Grown from Honeybee (*Apis mellifera*) Gut Contents

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Abstract

The number of honeybee colonies has consistently been declining since the winter of 2006. The reason for this loss, which has been coined Colony Collapse Disorder (CCD), is not known. In this experiment, the culturable bacterial flora of the honeybee gut was examined to provide more information on the natural microbial populations of the honeybee. Since little data exists on the normal flora of the honeybee gut, being able to identify the normal flora could aid in identifying microbes associated with CCD. Honeybee gut content was extracted and cultured on standard microbiological media. Once bacteria were isolated, the microbe types were isolated for further analysis and characterization by biochemical and biophysical tests. Biochemical reactions were done on MacConkey and Triple Sugar Iron (TSI) agar and while spectral profiles were collected using Matrix-Assisted Laser Desorption/Ionization Time of Flight (MALDI-TOF). All bacteria were found to have a rod morphology, with five being Gram-positive and two Gram-negative. One organism was found to be a yeast. MALDI-TOF displayed that four colony types had similar but unique mass spectrometry profiles. These data represent an effort to categorize microbe types found in honeybee gut by using a combination of biochemical techniques so that

characterization of the microbes can eventually be realted to the health of honeybee colonies.

Recent studies have identified a set of organisms typically found in the gut of healthy *Apis mellifera* (honeybees)[1]. Bacteria characterized in this way included *Lactobacillus* sp., uncultured *Firmicutes*, *Bifidobacterium* sp., *Bartonella* sp., *Gluconacetobacter* sp., *Simonsiella* sp., and two uncultured *Gammaproteobacteria*. There was an abundance of *Gammaproteobacteria* present, whereas organisms from the *Betaproteobacteria, Alphaproteobacteria, Firmicutes*, and *Actinobacteria* groups showed up less frequent. Since the bacterial community reported was similar to honeybees worldwide, it suggests these bacteria are part of the normal flora of the honeybee under normal conditions. A better understanding of the normal microflora of a healthy honeybee can aid in discovering microbes associated with the decline in honeybees, which has been reported in all regions of the world where apiculture contributes to agriculture.

In the United States, this problem in honeybees became evident as a significant decrease in the managed *Apis mellifera* (honeybee) populations in the winter of 2006/2007, and this situation is currently unresolved[2]. Exact reasons for these declines are not known, but factors including pathogens, parasites, and environmental toxins have been investigated. Northern California scientists have recently found a parasitic fly that hijacks the honeybees' body, causing them to abandon their hives. These flies could be a possible explanation for the honeybee die-off that has affected hives around the world[3]. This syndrome in honeybees is known as Colony Collapse Disorder (CCD) and threatens dire consequences for many essential food crops[4].

Using mass spectrometry-based proteomics, Bromenshenk and co-workers compared thousands of proteins from healthy and collapsing bee colonies which led to discoveries of two new RNA viruses in the honeybees: Varroa destructor-1 virus and Kakugo virus[5]. They also identified an invertebrate iridescent virus (IIV) which is correlated with CCD colonies. Bees in failing colonies not only had IIV but also a microsporidia *Nosema*. Their findings associate co-infection by IIV and *Nosema* with honeybee

decline, giving reason to believe IIV, *Nosema*, and mites when found together are associated with losses of honeybees in the United States. While those studies link the presence of some potential honeybee pathogens to CCD, it has not been conclusively shown that these microbes are sufficient to cause the condition; and therefore, an additional microbe or other factor may be found in diseased bees.

At this time, there are few studies on the normal microflora of the honeybee intestine. Establishing a baseline is the first step to determining whether microbes are involved in CCD, and if so, which ones are involved. The goal of this study was to characterize the bacteria from the bee gut of honeybees from a healthy hive in Dunn County, Wisconsin. To do this, we correlated the biochemical reactions of the bacteria isolated from honeybees using different medium types to gather information obtained by Matrix-Assisted Laser Desorption/Ionization Time of Flight mass spectrometry (MALDI-TOF MS).

For the biochemical reactions, MacConkey and Triple Sugar Iron (TSI) agars were used for testing. MacConkey agar distinguishes Gram-Positive from Gram-Negative bacteria and determines whether the bacteria can ferment lactose[6]. The TSI agar is able to test for a variety of biochemical characteristics. TSI agar tests bacteria to see whether the bacteria can ferment glucose, lactose, or sucrose. It also tests to see if the bacteria can produce hydrogen sulfide (H_2S)[7]. Information obtained from staining results and biochemical profiles can assist in organism characterization.

MALDI-TOF MS was used to provide further characterization of the microbes isolated from the healthy honeybees. MALDI-TOF MS is an analytical method used to characterize biological molecules according to their masses[8]. Using this technique, the mass of the compounds can be collected for a given microbe, which in turn creates a distinctive profile for that specific microbe.

Use of MALDI-TOF MS has proven invaluable to the profiling and identification of bacteria because it can generate fingerprints unique to a microbial species based on the presence of metabolites and peptides with high sensitivity, flexibility, and speed. For example, in the clinical lab, MALDI-TOF MS can be used to generate profiles for microbes infecting human patients and enable a more rapid diagnosis and treatment[9].

By combining specific microbiological data with biophysical markers produced by microbes grown from the gut of the honeybees, we were able

to create specific microbial profiles representative of the normal flora from honeybees in a thriving colony. This information could enable future studies that provide the information needed to correlate other specific microbes with diseased honeybees and the likelihood of colony failure due to CCD.

Methods and Materials

Cultivation and Preparation of Honeybee Intestinal Content

Bee guts were harvested in the Bio 370 Biotechnology course by undergraduate students at the University of Wisconsin Stout. The honeybees came from Gardner Apiaries (Spell Bee Company) of Baxley, Georgia. The hive was set up in May 2011 in Menomonie, Wisconsin. Honeybees were euthanized in September 2011 by freezing at -20° C. The bee mid-guts were extracted and placed in tubes and rinsed three times with 750 µl of 1X PBS buffer Solution. The PBS and mid-guts were transferred to the Dounce tissue homogenizer and macerated. The homogenized honeybee mid-guts were stored briefly at -20° C prior to culture analysis.
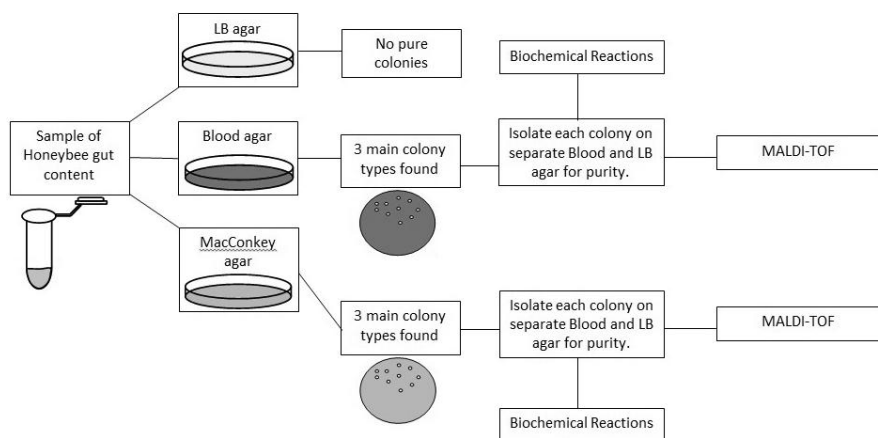
Figure 1 Honey bee gut content was characterized by culturing and isolating the bacteria on three different agars. Isolated colonies were tested for biochemical reactions on MacConkey and TSI. Isolated colonies were also evaluated by MALDI-TOF MS

Growing Bacteria from Honeybee Intestinal Content

All agar types were purchased from Difco Company. The honeybee

gut content sample was streaked for isolation on Luria Broth (LB) agar, blood agar, and MacConkey agar plates. 10 µl of the sample was placed on the plates, followed by streaking for isolation. Colonies were grown on plates at room temperature in the dark. MacConkey agar was used to grow Gram-negative bacteria and to stain them for lactose fermentation. Once bacteria were successfully grown, sub-culturing of six individual colonies was done to isolate each type of colony observed. The six colony types chosen were then cultivated on the blood and MacConkey agar plates. The colonies were restreaked on blood agar for purity.

Biochemical Testing of Colonies

Biochemical testing was done on MacConkey and Triple Sugar Iron (TSI) agar. MacConkey agar is a differential and selective medium used to identify Gram-negative from Gram-positive and lactose fermenting from lactose nonfermenting organisms. MacConkey contains crystal violet and bile salts that inhibit the growth of Gram-positive bacteria and will identify lactose-fermenting bacteria[10]. TSI agar is a differential medium used to identify bacteria based on fermentation of glucose, lactose, and sucrose, and on hydrogen sulfide (H_2S) production[11]. The six colonies were streaked for isolation onto MacConkey agar plates and TSI agar tubes. MacConkey plates were placed at room temperature in the dark for 48 hours of growth, and the TSI tubes were placed in an incubator for 48 hours at 37°C.

Matrix-Assisted Laser Desorption/Ionization

To prepare the bacterial samples for MALDI-TOF analysis, 1mL of LB broth was pipetted in eight different test tubes, one test tube per sample and one control. *Serratia marcescens* was used as a control for specificity in spectrum analysis. Next, each colony was picked from each sample with a sterile toothpick and placed in the test tube. The test tubes were placed on a shaker at room temperature for 24 hours for growth[12]. On the MALDI-TOF target plate, 0.5 µl of the bacterial suspension was mixed with a 0.5 µl matrix solution that was composed of 0.1% trifluro acetic acid (TFA), 70% acetonitrile, and saturation with alpha-cyano-hydroxy-cinnamic acid (ACCA). The dried droplet method was used for spotting on the MALDI-TOF plate. Mass spectra were acquired in linear mode over an m/z range from 0 to 5,000 Da. Mass spectra were calibrated using a standard solution composed of bradykinin (1060.2 Da) and neurotensin (1672.9 Da).

Results

Several types of bacteria were isolated from the gut contents of the honeybee. The blood and MacConkey agars were used to obtain the six different types of colonies grown. These colony types were sub-cultured for further analyses. Three colonies were selected from the MacConkey agar and the other three from blood agar. On the MacConkey agar plate, there were a few dark and light pink colonies and one larger orange/tan colony. On the blood agar plate, there were numerous small white round colonies and a few yellow/tan and orange/tan colonies (Table 1). Six colony types were streaked for isolation on blood agar to verify each type was unique and once again on LB agar plates to ensure purity of colonies and stored in a refrigerator for stock.

Sample	Morphology	Gram-Stain	Agar Types	TSI
1a	Gray small round colonies	Gram (+), rod	Blood, LB	No growth
1b	White/cream small round colonies, lactose fermenter	Gram (-), rod	Blood, LB, MacConkey	No growth
2	Gray spreading colony, central raised area (on mac tiny colony non lactose)	Gram(-), rod	Blood, LB, MacConkey	Sucrose fermentation
3	Small tanish colony (on mac small non lactose)	Gram(+), rod	Blood, LB, MacConkey (very small)	No growth
4	White average size colony looks pure on blood	Gram(+), cocci	Blood, LB	No reactions
5	Spreading gray colony on blood (pure), growing well on mac	Gram(+), short/fat rod	Blood, LB, MacConkey	Glucose fermentation
6	Tan colony average size pure on blood, on mac it is small non lactose	Gram(+), short/fat rod	Blood, LB, MacConkey	Glucose fermentation

Table 1 Characteristics of the main colony types found. Colonies were tested for Biochemical reactions using MacConkey and Triple Sugar Iron agar. Colonies were also gram stained to identify the shape and whether they were gram positive or negative.

The six different pure colony types were tested for biochemical reaction on MacConkey and TSI agar for characterization. When looking at sample 1, there were two types of colonies present on the blood agar and only one on the MacConkey agar. Since this happened, the two colonies (sample 1a and 1b) needed to be streaked for isolation on MacConkey to identify which one could grow on MacConkey agar. Sample 1b, 2, 3, 5, and 6 all

grew on MacConkey agar. The MacConkey agar also showed that sample 1b is a lactose fermenter. The TSI was able to identify glucose, lactose, and sucrose fermentation in bacteria. None of the bacteria were capable of producing H_2S gas or other gases which was also tested with the TSI. Sample 4 had no positive reaction on TSI agar. Samples 2, 5, and 6 all had a reaction indicating they ferment glucose. Sample 2 reacted, signifying it was a sucrose or lactose fermenter; however, since it did not show that is was a lactose fermenter on MacConkey, results suggest that it ferments sucrose and not lactose (Table 1).
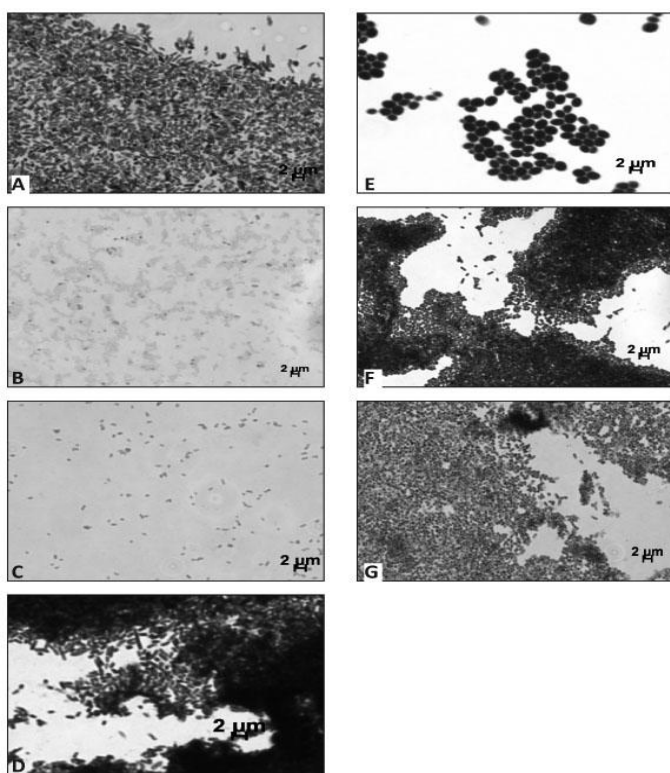
Figure 2 Gram staining results for sample 1a-6. (A) Sample 1a shows gram-positive rods. (B) Sample 1b shows gram-negative rods. (C) Sample 2 shows gram-negative rods. (D) Sample 3 shows gram-positive rods. (E) Sample 4 shows a yeast due to organism morphology. (F) Sample 5 shows gram-positive rods. These rods are different in that they are shorter and fatter in appearance compared to the others examined. (G) Sample 6 shows rods with gram variable reaction. Like sample 5 they are shorter and fatter in appearance.

Gram staining was done to identify the cell morphology and Gram reaction. All were rod- shaped except sample 4, which was rounded and of a typical yeast morphology. All bacteria were Gram-positive except samples 2 and 1b. Some of the samples appeared to be Gram-negative since they grew on MacConkey agar, though stained Gram-positive. Sample 6 appears to be Gram-variable (Figure 2).

	~1007 m/z	~1121 m/z	~1303 m/z	~1343 m/z	~1444 m/z	~1571 m/z	~1960 m/z	~2066 m/z	~2090 m/z	~2110 m/z	~2207 m/z	~2533 m/z	~2633 m/z
Mass of Molecules from Bee Gut Bacteria													
Sample 1a		X	X					X		X	X	X	X
Sample 1b		X	X					X		X	X	X	X
Sample2							X		X		X	X	X
Sample 3		X	X					X		X	X	X	X
Control	X	X		X	X	X							

Table 2 Samples were examined by MALDI-TOF. Samples 1a, 1b, 2, 3, and the control (*Serratia marcescencs*) had acceptable mass spectra to examine. There were several similarities and differences in masses among the samples. The table shows which samples had similar mass peaks on their mass spectra.
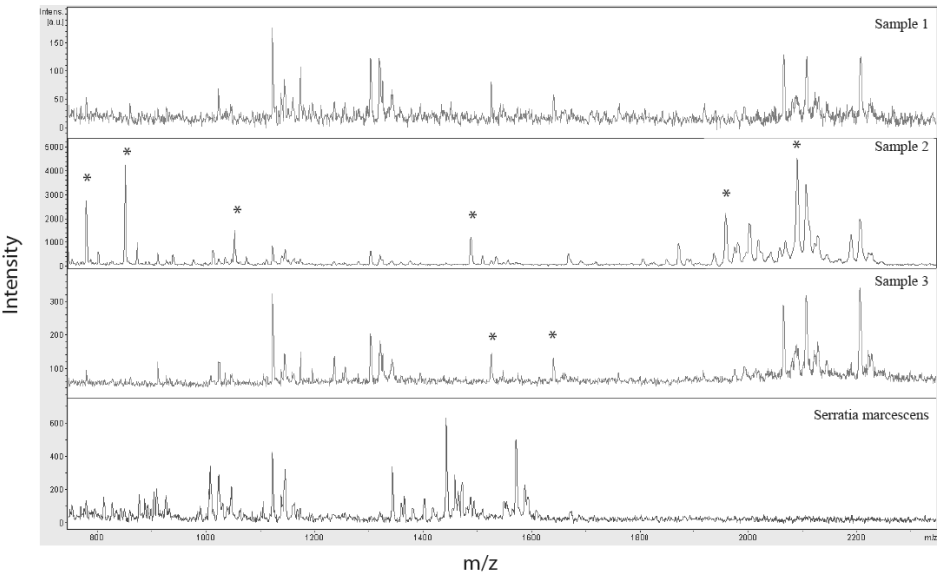
Figure 3 Matrix-Assisted Laser Desorption/Ionization Time of Flight mass spectra for samples 1-3 and the control (*Serratia marcescens*) using a matrix solution that was composed of 0.1% trifluro acidic acid (TFA), 70% acetonitrile, and saturation with alpha-cyano-hydroxy-cinnamic acid (ACCA). The peaks marked with asterisks correspond to unique peaks that are different from all the other samples.

cellular components, most likely peptides, based on masses over the region 800-2400 m/z. Mass spectrums were obtained for Sample 1a-3 and the control. Samples 1a, 1b, 3, and *S. marcescens* all have a peak around 1121 and 1303 m/z. Samples 1a, 1b, 2 and 3 have five peaks in common. These peaks are located at about 2066, 2110, 2207, 2534, and 2633 m/z. Mass specs for Samples 1a-3 are similar in appearance in some regions, except Sample 2 which is lacking peaks at 1122 and 1303 m/z. The control used, *S. marcescens*, does not have any peaks past 1575 m/z. The mass spec for *S. marcescens* show to be very different from the rest of the samples collected from the honeybee gut (Table 2, Figure 3).

Discussion

Biochemical reactions were done to help distinguish bacteria on the basis of carbohydrate fermentation. Fermentation is the process by which some bacteria derive energy from organic compounds in anaerobic conditions. During this process, energy is extracted from the oxidation of the organic compounds (sugars) with production of organic acids, alcohols, ketones and gases[13]. Some of the colonies had no reactions on MacConkey and TSI agar for fermentation. The MacConkey and TSI agar showed that colony samples 2, 5, and 6 produce positive reactions; therefore, they use at least one sugar for fermentation and get energy under anaerobic conditions. Several of the microbes have similar sugar fermentation characteristic patterns.

All microbes except for samples 1a and 4 grew on MacConkey agar. This is interesting, since after Gram staining only samples 1b and 2 appeared to be Gram-negative and only Gram- negative can grow on MacConkey agar. There are bile salts present in the MacConkey agar, which inhibit the growth of Gram-positive bacteria, but some have adapted and are able to grow and withstand the bile salts. Gram staining showed that sample 4 was a yeast and that all other bacteria have a rod morphology and are primarily Gram-positive. There are a few other types of Gram-positive bacteria that are capable of growing on MacConkey agar. Examples are *Enterococcus* and some species of *Staphylococcus*. These Gram-positive bacteria are able to tolerate bile salts, allowing them to grow on MacConkey agar. The mechanism that allows these Gram-positive bacteria to withstand bile salts is unknown, but what is known is that this property is probably due to a combination of traits. The bacteria are not only overcoming damage to the membrane and DNA, but are also able to remove the bile salts with a pump. The removal of bile salts is important because it stops the damage that

would lead to cell death[14].

Previous research was done on the gut flora of Malaysian honeybees. That study revealed several viable types of *Enterococcus* bacteria. *Enterococcus* is a genus of lactic acid Gram-positive bacteria which are facultative anaerobic organisms[15]. These organisms are capable of cellular respiration in both oxygen-rich and oxygen-poor environments. They are also tolerant of a wide range of environmental conditions. Bacteria grown in our study showed similar characteristics of the *Enterococci* in that they were able to withstand the bile salts in the MacConkey agar.

MALDI-TOF MS is important in profiling bacteria because it is fast, accurate, and reproducible. It is a soft ionization technique that allows the analysis of large organic biomolecules. MALDI-TOF MS can characterize the proteins that make up the bacteria, which helps identify microbes in the samples. As such, MALDI-TOF MS is able to characterize the chemical signatures of bacterial proteins for chemotaxonomic classification of bacteria[16]. It has been used to identify or differentiate bacteria by mass spectra of cells or cellular components. The MALDI-TOF mass spectral data obtained in our study were able to provide a few insightful findings. The spectral profiles of four of the samples were similar but unique. These spectra were compared to the profile obtained from the microbial control, *S. marcescens*, which proved to be different compared to the organisms we isolated from the honeybees, confiriming that these profiles were not an artifact produced by the growth medium. The data indicate metabolic relatedness among the microbes. These results emphasize the utility of this approach in further identification of bacterial associated with honeybees.

Conclusion

We observed seven different microbes grown from the gut of honeybees from a healthy colony. Biochemical testing of those microbes utilized different microbiological media while biophysical profiling relied upon MALDI-TOF mass spectrometry. These data provided unique information on the bacteria isolated from the honeybee gut. We showed that four of the bacteria isolated can obtain energy from sugar fermentation. Through Gram staining, we showed one microbe isolated is a yeast. We were also able to observe the masses of the molecules that make up chemical fingerprints of bacteria through MALDI-TOF mass spectrometry. Now that the defining characteristics of these bacteria have been documented, future research can be shaped to characterize and compare microbes from healthy and diseases

honeybee colonies using the techniques demonstrated in this research.

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Contact-dependent Immune Response by Macrophages

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Abstract

Infections caused by *Aspergillus fumigatus* are a significant cause of death in immune-compromised humans. Alveolar macrophages (AM) comprise an important line of immune defense in the lung and help prevent infections resulting from inhalation of *A. fumigatus* conidia. Despite significant study in this area, details about how AM engage *A. fumigatus* are not completely understood. A better description about how *A. fumigatus* conidia are phagocytosed by AM is needed to better understand the innate resistance of healthy individuals to various airborne infections. The focus of this study was to determine whether the ability of AM to phagocytose *A. fumigatus* conidia is dependent upon attachment to a surface. We began by showing that AM supported on the epithelial cells in the alveolar space of the lung phagocytose conidia. We next compared phagocytosis of *A. fumigatus* conidia in tissue culture macrophages bound on a plastic substrate to that of macrophages when free in solution. Our results show a loss of phagocytosis by macrophages when detached from a physical support. Monocyte-derived macrophages show a corresponding contact-dependent production of microbicidal reactive oxygen species (ROS), known to be crucial in the resistance to *A. fumigatus* infections within the lungs. Our results suggest macrophages require physical contact with a surface to efficiently phagocytose *A. fumigatus* conidia. Further studies in this area may help provide a better understanding of the inflammatory response of AM that could be used to enhance defense mechanisms in humans at risk of infection.

Keywords: Aspergillus, host defense, immunology, alveolar macrophage

A. fumigatus is a filamentous soil fungus that reproduces asexually through the production of small spore-like structures called conidia that are typically 3μM in diameter. The small size of the conidia enables efficient

deposition into alveolar spaces of the lung, which results in deposition of several hundred conidia per day under normal conditions. Individuals involved in certain agricultural activities may be exposed to far greater numbers of conidia. Due to a normal immune response in the lung, infections by this organism are rare. However, increasingly sophisticated healthcare practices such as bone marrow and stem cell transplants have led to greater numbers of patients with compromised immune systems. *A. fumigatus* causes a life-threatening disease in patients with a variety of defects in the phagocyte inflammatory response (Ampel, 1996; Maertens, Vrebos, & Boogaerts, 2001; Dykewicz, 2001; Walsh & Groll, 1999) and is now the leading airborne fungal pathogen in immune-compromised individuals (Stevens et al., 2000; Latge, 2001). Despite modern standards in health care, invasive pulmonary aspergillosis is still associated with fatality rates near 80%.

Most conidia inhaled into the lung must be phagocytosed before they can be killed by the immune system. Phagocytosis of conidia can be carried out by alveolar macrophages, yet the conditions necessary for this event are not well understood. Our study seeks a better understanding of the conditions leading to phagocytosis of conidia by macrophages and investigated this process in both *in vivo* and *in vitro* settings.

In the current study, the hypothesis that phagocytosis of *A. fumigatus* conidia requires anchoring of the macrophage to a suitable physical support was tested. An understanding of this response is important because little experimental data exists to show whether phagocytosis of macrophages is impacted by their ability to coordinate both the pathogen and substratum simultaneously. Our results indicate that when macrophages are removed from their support, they show a loss in ability to phagocytose *A. fumigatus* conidia. Further studies are needed to determine whether this loss of function is related to direct physical changes in the cytoskeletal structure of macrophages or, indirectly, through induced alterations in metabolic function.

Material and Methods

Unless otherwise indicated, reagents and chemicals used in this study were obtained from either Sigma Aldrich (St. Louis, MO) or Fisher Scientific (Pittsburgh, PA). Microscopic examinations were performed on a Zeiss Axioscope 2-Plus microscope and imaging system using Zeiss Axiovision version 4.5 software.

Preparation of *A. fumigatus* Conidia

A. fumigatus was obtained from clinical isolate #13073 at the American Type Culture Collection (**Manassas, VA)**. For flow cytometry and fluorescence microscopy, a congenic strain that expresses green fluorescent protein was used (Wasylnka & Moore, 2002). Conidia from both strains were grown at 37° C for five days on a Sabouraud Dextrose agar slant and collected as previously described (Bonnett, Cornish, Harmsen, & Burritt, 2006). Enumeration of conidia was done by hemocytometer.

Analysis of Cell Culture Macrophages

Phagocytosis of *A. fumigatus* conidia was examined in the J774 mouse macrophage cell line (J774A.1, ATCC #TIB-67). This continuous cell line has been studied extensively as a model of several types of macrophages in the body. Cells were grown in Dulbecco's Modified Eagle Medium with 10% fetal calf serum (DMEM10) at 37° C in 5% CO_2. When cell monolayers were greater than 50% confluent, cells were prepared by one of two methods to compare phagocytosis between adherent and detached cells. Adherent J774 cells were combined directly *in situ* with a 3:1 ratio (conidia to cells) of *A. fumigatus* conidia and incubated for 1 hour at 37° C in 5% CO_2, then scraped with a sterile tissue culture scraper and resuspended in Hank's Balanced Salt Solution (HBSS). Detached cells were scraped first, suspended in HBSS, and otherwise exposed to *A. fumigatus* conidia as described above. Conidia for these experiments were harvested from the strain of *A. fumigatus* conidia expressing green fluorescent protein to enable analysis by both fluorescent microscopy and flow cytometry. J774 cells exposed to conidia either before or after removal from the culture container were then filtered through fine nylon mesh to remove cell clumps and examined on a flow cytometer as described below.

Live Animal Studies

All manipulations of animals were approved by the Institutional Animal Care and Use Committee at the University of Wisconsin-Stout. Female eight-week-old C57Bl/6 mice were obtained from Harlan Laboratories (Madison, WI) and maintained in specific pathogen-free housing in microisolator cages in an environment of filtered air and given food and water *ad libitum*. Immune competent mice were inoculated intrapharyngeally as previously described (Cornish et al., 2008), using 40μl HBSS containing 5×10^6 conidia per animal following brief isofluorane inhalation.

Following inoculation, animals were returned to their cages for specified times before being euthanized by an overdose of isofluorane. Bronchoalveolar lavage fluid (BALF) was collected from each mouse in 10mL ice-cold HBSS containing 3 mM ethylenediamenetetraacetic acid (EDTA) as described (Cornish et al., 2008).

Flow Cytometry

Flow cytometric analyses were performed on a Millipore EasyCyte 5 flow cytometer using Millipore InCyte guavaSoft version 2.2.3 software. Cell counts in tissue culture and BALF samples were determined to ensure the cell densities were within tolerance ($5x10^4$-5 $x10^5$ cells/ml) as specified by the instrument manufacturer. BALF from both a naïve mouse and inoculated mouse were then used to set the instrument gains and fluorescence channel compensation. Threshold values (in forward scatter) were sometimes increased to accommodate high background counts of pulmonary exosomes.

Results

AM Engulfed Conidia *In vivo*

Phagocytosis of conidia in macrophages was first examined in AM within the lungs of mice. Following a 6 h *in vivo* incubation after instillation of 5 x 10^6 conidia per mouse, mice were sacrificed and lung lavages performed as we have described previously. BALF showed evidence of conidial inoculation and of phagocytosis of conidia in AM by light and fluorescence microscopy. Both AM and exosomes from the lungs of naïve and inoculated mice were evident in the BALF samples when examined by light microscopy of BALF.
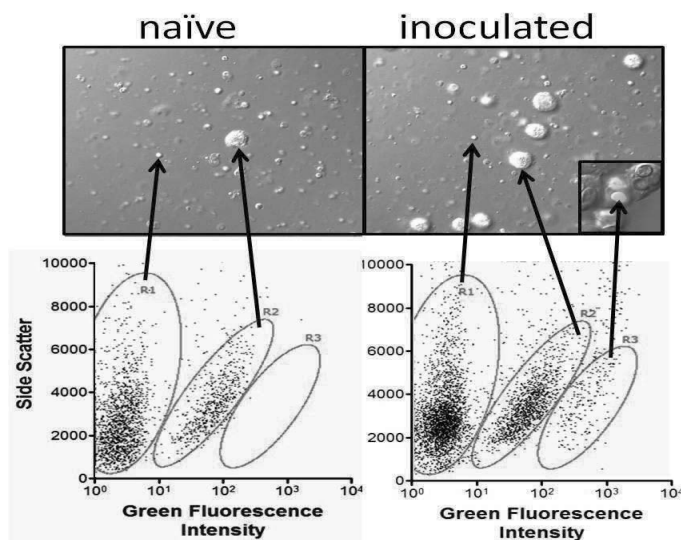
Figure 1: AM show phagocytosis of A. *fumigatus* **conidia** *in vivo* **when examined by microscopy and flow cytometry.** Photomicrographs are included in the top panel to identify the particulate material (exosomes, AM, and AM containing fluorescent conidia) in the BALF from both naïve mice and those 6 h after instillation of 5 x 106 conidia. Side scatter vs. green fluorescence profiles were obtained by flow cytometry to segregate the three populations of events seen in flow cytometry: region 1 (R1) contains exosomes, region 2 (R2) contains AM, and region 3 (R3) contains AM with phagocytosed fluorescent conidia. The increase in events in region 3 confirms phagocytosis of conidia in AM when incubated in the lungs of mice.

Fluorescence microscopy was used to demonstrate green fluorescence of conidia associated with some AM (inset image from inoculated mouse). Dot plot flow cytometry profiles depicting side scatter vs. green fluorescence for BALF samples from animals revealed both abundant numbers of exosomes in region 1 (R1) and AM in region 2 (R2). The stronger overall green fluorescence of AM relative to exosomes is due to intrinsic autoflourescence. In inoculated animals, the strongest green fluorescence of AM corresponded to those cells which had phagocytosed *A. fumigatus* conidia containing green fluorescent protein; they appeared in flow cytometry tracings in region 3 (R3), with photographic evidence of fluorescent conidia associated with AM (inset, though color was not reproduced for the publication). These results confirm the fluorescent conidia were being phagocytosed in the lungs of mice by AM while in association with epithelial cells upon which they are typically found.

J774 Cells Require Attachment for Phagocytosis *In Vitro*

To further characterize phagocytosis of conidia in macrophages with

respect to surface attachment, phagocytosis of conidia was examined in the murine J774 macrophage line. The results first validated phagocytosis of conidia in these cells when attached to the surface of the tissue culture container using fluorescence microscopy.
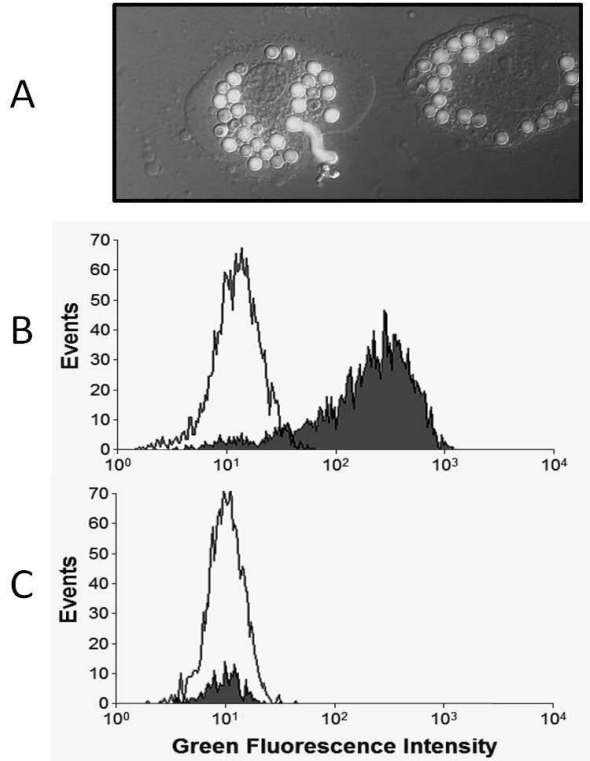
Figure 2: Detachment of J774 cells show differential loss of phagocytosis of fluorescent A. fumigatus conidia. A: The Photomicrograph of J774 cells attached to a plastic culture container surface shows engulfed fluorescent A. fumigatus conidia (green color not evident in black and white presentation), which surround the nuclei of the cells. B: Following phagocytosis of fluorescent conidia into bound J774 cells, flow cytometry shows a strong shift of fluorescence (shaded histogram) relative to J774 cells not exposed to conidia (unshaded histogram). C: When J774 cells were detached from the culture container prior to exposure to conidia, they do not show evidence of phagocytosis, as evidence by the lack of fluorescence increase in the shaded histogram relative to the unshaded control showing unbound J774 cells not exposed to conidia.

The photomicrograph shown in Figure 2A identifies the green fluorescent conidia engulfed in perinuclear spaces of the attached J774 cells. Phagocytosis of conidia was then compared between attached J774 cells to those that had been first dislodged by scraping. The results indicated the scraping process did not significantly damage the cells, reduce their

viability, or result in aggregated cell forms (data not shown).

Flow cytometry was used to compare the green fluorescence of J774 cells in the absence of conidia as a negative control to that produced by J774 cells exposed to fluorescent conidia. First, fluorescent conidia were coincubated with adherent J774 cells prior to analysis by flow cytometry (Figure 2B). The experiment was then repeated using J774 cells that had been detached from the tissue culture surface prior to exposure to conidia (Figure 2C). For both adherent and detached J774 cells, gated overlay histograms were used, where J774 cells not exposed to conidia are unshaded, and histograms representing J774 cells exposed to conidia are shaded. Our results indicate that when J774 cells were attached to the tissue culture flask surface, they abundantly phagocytosed conidia, whereas those detached before exposure to conidia did not show a measureable increase in fluorescence.

Monocyte-derived Macrophages Show Contact-dependent ROS production

Our previous results show that AM have almost imperceptible production of ROS from the NADPH oxidase (Cornish et al., 2008), despite the essential role of this event in defense against aspergillosis (Segal et al., 1998). However, different types of macrophages are known to produce ROS in response to some soluble and particulate triggers of the NADPH oxidase. Therefore, we examined monocyte-derived macrophages for liberation of ROS following exposure to 100 nM phorbol mysristate acetate (PMA) as we have previously described (Cornish et al., 2008). When 1×10^5 macrophages were adhered to the surface of a white luminometry plate, exposure to 100 nM PMA resulted in reproducible and measurable production of ROS with a signal maximum at about 12 minutes when measured by MCLA-dependent luminometry.
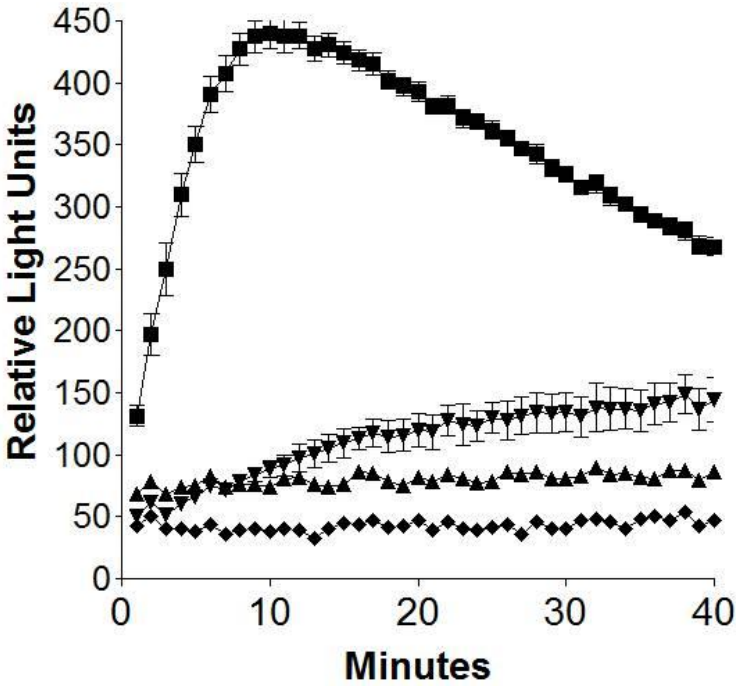
Figure 3: Monocyte-derived macrophages show a loss of ROS production if unattached to the substrate in MCLA-dependent luminometry. Liberation of ROS as superoxide was measured as relative light units from adherent monocyte-derived macrophages following exposure to 100 nm PMA (■). This amount of signal is reduced when examined prior to attachment of cells to the substrate (▼). Controls for this reaction are provided by adherent cells in the presence of 310 U/ml SOD (▲), and by the reagent control (♦). Error bars show standard error of the mean, and P values < 0.01 support the significant differences in results when comparing adherent vs. non adherent cells.

Inclusion of superoxide dismutase abolished this signal, demonstrating specificity of this reaction as superoxide production. When an identical number of cells were tested for ROS production prior to attachment, the signal was abrogated and delayed, supporting the view that ROS release and phagocytosis requires the macrophage to be in contact with a support.

Discussion

We investigated the process of phagocytosis in macrophages, which is a first line of immune defense in tissues of the body including the lung. Several different types of leukocytes provide resistance from infection in the lung, which is regularly exposed to numerous airborne organisms. Our analyses included examination of AM within the lungs of mice, a macrophage cell

line, and macrophages derived from monocytes. This combination of macrophage types examined offers different views that provide a greater overall understanding of the process of phagocytosis, which is a requirement of all macrophages.

Flow cytometry and fluorescent microscopy was used to show the phagocytic capability of AM in the lungs of mice. This provided an important positive control to validate our methods of analysis, confirming that AM phagocytose fungal conidia in the lungs of mice, as previously shown (Latge, 1999). The examination we utilized for phagocytosis in AM did not identify the percentage of conidia phagocytosed or the relative number of AM participating in this event, though these parameters would undoubtedly be influenced by both the dosage of conidia and the time of incubation.

J774 cells were also used because they are well characterized and can be manipulated for the purposes of our study. This cell type has been used extensively to model the activities of macrophages in tissue that engage and destroy fungal pathogens. However, we do not assume results obtained using this cell line are universally extrapolated to AM, which is the cell type most relevant to our study. Nevertheless, we were able to demonstrate extensive phagocytosis of conidia into J774 cells when attached to the plastic cell culture container surface, which may mimic the situation for AM being associated with the alveolar epithelial surface in the lung. When the J774 cells were dislodged from the surface of the tissue culture container, we observed an unexpected loss of their phagocytic capacity. The reason for this alteration is not known, but could reflect a number of adjustments in the cell. For example, since detachment could be regarded as an unnatural situation for tissue macrophages, the cells may be undergoing a process to reestablish attachment necessary for their survival, thereby reducing their ability to carry out phagocytosis. Because macrophages are technically mobile rather than stationary cells, it is also possible that detachment is a normal and perhaps essential event at times. In this case, detachment may require temporary substitution of alternative processes involved in motility at the expense of phagocytosis. We did not observe obvious damage to cells due to scraping, which could also contribute to the loss of phagocytosis.

The observation that monocyte-derived macrophages produce ROS only when bound to a surface is intriguing. This same observation does not extend to neutrophils, which can produce abundant ROS when suspended in liquid (Dahlgren & Karlsson, 1999). It is tempting to hypothesize that

neutrophils, which are generally suspended in blood or body fluids, are adapted to carry out phagocytosis and ROS production independently of a supporting structure, while macrophages reserve these activities to times of tissue association. Further studies are needed to understand the molecular basis for loss of phagocytosis and ROS production in detached macrophages.

The results presented offer a better understanding of the role of macrophages in immune defense. This information has relevance to several aspects of health care, since a number of types of drugs and medical therapies that reduce inflammation can impact phagocytosis. This event is required in several cell types with roles in tissue remodeling, wound healing, and fetal development. Additional studies are required to determine whether pharmacologic approaches to either enhance or suppress phagocytosis might alleviate symptoms in some types of diseases. It also remains to be determined whether transfusion of phagocytic leukocytes to patients with deficiencies in these cells could be made more effective by modulating the process of phagocytosis in the cells they receive.

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Consumer Trend Research: Sleepwear, Loungewear, and Intimates

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Abstract

The Trend Tracking and Forecasting class of Fall 2011 completed a project with the objective of researching consumer preferences for women's sleepwear, loungewear, and intimate apparel. The project targeted consumers who are female, 18 to 23 years old, attend college, and either live at home with parents, in a college dormitory, or some sort of independent housing off campus. The project required researching trends, evaluating stores

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1   The double asterisk (**) indicates students who assumed a team leadership role.

and products, and surveying consumers. The class was divided into teams responsible for studying current, near, and distant fashion trends in the sleepwear, loungewear, and intimates merchandise categories, conducting a competitive analysis to evaluate current retailers and product offerings in this market environment, and researching how the targeted demographic likes to purchase and use these garments. Our findings were presented to professionals from Target with the intent to pass along information that could give the company a competitive advantage in the retail industry.

Keywords: sleepwear, loungewear, intimate apparel, trends, competitive analysis, consumer research

As defined by Brannon (2010), fashion forecasting is "the process of anticipating future developments by watching for signals of change in current situations and events, and applying forecasting frameworks to predict possible outcomes" (p. 404). Fashion forecasting is used to predict the attitudes and behaviors of consumers because satisfying their needs is the sole purpose of the apparel and retail industry. When the consumer is satisfied, a profit can be made. Fashion forecasting is a challenging process because it must be completed well in advance in order to influence the industry. Predictions must be passed along to fiber companies, yarn producers, fabric weavers and knitters, apparel designers and manufacturers, and finally retailers in order for consumers to see the products they desire put on the market. Analyzing fashion trends, consumers, cultures, and businesses is a requirement of fashion forecasting that is used to determine how an industry is performing in the eyes of the consumer. Throughout this project, these items were analyzed to draw conclusions about the market for sleepwear, loungewear, and intimate apparel, as well the preferences of a demographic that is female, 18 to 23 years old, attends college, and either lives at home with parents, in a dormitory, or some sort of independent housing off campus. The results can be used by industry professionals to make predictions and formulate a business plan that will best satisfy consumer needs.

Students of the Trend Tracking and Forecasting class of Fall 2011 were divided into teams responsible for researching fashion trends in the merchandise categories of loungewear, sleepwear, and intimates, conducting a competitive analysis of stores that sell this type of merchandise, and researching how consumers prefer to wear and purchase these items. This

research project defines each category as follows: sleepwear is sets sold together, including pants, shorts, long-sleeved shirts, short-sleeved shirts, and tanks, as well as one-pieces and separates of all fabric materials, excluding lingerie. Loungewear is apparel such as yoga wear, sweatpants, leggings, and sweatshirts that are worn for comfort during daily activities, but not particularly designed to be worn to bed. Lastly, the category of intimates includes bras and underwear of all styles and materials.

Trend Analysis

A consumer trend is defined by Trend Central (2010) as "a novel manifestation of something that has unlocked or serviced an existing (and hardly ever changing) consumer need, desire, want, or value" (para. 5). Trends are influenced by social, cultural, historic, and economic issues that impact how consumers spend their money (Brannon, 2010). The life of a trend varies in length, but all begin as innovations that evolve over time and eventually saturate the market, therefore becoming obsolete. Fashion trends must be constantly monitored because they follow a pendulum that shifts from one extreme to the other, keeping in tune with the "zeitgeist," or the spirit of the times. Ultimately, trends are tracked to identify a theme in society that can be used to make predictions about the future. The trend research teams on this project were responsible for scanning the media and drawing conclusions about the sleepwear, loungewear, and intimate apparel trends of the current season, as well as making predictions about the upcoming Spring 2012 trends and the near future Fall 2012 trends.

Macro Trends across the Industry

While compiling trend research for sleepwear, loungewear, and intimate apparel, connections were made and several macro trends that apply to all of these merchandise categories were identified. "Technology takeover," the first of these macro trends, refers to the popularity of incorporating technology into apparel to give clothing futuristic designs and features. Society is also seeing apparel products being improved with "eco-friendly" materials. A "health and wellness" macro trend is influencing the comfort and convenience of sleepwear, loungewear, and intimates to make items more compatible with an "on the go" lifestyle. "Ambiguous style" is another macro trend that is changing the design of women's apparel to incorporate oversized designs and androgynous looks that are inspired by menswear. Lastly, the macro trend of "personalization" satisfies a consumer's need for

expressing their individuality through the clothes they wear.

Fall 2011 Trends

The fashions for sleepwear, loungewear, and intimates in Fall 2011 were analyzed to generate a trend report for the season, which featured a color palette of warm tones, such as reds, maroons, and oranges, inspired by the 1970s (www. fashionsnoops.com). A trend for sleepwear in Fall 2011 was garments with touches of lace, and another being a wide variety of patterns such as animal prints and plaids ("Trend Report," 2011). The main loungewear trends of the season were impacted by the "health and wellness" macro trend. John Taylor (n.d.) of inc.com reported that "Americans spent $5.7 billion on yoga products, equipment, and clothing in 2008, 87 percent more than they did in 2004" (p. 7), a trend that has influenced the increasing popularity of yoga apparel in loungewear. Equally important, the "ambiguous style" macro trend has blurred gender lines with feminine fabrics but masculine silhouettes. Fall 2011 intimate apparel trends featured bras with deep v-neck cuts, multi-way straps, and excessive padding. Designs once again included lots of lace and prints, but sequins, sheer fabrics, and bows were also popular.

Spring 2012 Trends

The media and other forecasting groups were used to make predictions about the upcoming trends that will be seen in spring of 2012. Prominent colors for this season will encompass both ends of the spectrum with vibrant bright hues of yellows, pinks, and greens, but also soft pastels, neutrals, and white (www. fashionsnoops.com). Apparel designs are predicted to shift toward more vintage silhouettes and aesthetics that form looks inspired by the 1920s (Dykes, 2011). Futuristic prints such as oversized florals and geometric shapes are also likely to appear and refresh classic patterns (Gustashaw & Cernek, n.d.). Another trend will be color blocking with geometric patterns ("Spring 2012," 2011). Anticipated loungewear trends include a concept called "dressing down up," which will give garments a sophisticated look without taking away from comfort properties. Furthermore, celebrity fashion stylist Rachel Zoe has been seen wearing a white robe on her television show, *The Rachel Zoe Project*. Therefore, robes are predicted to become more popular with a revival of the 1940s' house coat ("Glamorous," 2008). This prediction is based upon the "trickle-down" theory, which contends that when consumers see celebrities or other fashion elites using a product, they will try to imitate the look (Brannon, 2010). Intimate apparel trends for Spring 2012 will include increased padding in sports bras and more coverage in everyday

bra designs. Intimates are also predicted to feature more ruffles, color blocking, and neutral tones for versatility.

Fall 2012 Trends

The trend research teams also looked ahead to Fall of 2012 to predict sleepwear, loungewear, and intimate apparel trends in the distant future. The bright colors that will be seen in the spring are predicted to become muter for fall, giving them a rich autumn quality (www.fashionsnoops.com). Color blocking will continue to be a prominent fashion trend in the category of sleepwear. Furthermore, society will see sleepwear designs that are more simplistic and timeless. David Wolfe, a creative director for the Doneger Group, contends that, "we're not too far off from fashion transforming to a more minimal, simple state due to oversaturation of product" (Little, 2011, para. 16). Simplicity and femininity will also be common themes in the loungewear trends of Fall 2012 with looks that include lace, draping, and floral prints. Intimate apparel offerings are predicted to be very detailed yet more conservative than previous seasons with styles inspired by the 1940s that will give more coverage than low-cut styles. These are the predicted trends that will impact products offered in the market for sleepwear, loungewear, and intimate apparel in the present and near future.

Competitive Analysis

In order to stay ahead of competitors in the retail industry, a company must create and maintain a competitive advantage, which occurs when consumers favor one brand over the others. The first step in creating this advantage is observing what competitors are doing, and more specifically, focusing on what products they are selling, how they are being sold, and what services they are providing to their customers. Answering these questions involves conducting a competitive analysis which, according to Brannon (2010), is "using public sources to develop a detailed and accurate view of the market environment" (p. 349). Information can be gathered by reading expert publications, monitoring the media, or physically visiting stores to make observations and interview employees and customers.

Procedure

The competitive analysis teams were responsible for completing a shopping activity that required visiting retailers who sell or specialize in sleepwear, loungewear, and intimate apparel and evaluating their store

ambiance, customer service, dressing rooms, product placement, visual merchandising, brands sold, price points, product assortment, and quality of merchandise. The objective was to find those retailers who are doing the best job of merchandising sleepwear, loungewear, and intimate apparel. The retailers analyzed were Target, Kohl's, JCPenney, Walmart, Frederick's of Hollywood, Nordstrom, Aerie, Victoria's Secret, and Macy's. The following criteria was established by the competitive analysis teams and used to give the stores a rating of poor, below average, average, above average, or excellent in each of the categories:

Ambiance: Pleasant lighting, colors, and decorations that appeal to the senses and complement the merchandise.

Customer Service: Helpful, accessible associates that are willing to start a dressing room, help customers find merchandise, and answer questions with exceptional product knowledge.

Dressing Rooms: A spacious area with comfortable seating, flattering lighting, and a décor that matches the selling floor.

Product Placement: Sections of merchandise in easy-to-find places that are organized well. The layout of the store should be efficient and logical to customers.

Visual Merchandising: Eye-catching displays with mannequins and fixtures that effectively showcase the store's merchandise and represent their brand image accurately.

Brands Sold: Having a representation of private-label brands that are only found at that particular retailer versus carrying mostly national brands that can be found anywhere.

Price Points: Pricing that matches the quality of the merchandise offered and is acceptable to the retailer's target market.

Product Assortment: A vast selection of merchandise with a wide variety of all different types of sleepwear, loungewear, and intimate apparel. Within each of these categories, there are multiple color, style, print, and fabric options.

Quality: Durable construction and materials appropriate for the end use of the products and trims that add to their aesthetic value.

Results

Table 1: Sleepwear Competitive Analysis Results

Sleepwear Competitive Analysis Results						
	Service	Visual Merchandising	Product Placement	Assortment	Quality	Pricing
Target	Below Average	Average	Above Average	Average	Average	$13 – 35
Kohl's	Average	Average	Above Average	Average	Average	$10 – 58
JCPenney	Average	Average	Above Average	Average	Average	$15 – 46
Walmart	Below Average	Below Average	Poor	Below Average	Poor	$8.50 – 25
Frederick's	Average	Poor	Poor	Poor	Below Average	$29 – 50
Nordstrom	Average	Above Average	Above Average	Excellent	Excellent	$28 – 198
Aerie	Excellent	Excellent	Average	Below Average	Above Average	$15.50 – 30
Victoria's Secret	Excellent	Excellent	Excellent	Above Average	Excellent	$16.50 – 128
Macy's	Average	Above Average	Above Average	Above Average	Above Average	$12 – 69

Table 2: Loungewear Competitive Analysis Results

Loungewear Competitive Analysis Results						
	Dressing Rooms	Visual Merchandising	Product Placement	Assortment	Quality	Pricing
Target	Average	Above Average	Above Average	Above Average	Above Average	$8 – 25
Kohl's	Average	Above Average	Above Average	Average	Excellent	$15 – 50
JCPenney	Average	Average	Above Average	Average	Average	$10 – 60
Walmart	Poor	Average	Average	Average	Average	$5 – 20
Frederick's	Average	Above Average	Average	Poor	Below Average	$16 – 56
Nordstrom	Above Average	Above Average	Average	Below Average	Average	$11 – 200
Aerie	Excellent	Excellent	Above Average	Average	Above Average	$15 – 40
Victoria's Secret	Excellent	Excellent	Above Average	Above Average	Above Average	$20 – 60
Macy's	Average	Below Average	Average	Below Average	Average	$5 – 30

Victoria's Secret was the retailer who scored the highest in the competitive analysis, meaning that their stores and products best matched the characteristics of a top retailer in the sleepwear, loungewear, and intimates market. The remaining stores were ranked from highest to lowest as follows: Aerie, Nordstrom, Macy's, Kohl's, Target, JCPenney, Frederick's of Hollywood, and Walmart.

Consumer Research

Consumer research is another vital tool that is used in the process of fashion forecasting. Retailers exist for the sole purpose of appealing to consumers in a way that satisfies their needs; therefore, forecasting should begin with the consumer in order to understand how they are responding to what the retail industry is offering (Brannon, 2010). More importantly, the consumer may have preferences that retailers could adapt to in order to increase satisfaction and maintain their competitive advantage. According to Brannon (2010), consumer research is one of the best ways to follow these ever-shifting preferences. Consumer research can be divided into two categories: qualitative research, which involves observing consumer behavior first hand; or quantitative research, which involves surveying consumers to gain an understanding of a certain demographic as a whole. In order to reach a higher number of consumers, our project focused on gathering quantitative research through an online survey for results that represented an accurate portion of the market.

Procedure

Members of the consumer research teams were required to complete the University of Wisconsin-Stout's Institutional Review Board (IRB) web-based training to become familiar with the rules that regulate research on human subjects. These rules state that research questions must be beneficial to society and harmless to respondents (Institutional Review Board, 2006). In addition, researchers must be respectful of the respondents' answers and their right to make their own decisions freely. Lastly, if any risk is involved in answering the questions, it should not be more hazardous to one respondent over the others. Respondents of surveys are also required to be at least 18 years old.

Each team developed a set of questions regarding the purchasing and consumption patterns of a demographic that is female, 18 to 23 years old, attends college, and either lives at home with parents, in a college

dormitory, or a form of independent housing off campus. The questions were compiled into one survey which was approved by the IRB, then published through the online survey tool Qualtrics. The research team gathered a convenience sample by sharing a link to the survey with others through e-mail and Facebook, which brought together 466 responses used to gain an understanding of the sleepwear, loungewear, and intimate apparel preferences of the target market. The majority of the respondents were 20 to 21 years old. Eighty-seven percent had an education level of college undergraduate, while 10% were college graduates, and the remaining 3% had not attended college at all. The responses of those who were not currently enrolled in college were still analyzed because these individuals matched the age requirement of the targeted demographic.

Table 3: Intimates Competitive Analysis Results

Intimates Competitive Analysis Results						
	Ambiance	Visual Merchandising	Product Placement	Assortment	Quality	Bra Pricing/ Panty Pricing
Target	Average	Below Average	Average	Average	Above Average	$13 – 17 / $5 – 7
Kohl's	Average	Below Average	Average	Average	Above Average	$10 – 30 / $16 – 45
JCPenney	Average	Below Average	Average	Average	Above Average	$6 – 44 / $7.50 – 15
Walmart	Below Average	Below Average	Average	Average	Below Average	$5 – 8 / $6 – 8
Frederick's	Average	Average	Above Average	Excellent	Excellent	$18 – 60 / $4 – 50
Nordstrom	Above Average	Excellent	Excellent	Average	Excellent	$20 – 150 / $16 – 50
Aerie	Excellent	Excellent	Excellent	Excellent	Excellent	$6 – 30 / $5 – 12.50
Victoria's Secret	Excellent	Excellent	Excellent	Excellent	Excellent	$39 – 98 / $9.50 – 18.50
Macy's	Above Average	Above Average	Excellent	Excellent	Excellent	$10 – 88 / $7.50 – 27

Sleepwear Responses

The responses from the survey questions presented both predictable and surprising results at the same time. Respondents were first asked to rank the importance of certain attributes of their sleepwear such as comfort, price, color, style, fit, and trendiness. The most important attribute was comfort, which 88% said was very important. The second most important attribute was fit, which 62.5% said was also very important. The attribute that was

considered least important was the trendiness of the sleepwear, which a total of 87% claimed was somewhat important to not important at all.

When asked which retailer they usually purchase their sleepwear from, the respondents chose among the same nine retailers evaluated in the competitive analysis. Out of Target, Kohl's, JCPenney, Walmart, Frederick's of Hollywood, Nordstrom, Aerie, Victoria's Secret, and Macy's, the greatest number of respondents chose Target as their favorite place to purchase sleepwear. "Other" was also given as an option and turned out to be the second most popular response, while Victoria's Secret was the third most popular choice. This was surprising considering that Victoria's Secret specializes in sleepwear, loungewear, and intimate apparel and that they scored considerably high in the competitive analysis. See Figure 1.
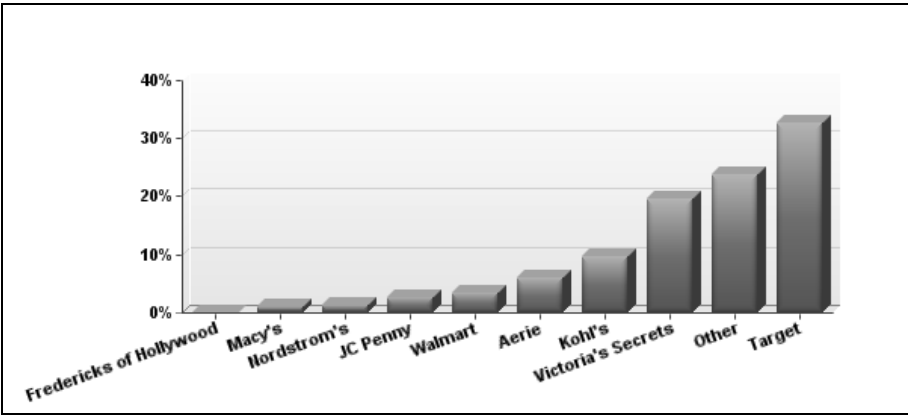
Figure 1. From which retailer do you most commonly purchase your sleepwear?

The survey also included questions regarding the frequency with which the respondents had purchased sleepwear items within the last three months. Responses showed that over 30% had purchased no sleepwear items at all, while 45% stated they had purchased only one item. See Figure 2.
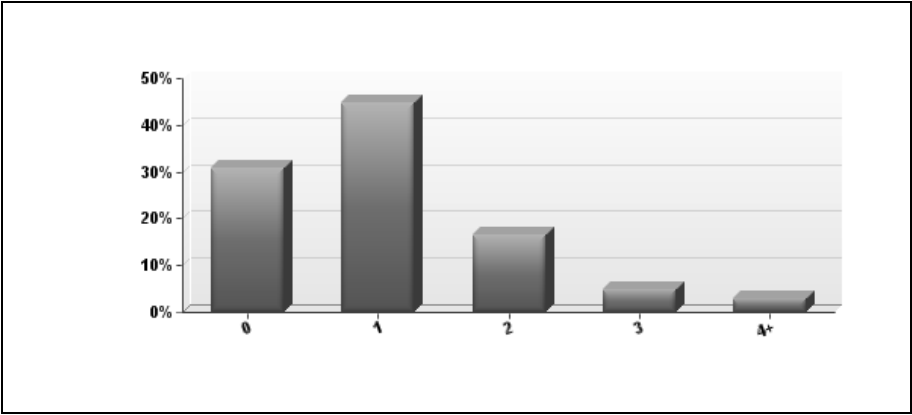
Figure 2. In the last 3 months, how many sleepwear items have you purchased?

The next set of questions was asked to determine how and why sleepwear items are purchased. Close to 80% of respondents indicated that when they do make an investment in sleepwear, they tend to purchase the items individually rather than in sets. As a result of purchasing sleepwear individually over time, consumers are likely to gather a collection of items that do not match, which was another issue respondents were asked to address. Over 60% indicated that wearing sleepwear items that match is not important to them at all. See Figure 3.
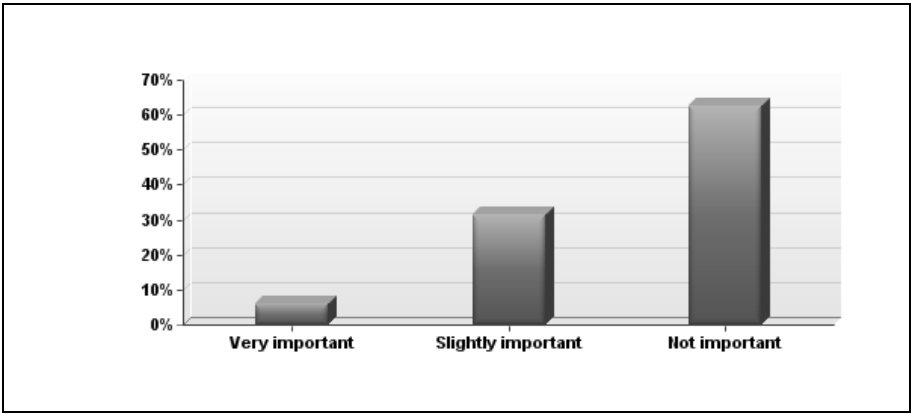
Figure 3. How important is it to you that your sleepwear matches?

When asked to describe the silhouette respondents prefer to purchase when buying sleepwear, short sleeves and tank tops were the preferred style for tops; shorts were the preferred style for bottoms, suggesting that consumers want sleepwear that will be cool and airy, and thus the less fabric, the better. See Figures 4 and 5. When given choice of cotton, silk, or rayon, 87% of respondents said they prefer to purchase sleepwear that is made of cotton. Cotton is light, breathable, and comfortable, which is a valued characteristic that continues to reoccur in our data.
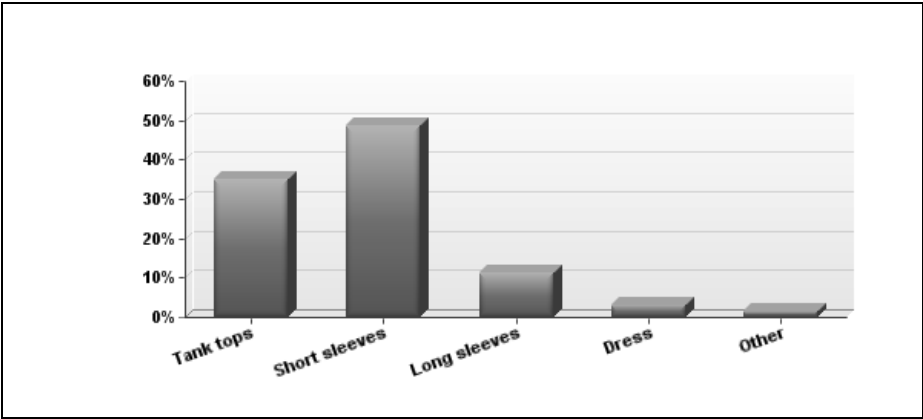
Figure 4. When purchasing sleepwear tops, which silhouette do you prefer?
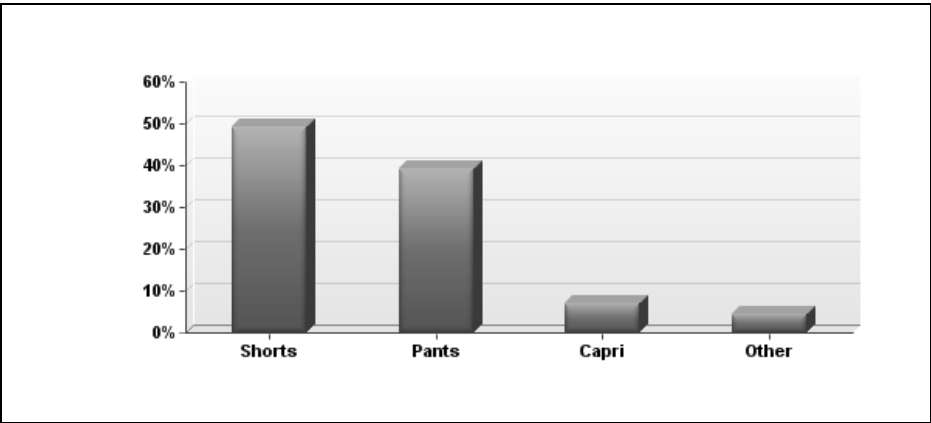
Figure 5. When purchasing sleepwear bottoms, which silhouette do you prefer?

Color and pattern preferences were the last aspects of sleepwear that were analyzed. Most respondents chose bright colored tops over neutral colored tops. When choosing between solid or patterned tops, more indicated that they strongly prefer solid colors over patterns or prints. Neutral colored sleepwear bottoms were preferred more than bottoms with bright colors, and solid colors were once again preferred over patterns, suggesting that these colors are bought so they will match more tops.

Loungewear Responses

Next, respondents were asked questions regarding their loungewear preferences, beginning with ranking the same attributes, comfort, price, color, style, fit, and trendiness, as not important, somewhat important, or very important. Once again, the respondents named comfort as the most important feature of the loungewear that they buy. The survey also asked how many times the respondents had purchased a loungewear item over the last three months. Close to 60% indicated that they had purchased at least one item within the past three months, proving that consumers from this target market are purchasing loungewear more often than sleepwear. These results also suggest that loungewear is being worn more often than sleepwear; some even wear it as their street clothes or pajamas. In fact, the majority of respondents admitted that they are somewhat likely to very likely to wear their loungewear outside of the home, and over 40% indicated they are very likely to wear their loungewear to bed as sleepwear. See Figures 6 and 7. The likelihood of wearing loungewear as sleepwear could also explain why sleepwear is not being purchased as often. Consumers are purchasing loungewear instead of sleepwear because it is versatile and comfortable enough to be worn to bed; therefore they could be trying to save money by purchasing one category over the other.
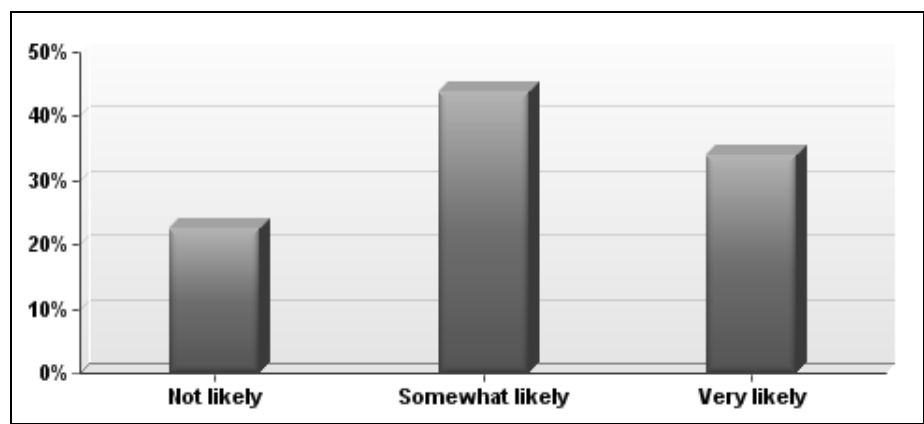
Figure 6. How likely are you to wear your loungewear apparel outside of the home?
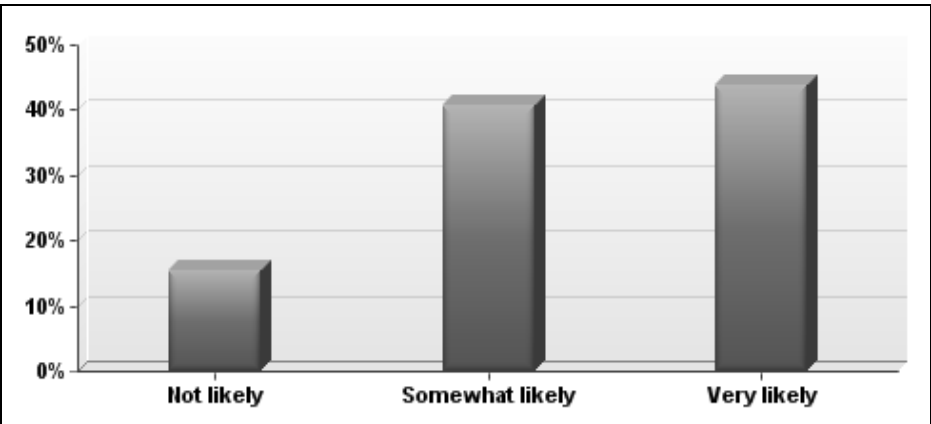

Figure 7. How likely are you to wear your loungewear apparel to bed?

Respondents were asked which retailer they purchase the most loungewear from, and once again, Target was the top answer chosen by 28% of the respondents, with Victoria's Secret falling closely behind. See Figure 8.
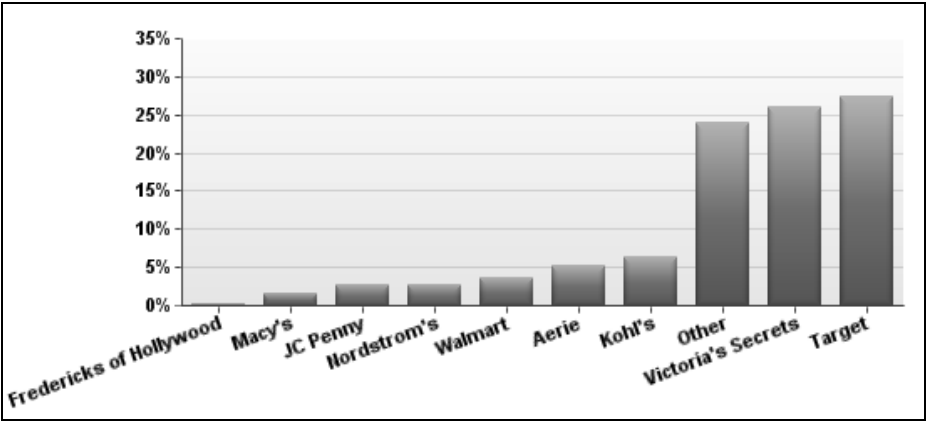
Figure 8. From what retailer do you most commonly purchase your loungewear?

When asked what style respondents prefer to buy when purchasing their loungewear, 51% said that yoga pants are their most preferred form of loungewear bottoms, and 42% chose a pullover hoodie as their most preferred style of loungewear tops. See Figures 9 and 10. Given the choice of solid, patterned, neutral, or brightly colored loungewear, the majority of respondents said they most prefer to purchase solid colored loungewear tops and bottoms. Patterned tops and bottoms was the category which most consumers preferred not to purchase at all.
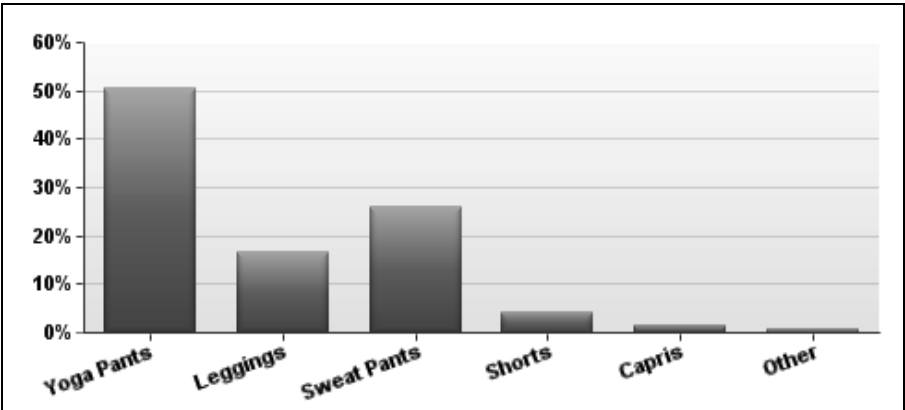
Figure 9. When purchasing lounge wear bottoms, which silhouette do you prefer most?
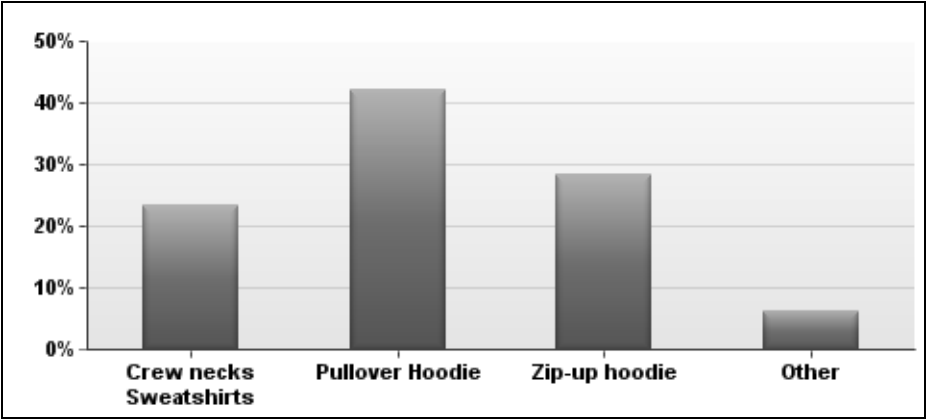
Figure 10. When purchasing loungewear tops, which silhouette do you prefer most?

Intimates Responses

The research questions regarding the intimate apparel purchasing patterns of consumers began by asking respondents to share how many bras and panties they had purchased within the past three months. The majority of respondents indicated they had only purchased one bra; however, the most common number of panties purchased within that time frame was five to seven, if not more. See Figures 11 and 12.
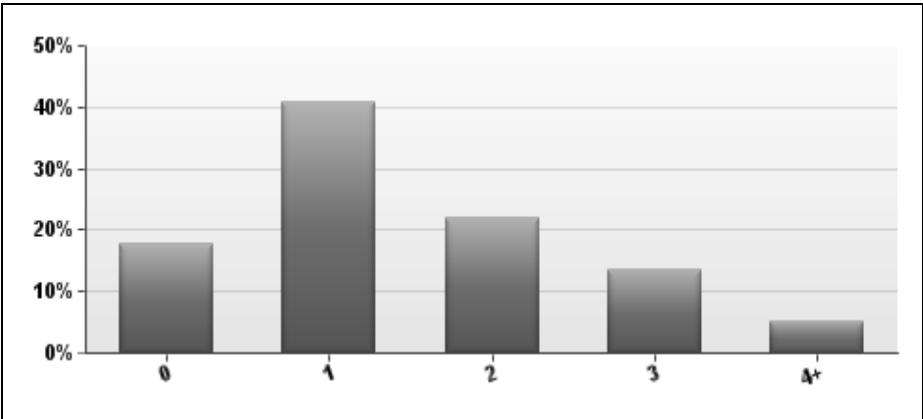
Figure 11. In the last 3 months, how many bras have you purchased?
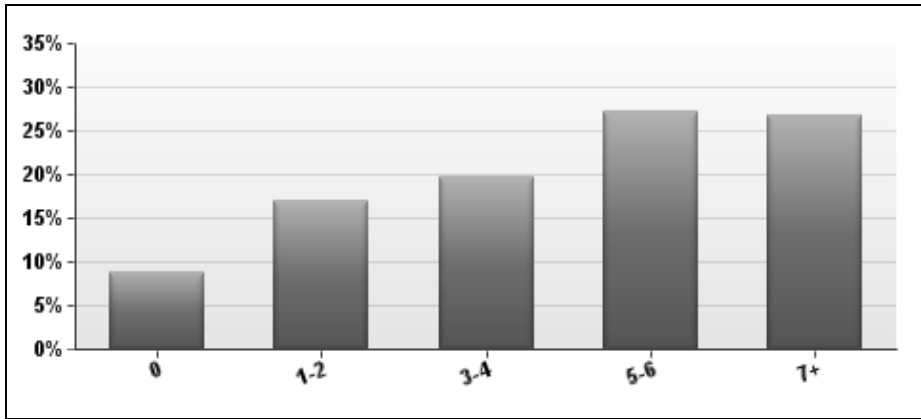
Figure 12. In the last 3 months, how many panties have you purchased?

The reason behind respondents purchasing only one bra but many pairs of panties over the past three months could be due to the quantity of panties that consumers tend to purchase at one time. Over 80% of respondents specified that they purchase their panties in multiples or sets, perhaps because of deals such as "5 for $25" at Victoria's Secret. Furthermore, a 60% majority of respondents said they purchase only one bra at a time. When consumers are purchasing more panties than bras, the likelihood of them matching is decreased, making intimates that match less important to consumers, which was confirmed by over 50% of our respondents. See Figure 13.
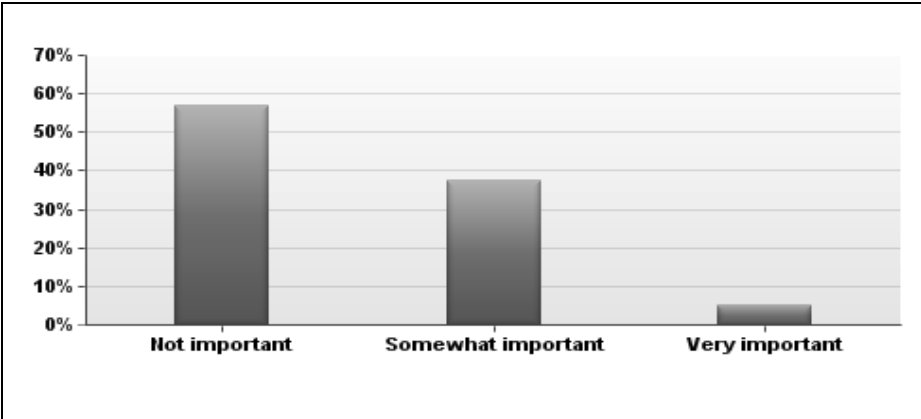

Figure 13. How meaningful is it to you that your bra and panties match?

The quantity of bras and panties purchased is also related to how long the garments are kept in the wardrobes of consumers. When asked how long respondents keep and wear their bras, the majority responded with two or more years. This suggests that bras are investment pieces that are meant to last; therefore, bras do not need to be purchased as often as panties, which are used and replaced more frequently. The majority of respondents shared that they keep and wear their panties from one to two years before they are discarded. See Figures 14 and 15.
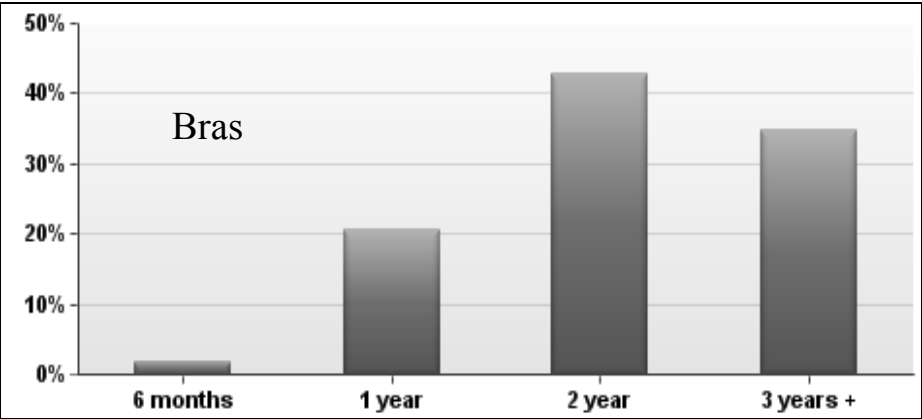
Figure 14. How long do you usually keep and wear your bras?
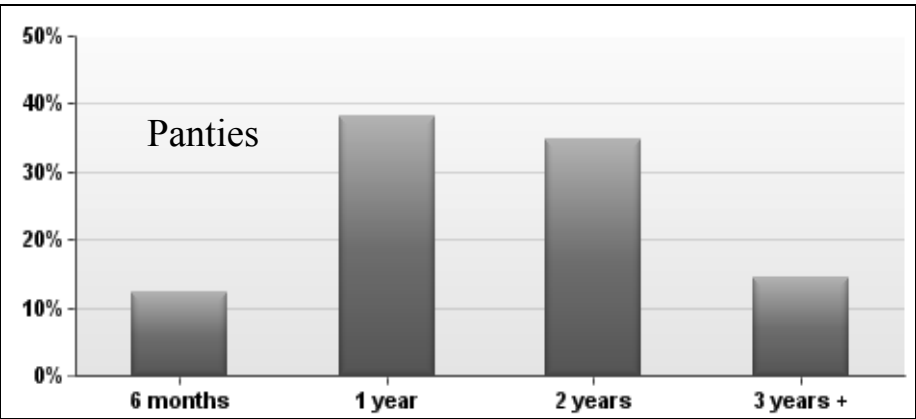

Figure 15. How long do you usually keep and wear your panties?

The attributes of comfort, price, color, style, fit, and trendiness were once again ranked by respondents as not important, somewhat important, or

very important. This time, they designated that fit was the most important attribute they consider when purchasing a bra or panty. Given the choice of purchasing their intimate apparel among the same nine retailers, over 60% of respondents said they purchase their bras and panties from Victoria's Secret, implying that this retailer dominates the intimate apparel industry for the surveyed demographic. See Figure 16.
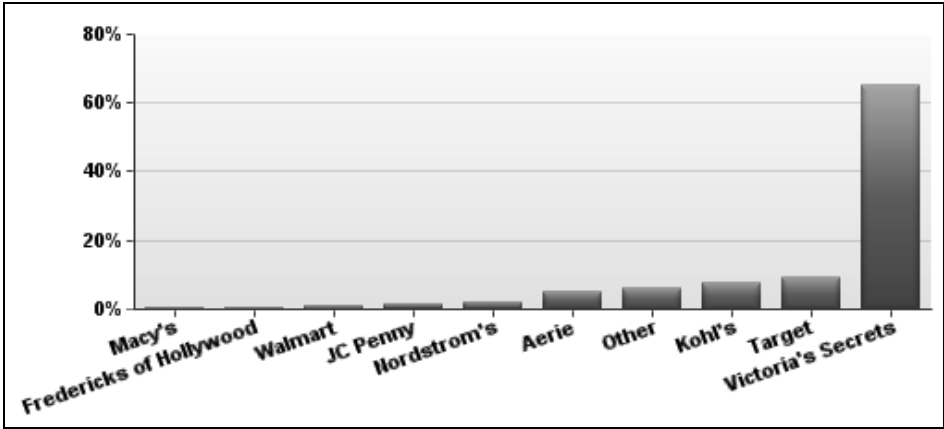

Figure 16. From what retailer do you most commonly purchase your intimates?

Lastly, respondents were asked to specify what styles and colors they are most likely to purchase when shopping for intimates. The majority of respondents said that buying a bra with convertible straps is not very important to them. Silhouettes of panties were rated by respondents with thongs and v-strings being the most preferred. Finally, the consumers responded to survey questions about colors by saying that solid and neutral colored bras are most preferred, while brightly colored and printed panties are purchased more often than neutrals and solids.

Based upon these results, the following conclusions were made about the sleepwear, loungewear, and intimate apparel merchandise categories: (1) sleepwear and loungewear are synonymous for most consumers within the targeted age group, who tend to use them interchangeably; (2) comfort is considered a valued attribute of all three categories of merchandise; and (3) Victoria's Secret is the most popular store for purchasing intimate apparel, while Target is the dominant retailer in the sleepwear and loungewear market.

Summary

Trends that will be incorporated in future sleepwear designs include color blocking, interesting patterns, more and more amounts of lace, and styles inspired by the 1920s. Loungewear is predicted to include more designs based on the characteristics of yoga apparel, but also simplistic, ambiguous garments with an increased emphasis on comfort. The evolution of intimate apparel over the next few seasons will include more multi-way designs, embellishments, and conservative cuts in neutral tones for versatility. Companies who sell sleepwear, loungewear, and intimate apparel may consider these predicted fashion trends and design their products accordingly to stay on top of the market.

Our competitive analysis findings suggest that the way products are sold is just as important as how they are designed. Victoria's Secret was the retailer who scored the highest in the competitive analysis because they best matched the requirements of a top retailer in the market for sleepwear, loungewear, and intimates. Successful retailers are characterized not only by their products, but by effective visual merchandising and product placement, pleasant ambiance, and excellent customer service. When these elements are incorporated into a merchandise mix, the customer is sure to be satisfied.

Businesses can also better address the needs of consumers by listening to what they say about the types of products they like to purchase, where they purchase them, and why they buy those particular items. By surveying consumers from our target demographic, the consumer research teams discovered that comfort is a property that is sought after in sleepwear and loungewear products, whereas fit is the most important attribute in intimate apparel. In addition, Target is the store of choice for consumers shopping for sleepwear and loungewear, but Victoria's Secret is where the respondents prefer to purchase their bras and panties.

To conclude, the tools of a trend analysis, competitive analysis, and a consumer survey were used by the students of the Fall 2011 Trend Tracking and Forecasting class to research the market for sleepwear, loungewear, and intimate apparel, as well as the preferences of consumers who buy these items. The goal was to develop a fashion forecast that could help industry professionals adjust their stores and product offerings to better satisfy the needs of their customers, which in time could increase the profitability of their business.

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Conceptual Lithography Using Inexpensive Materials

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Abstract

Lithography is an important process that has many applications but is also very expensive. The high cost associated with the process makes it difficult to teach with a limited budget. A method was established for teaching basic lithographic concepts using low-cost materials. Successful pattern transfers were completed using various adhesives and different master materials.

Keywords: lithography, budget, adhesives, master

Lithography was originally developed by Alois Senefelder in the 1790s as a method for transferring an image from a stone onto another medium. The process was developed as a method for increasing the speed and reducing the cost of printing processes. Charles Hullmandel used this research to increase effectiveness of pattern transfer, and in 1819, he created the printing press.[1]

Just as Hullmandel improved upon Senefelder's pattern transfer methods, others have improved and advanced methods for transferring patterns as well. Today, lithography is used to create three-dimensional structures on the macro, micro, and nano scales. Along with uses for lithography, there have also been improvements in lithographic methods as well.[2] Some types of lithography used today include, but are not limited to, nanoimprint lithography, electron beam lithography[3], and photolithography.[4] Processes such as these are used in industry to create structures that would otherwise be incapable of being produced. The basic idea of pattern transfer, which is the foundation of lithography, is present in each of these processes. Nanoimprint lithography is a pattern transfer method in which a substrate is covered by a polymer and then stamped with a mold. After the mold is in place, the polymer is allowed to harden, and then the mold

is removed. This type of process can be used to make nanosized patterns that can be used in the electronics industry to make smaller, higher quality devices.[5]

Electron beam lithography (EBL) uses an electron beam to remove areas of a pattern that are either covered or uncovered by a resist. Creating nano-sized features with EBL is possible because the wavelength of the electrons is very short. One disadvantage to EBL is the high cost associated with both the materials and the equipment used for the process.[6]

One of the most common lithography methods used is photolithography. In photolithography, a resist is put onto a substrate and then covered by a mask. A light source is used to expose the areas that are not covered by the mask. The areas that are exposed may become more soluble or less soluble in the solvent used in the development process. The development process removes the areas of the resist that are most soluble. The areas of the resist that are not removed protect the substrate during the etching process. The areas that are not protected by the resist are etched away. Once etching is complete, the resist is removed and a transfer of the substrate is formed.[7]

Many different industries turn towards lithography to solve problems. These industries include biotechnology, optics, and electronics. Electronic and optical devices can require microstructures for functionality. These structures can be complex and hard to produce, but lithography is one method used to create them.[8] Lithography can also be used to pattern both cells and proteins in biotechnology. Patterning proteins and cells can be important in producing devices such as biosensors.[9]

Although there are great benefits to lithography, the materials and instruments that are used to perform the process can be quite expensive. Both equipment cost and chemical cost in lithography dependent upon the type of process being done. Typical chemical cost can range anywhere from $100 to $2000 per liter, and equipment such as a wafer stepper can cost up to $20M.[10]

One alternative to teaching expensive processes, such as electron beam or photolithography, is to teach the basic concept of pattern transfer. Since transferring a pattern is the primary goal in all forms of lithography, it is valuable to have an understanding of how this can be done. Pattern transfer can be taught using everyday materials that can be obtained at low cost.

Experimental Method

This experiment was designed to determine whether or not the concept of

pattern transfer could be demonstrated using low-cost materials. Two different masters were used to complete this experiment. One master that was used was a penny, and the other was a compact disc. Various adhesives were used in order to transfer the image of the selected master.

Three glues were used for this experiment, all of which can be purchased from any hardware store for under $2.00. Three pennies were used, and each was covered with a different type of glue. The glue that was applied to each was allowed to cure overnight in a plastic container and was then removed carefully. Optical micrographs were taken of both the penny and the corresponding sample of glue. The micrographs were used to assess whether or not a transfer of the penny could be seen in the hardened glue.

The pattern transfer that was done with the compact disc was a much lengthier process because the master had to be prepared before the glue could be applied. Three square sections of the disc were cut with scissors. The protective layer was then removed from each section using a piece of duct tape. Starting near the edge of the disc, the tape was pressed firmly onto the top surface until it was completely covered. The tape was then slowly removed, resulting in pieces of the protective layer being removed as well. This process was repeated until only the clear, polycarbonate layer of the compact disc was visible.

The polycarbonate layer of the disc is where the data is stored in the form of small pits of varying size with the smallest size being 0.83 μm. The space between the rows of data on the disc is 1.6 μm.[11] Since the pits of the data layer are in the micron size range, electron microscopy was used to image the disc. The sample was prepared for microscopy by coating it with a thin layer of gold using a sputter coater. This layer of gold was applied to avoid electrostatic charging when using the scanning electron microscope (SEM) and is not required for lithography. Once the sample was coated, it was imaged using an SEM.

After imaging was complete, a layer of glue was used to cover the top side of each section. A different type of glue was used for each section of disc. To ensure that the glue set properly and was strong enough to be removed, it was placed inside a plastic container and allowed to cure overnight. After 24 hours the glue was removed and was prepared for imaging.

The same process was used to sputter-coat the glue as was used for the disc. Micrographs were taken of all three types of glue using the SEM, and an assessment was made regarding whether or not a reverse image could be seen in the hardened glue.

Results and Discussion

Each adhesive was examined using the following basic criteria: transferability, viscosity, and defects resulting from pattern transfer. All three glues were able to transfer the pattern of the penny. Figure 1 shows optical micrographs of the penny substrate and the corresponding transfer that was obtained from the glue. The larger features of the penny make it more suitable for higher viscosity glues.
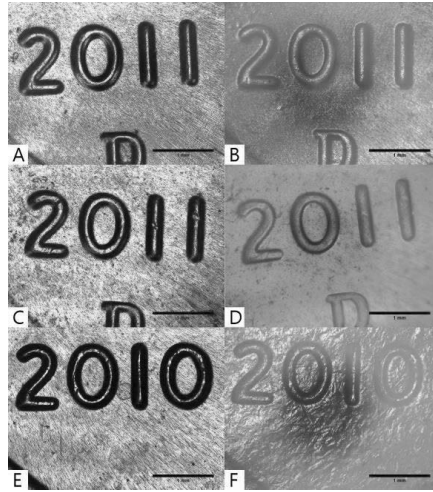

Figure 1. Optical micrographs of pennies (left) and corresponding pattern transfers in adhesives (right). The adhesives are Glue A (B) Glue B (D) and Glue C (F). Scale Bars in the images correspond to 1mm.

The date was transferred from each penny and can be seen in all three of the glues that were used. The striations that were present in the metal of the penny were also transferred to Glue A and Glue B. Glue C formed a transferred surface that was more rigid, and the striations that were present in the metal cannot be seen.

Glue A and Glue C both produced reverse images of the compact disc data layer. Glue B, however, did not produce a reverse image of the disc. Figure 2 represents electron micrographs of the compact disc data layer as well as the three different glues that were tested.

Figure 2 shows ordered ridges in Glue A as well as Glue C. The presence of ridges shows that these glues did in fact produce reverse images of the disc. The defects that are present in Glue A show that, while it did transfer the image, it did not transfer it perfectly. The most likely cause for the small defective sections is removal of the glue from the master.

Figure 2 shows no presence of ordered ridges in sample for Glue B. There are raised spots in the image, but they are not in an ordered structure and are therefore not a reverse image of the disc. The most likely reason that the image was not transferred is because the viscosity of the glue was very high. The resistance to flow of the glue makes it less likely than the other glues to be able to transfer the pattern of very small masters.
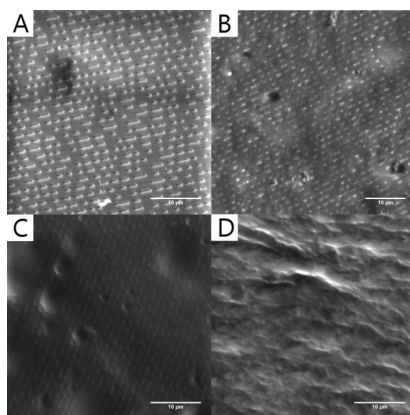
Figure 2. Scanning electron micrographs of a compact disc data layer (A) and pattern transfer in Glue A (B), Glue C (C), and Glue B (D). Scale bars in the images correspond to 10 μm.

From the results that were obtained, it is clear that patterns can be transferred using low-cost materials such as various adhesives and compact discs or pennies. In terms of cost, the penny and glue method was a less expensive way to teach these basic concepts because of the instrumental methods used for imaging them. Optical microscopes are more common and far less expensive than electron microscopes, so this method could be used by instructors within a smaller budget. Another distinct difference in instrumental methods is ease of use of the instruments. The electron microscope requires greater preparation of samples and is a more complex instrument to use than an optical microscope.

Table 1: Physical Properties of Adhesives				
Glue Type	Viscosity	Transferability	Tackiness	Defects
Elmer's School Glue	Low	Good	Weak	Few
Elmer's Wood Craft Glue	High	Good	Strong	Few
Aleene's Tacky Glue	High	Poor	Strong	Many

In terms of their physical properties, the glues that were used had both advantages and disadvantages which can be seen in Table I. Glue A had the best overall results in terms of pattern transfer. As can be seen from Figure 1 and Figure 2, the glue transferred the features from both the compact disc substrate as well as the penny substrate very well. Glue C also transferred the features from both substrates, but as can be seen in Figure 2, the features transferred from the compact disc are not as pronounced as they were with Glue A. The most likely reason for this is that the viscosity of Glue C was higher than that of the Glue A. Glue C did transfer the pattern from the penny but did not from the compact disc which makes it less useful than the other glues when transferring small patterns. Again the viscosity of the glue is the most likely cause for the inability to transfer the pattern effectively.

Glue A also had the best results in terms of ease of use. The application for all three glues was easily done, but the removal from the substrate was easiest with this glue. Glue B adhered strongly to the substrate which made it hard to remove without tearing. Glue C became brittle once it cured, so greater care had to be taken when removing it to avoid cracking the surface. The pliability of Glue A after it cured made it easy to remove from the substrate without cracking or adhering strongly to the surface.

Conclusion

Although lithography is an expensive process which can limit where and when its concepts are taught, it is possible to teach the basic concepts using inexpensive materials. Adhesives are an excellent example of such a material because they are easily used and are inexpensive. The viscosity of glue makes it easily transferable. The pliability and the overall tackiness make glue easily removable, which results in few defects. Using adhesives and a simple master such as a penny, the principles of lithography and pattern transfer can be taught without great expense.

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The Relationship between Age, Gender, and Hedonic Hunger

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Abstract

Hedonic hunger is the subjective feelings and urges of hunger in absent of prolonged food deprivation. The purpose of this study was to determine if hedonic eating changes throughout the lifecycle and if there are differences between men and women. Subjects included 316 participants (200 females and 116 males) from Western Wisconsin. The three factor Power of Food Scale was used to assess an aggregated hedonic eating score as well as a score for each of the factors: Factor 1 "food available," Factor 2 "food present," and Factor 3 "food tasted." The results indicated that the aggregated hedonic eating score was significantly ($P < 0.05$) lower in the 62+ age group (M=2.30, SD=0.76) when compared to the 18-28 year old group (M=2.67, SD=0.84). Additionally, there was a significant difference between the 62+ age group and the 18-28 year old group when comparing the food available scores (M=1.98, SD=0.93 vs. M=2.37, SD=0.98) and the food present score (M=2.57, SD=1.01 vs. M=3.06, SD=1.05). There were no significant differences in the age groups for the food-tasted factor. Lastly, results indicated that hedonic eating is more prevalent in women when compared to men. In conclusion, younger people and women had a higher likelihood of hedonic eating. Additional research is needed to determine the reason to why younger people as well as women have a higher prevalence of hedonic eating.

Keywords: hedonic hunger, Power of Food Scale, food intake

Today, 67% of all adults in the United States over the age of 20 are considered to be overweight (body mass index above 25 kg/m^2) or obese (body mass index above 30 kg/m^2) (Center for Disease Control and

Prevention, 2009). Individuals who are overweight or obese are at a higher risk for developing chronic health conditions such as heart disease, cancer, diabetes, high blood pressure, sleep apnea, and asthma (Kersick et al., 2009), many of which decrease quality of life and life expectancy. Because of the strong association between weight gain and the onset of chronic health conditions, factors leading to overweight and obesity are an active area of research. A relatively new area of research focuses on why people eat and the regulatory mechanisms governing these reasons for eating.

Food intake is regulated by two complementary drives: the homeostatic and hedonic pathways. The homeostatic pathway controls energy balance by increasing the motivation to eat following depletion of energy stores (Lutter & Nestler, 2009). In contrast, hedonic, or reward-based regulation, can override the homeostatic pathway during periods of relative energy abundance by increasing the desire to consume foods that are highly palatable (Lutter & Nestler, 2009). The universal presence of highly-palatable food in the environment may chronically activate the hedonic appetite system, producing a need to actively restrain eating to avoid gaining weight (Lowe & Levine, 2005). The environmental changes promoting overweight and obesity in today's society that are related to hedonic eating include the portion size, cost and convenience of food, food advertising, social eating, as well as stress (Wansink, 2004; Wardle, 2007; Morland, Diez Roux, & Wing, 2006; Gallo, 1997; de Castro & Brewer, 1992; Adam & Epel, 2007). As the growing prevalence of obesity suggests, an increasing proportion of human food consumption appears to be driven by pleasure, not just by the need for calories (Lowe & Butryn, 2007). Therefore, it can be concluded that the widespread availability of easily-accessible palatable foods is now a major contributor to weight gain as well as the obesity epidemic.

The Power of Food Scale (PFS) was recently developed and validated to study how hedonic eating influences various people and situations (Lowe & Butryn, 2007). Using the PFS, Lowe et al. (2009) found no significant differences in hedonic eating between race (Caucasian, African American, or Asian) and gender, although 86% of respondents were female, which likely skewed the results. Two other studies were conducted to measure the consistency of the PFS and found that the PFS is a useful measure of the hedonic impact of the current food environment (Cappelleri et al., 2009; Forman et al., 2007). Both of these studies validated the PFS; however, one area in which the PFS has not been used to assess is how hedonic eating

changes throughout the lifecycle. Additionally, differences in hedonic eating between genders warrants further investigation. Therefore, the purpose of this study was to utilize the PFS to determine differences in hedonic eating between various age groups and if there are differences in hedonic eating between men and women.

Methods

Subject Selection and Data Collection

The survey was distributed both electronically and by hard copy. The electronic version of the survey was developed using Qualtrics (version 20695), and a link to the electronic version of the survey was posted on Facebook (www.facebook.com, © 2011). Potential participants who accessed the link were directed to the implied consent form, and upon reading the consent form, they were allowed to complete the survey. For the participants completing the hard copy version of the survey, permission was first obtained from the management of Anytime Fitness, the Village at White Pine apartments, and Tantara apartments in Menomonie, Wisconsin; then, drop boxes were placed at each location. The implied consent form and survey were made available and a letter stating when the surveys needed to be turned in was posted in the location. Data were collected over a period of approximately three weeks from mid-May to June 2011. Three hundred and sixteen subjects (200 females and 116 males) successfully completed the survey. Approval to conduct research was granted by the University of Wisconsin-Stout Institutional Review Board prior to any data collection.

Instrumentation

All subjects in the study completed the Power of Food Survey (PFS), which was developed by Michael Lowe in the Department of Psychology, Drexel University, Philadelphia, Pennsylvania, and obtained directly from Dr. Lowe (personal communication, January 7, 2011). The PFS was designed to measure appetite for highly-palatable foods, and thus it does not include any items describing actual food consumption. The survey utilized for the current study consisted of 17 questions, with the first two questions asking gender and age. The question on age was asked as a range of 18-28 years old, 29-39 years old, 40-50 years old, 51-61 years old, and 62 years and older. The next 15 questions were specific to the PFS and reflected the responsiveness to the food environment. The 15 questions were grouped

into three main domains according to food proximity with (1) food readily available in the environment but not actually present ("food available"), (2) food present but not tasted ("food present"), and (3) food first tasted but not consumed ("food tasted"). Examples of questions in the three domains are as follows: (1) "I find myself thinking about food even when I'm not physically hungry"; (2) "If I see or smell a food I like, I get a powerful urge to have some"; and (3) "When I eat delicious food, I focus a lot on how good it tastes." For each item, subjects had to score their reactions on a 5-level scale: 1 = I don't agree at all, 2 = I agree a little, 3 = I agree somewhat, 4 = I agree, and 5 = I strongly agree. Thus, the scores for each of the domains indicate hedonic hunger motivation at different levels of food availability (Schultes, Ernst, Wilms, Thurnheer, & Hallschmid, 2010; Lowe et al. 2009). The mean of the items making up each of the three domain scores was calculated to obtain an aggregated score. Although correlations between the three domains have been found to be generally high (all r > 0.77) and support the use of an aggregated domain score, the three-domain model has been found to be superior to the one-domain model (Lowe et al., 2009).

Data Analysis

The Statistical Program for Social Sciences (SPSS) version 15.0 computer software program was used to analyze the data. Descriptive statistics, including the mean and standard deviation, were conducted on the interval and ratio data. A One-Way ANOVA test was run, comparing each age group with each of the three factors as well as the total mean. Results were considered significant at $p \leq 0.05$. Two-Way ANOVA tests were run for each factor separately, as well as the total mean, comparing age and gender, with results being significant at $p \leq 0.05$.

Results

Aggregated Score

Figure 1 describes the mean aggregated score (i.e., the average of Factor 1, Factor 2, and Factor 3) and standard deviation for both males and females in the different age groups. Age had a statistically significant effect on the aggregated score with the 18-28 year olds scoring significantly higher than the 62+ group ($p=0.009$), suggesting that the youngest subjects had a higher likelihood of hedonic eating than the oldest subjects in the study. Gender also had a significant effect on the aggregated hedonic eating score with an

overall aggregated score of 2.62 (*SD*=0.81) for females and 2.48 (*SD*=0.79) for men (*p*=0.019). These data suggest that women have a higher prevalence of hedonic eating compared to men. There was no significant interaction between age and gender (*p*=0.302).
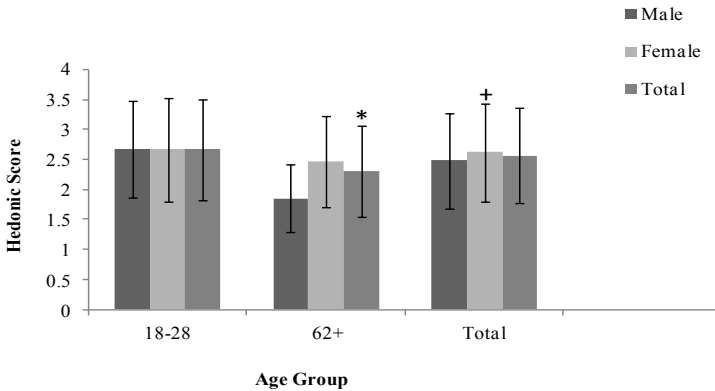

Figure 1. Means and standard deviation for the aggregated hedonic eating score (i.e. the average of Factor 1, Factor 2, and Factor 3) for males and females by age. *Significantly different from 18-28 year olds (p=0.009); +Significantly different from males (p=0.019). There was no significant interaction between age and gender (p=0.302).

Factor One (Food Available)

In the food-available domain, there was a statistically significant effect of age, with the 18-28 years olds scoring higher than the 62+ age group (*p*=0.016, Figure 2). Gender also had a significant effect on hedonic scores related to Factor 1, with an overall score of 2.39 (*SD*=0.99) for females and 2.10 (*SD*=0.85) for males. There was no significant interaction between age and gender (*p*=0.441). These results suggest that when food is readily available, but not physically present, younger people and women have a stronger tendency toward hedonic eating. Or, conversely, the oldest group and men are less likely to exhibit hedonic eating behaviors.
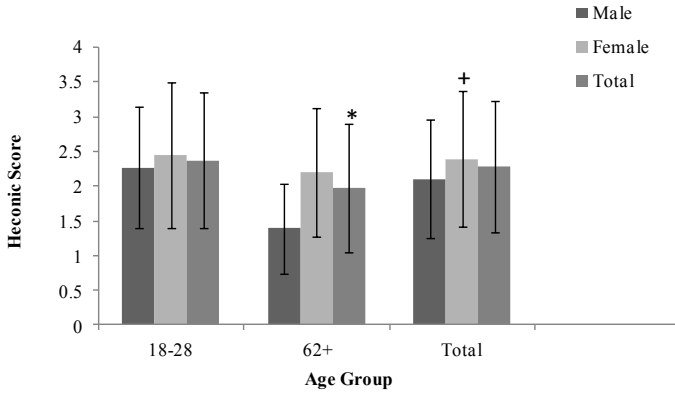
Figure 2. Means and standard deviation for the Factor 1 (food available) hedonic eating score for males and females by age. *Significantly different from 18-28 year olds (p=0.016); +Significantly different from males (p=0.003). There was no significant interaction between age and gender (p=0.441).

Factor Two (Food Present)

Figure 3 shows the mean score and standard deviation for both males and females in their respected age group for Factor 2 (food present). Similar to the aggregated score and the scores for Factor 1, age had a statistically significant effect on Factor 2 with the 18-28 year olds scoring higher (M=3.10, SD=1.05) than the 62+ group (M=2.40, SD=1.01). These data indicate that younger people have a higher likelihood of engaging in hedonic eating when food is present but has not been tasted. Gender also had a significant effect on Factor 2 (Figure 3), with an overall mean of 3.05 (SD=1.04) for females and 2.81 (SD=1.04) for men (p=0.004), indicating that women have a significantly higher prevalence of hedonic eating when food is present but not tasted. There was no significant interaction between age and gender (p=0.124).
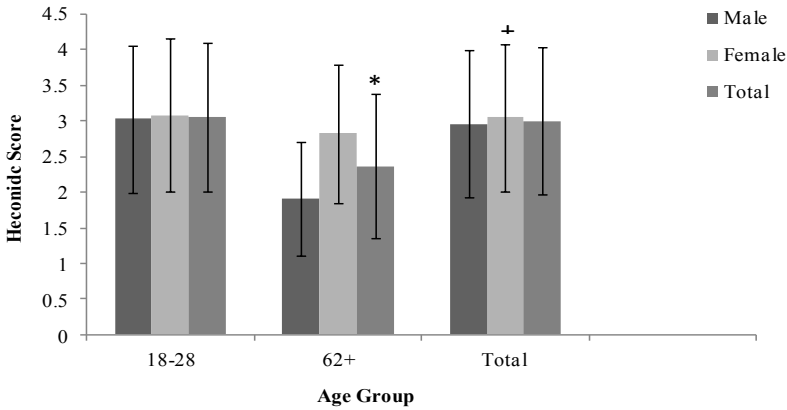
Figure 3. Means and standard deviation for the Factor 2 (food present) hedonic eating score for males and females by age. Significantly different from 18-28 year olds (p=0.005); +Significantly different from males (p=0.004). There was no significant interaction between age and gender (p=0.124).

Factor Three (Food Tasted)

There was no significant effect of age (*p*=0.104) or gender (*p*=0.965) with regards to the food tasted factor (data not shown).

Average of Combined Age Groups (18-39, 40-61, 62+)

To compare the impact of life stage on hedonic eating, the age groups were categorized into three life stages. Figure 4 describes the mean aggregated hedonic score and standard deviation for both males and females when grouping them into three age categories: younger (18-39 years old), middle-aged (40-61 years), and elderly (62+ years). Age had a statistically significant effect on the aggregated score with the 18-39 year olds (*M*=2.64, *SD*=0.81) as well as the 40-61 year olds (*M*=2.55, *SD*=0.79), scoring significantly higher than the 62+ group (*M*=2.30, *SD*=0.76). These data suggest that, during early and mid-adulthood, people have a higher likelihood of hedonic eating. When combining the ages there was no significant interaction between age and gender (*p*=0.239).
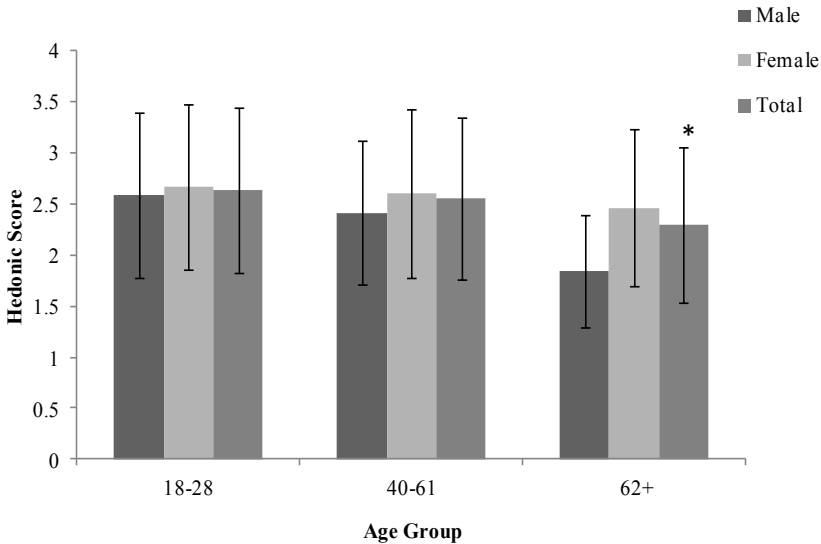
Figure 4. Mean aggregated hedonic score and standard deviation for males and females by life stage category: younger (18-39 years old), middle-aged (40-61 years), and elderly (62+ years). *Statistically different from 18-39 year olds (p=0.007) and 40-61 year olds (p=0.039). There was no significant interaction between age and gender (p=0.124).

Discussion

Aggregated Score

Results of the present study indicated that age had a significant effect on measures of hedonic eating, with the 18-29 year olds scoring higher than the 62+ age groups. An explanation as to why hedonic eating decreases with advanced age can be explained by the changes, both physiological and psychological, that happen as individuals age. As described by Johnson and Fischer (2004), when people age, food intake generally decreases due to physiological changes, such as a reduction in taste and smell of food, which can reduce enjoyment. Additionally, psychological changes, such as cognitive impairment, can limit the ability to shop for food as well as impact one's ability to remember when the last meal was eaten.

When comparing the aggregated hedonic score between genders, a significant difference was also found (*P*=0.019) between the mean scores of females (2.62) and males (2.48). This result differed from a study done by Lowe et al. (2009) which found no difference in hedonic eating scores between genders; however, the purpose of the Lowe et al. (2009) study was to validate the PFS as a research instrument and not to test differences between men and women. Additionally, females compromised 86% of the

total respondents, compared to 63% in the current study. Stress may be one reason why females may have scored higher for hedonic eating in the present study, as it was found by Van Strien, Frijters, Bergers, and Defares (1986) that women under stress tend to eat more calories in the form of fat than men. Foods higher in fat tend to be more palatable and thus more likely to promote hedonic hunger (Lowe & Butryn, 2007). However, stress was not measured in the present study.

Factor 1 (Food Available)

Two questions from the survey that measured Factor 1 are "I find myself thinking about food even when I'm not physically hungry," and "It's scary to think of the power that food has over me"; higher scores implied that the food environment increases hedonic eating.

Analysis of the food available domain indicated that both age and gender had a significant effect on hedonic hunger when food is readily available in the environment but not actually present. Again, it can be hypothesized that as individuals age normal aging processes affect feelings of hedonic hunger, as the process of aging can slowly diminish taste (Johnson & Fischer, 2004). This phenomenon helps to explain why, as people age, they would be less interested in eating even when food is readily available. Women also scored higher on Factor 1 (food available) compared to men. These findings may be explained by observations that stress can increase eating in women (Van Strien et al., 1986), and if palatable food is readily available and convenient, women may turn to food to reduce feelings of stress (Oliver, Wardle, & Gibson, 2000).

Factor 2 (Food Present)

When comparing the effects of age and gender on hedonic eating scores related to Factor 2, it was found that 18-28 year olds scored higher than the 62+ year olds and women scored higher than men. Again these significant differences in age and gender coincide with the findings of the aggregated score as well as the Factor 1 score. The effect of aging on taste can once again be used to explain why older individuals (62+ years old) would score lower in Factor 2 compared to younger individuals (18-28 years old). With regards to the effects of gender on Factor 2 scores, it can be argued that if stress increases hedonic eating in women, especially when food is physically present, females would score higher than men on Factor 2 (Wardle, Steptoe, Oliver, & Lipsey, 2000).

The "food present" domain was designed to show how an individual's motivation to eat is changed when food is physically present. Questions that were included on the survey for this domain were "If I see or smell food I like, I get a powerful urge to have some" and "When I know a delicious food is available, I can't help myself from thinking about having some." A study related to this domain was conducted by Painter, Wansink, and Hieggelke (2002) who showed that having candy visible and accessible increased its consumption by office workers. Unfortunately, the Painter et al. (2002) study did not examine differences between men and women; however, based on the results of the present study, one can hypothesize that, compared to men, women would be more likely to consume candy when visible and accessible.

Factor 3 (Food Tasted)

Factor 3 is the "food tasted" domain and is intended to show how individuals' motivations change as they are about to eat or while they are engaging in eating food. Some questions on the PFS in the Factor 3 domain are "Just before I taste a favorite food, I feel intense anticipation" and "When I eat delicious food, I focus a lot on how good it tastes." When analyzing the effects of age and gender on hedonic eating scores related to Factor 3, the present study found no significant differences between ages and genders, as well as no interaction between the two. Factor 3 was the only factor showing no impact of age or gender. Schultes et al. (2010) found similar results when comparing hedonic eating in obese and non-obese patients in that there were significant differences found in Factors 1 and 2, but no difference in hedonic score's in the third domain. This similarity on Factor 3 (food tasted) was explained by the differences each individual has in taste perception. There are multiple links between taste perceptions, taste preferences, and food choices, and taste responses are influenced by a range of genetic, physiological, and metabolic variables (Drewnowski, 1997). Simply put, each individual's "food taste" is highly varied, and these individual variations are much larger than variations between groups.

Combined Age Groups (18-39, 40-61, 62+ years old)

When combining the ages into three main groups or life stages, younger (18-28 years old), middle aged (40-61 years old), and older (62+ years old), the present study found that, again, age significantly impacted measures of hedonic hunger with the 18-39 year olds and 40-61 year olds scoring

significantly higher than the 62+ year olds. These results help support the idea that as individuals age, hedonic eating becomes less prevalent due to the processes of aging.

Limitations

A number of limitations deserve mentioning. The first being that the population sample was primarily from one area in Western Wisconsin. Therefore, it may not be possible to expand the current findings to a larger, more urban population, where there may be differences in factors such as food availability. The second limitation of this present study was the small sample size. Repeating this study utilizing a larger sample with a larger representation of each age group of differing socio-economic backgrounds would be a valuable investigation. The third limitation was that the level of activity was not taken into account as a variable that may increase or decrease hedonic eating (Stroebe, Papies, & Aarts, 2008). Additionally, it was assumed that the participants who completed the survey did so after having eaten a satisfying meal. If an individual completed the survey and was experiencing a short- or long-term calorie deficit, the results may be different than if they were satiated. Lastly, with the known effect of stress on feelings of hedonic hunger (Born et al., 2010), the present study would be stronger if stress levels were also assessed.

Conclusions

The results of the current study indicate that age and gender have a significant effect on feelings of hedonic hunger, with 18-28 year olds scoring higher than adults aged 62 and older, and women scoring significantly higher than men. When analyzing the effects of age and gender on each of the three factors that make up the PFS separately, significant differences were found in Factors 1 (food available) and 2 (food present), but not in Factor 3 (food tasted). Overall, these results suggest that as individuals age the pleasure of eating is reduced. The results also suggest that women have a higher likelihood of hedonic eating compared to men. The specific mechanisms leading to decreases in hedonic hunger with age and increases in hedonic hunger in women warrant further investigation.

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