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From the Editor's Desk

The past few months have been both exciting... and exhausting for John and me. To start, we officially transitioned as Managing Editors of *JPI* in May 2012. We've had the pleasure of working with amazing and talented undergraduate students, faculty sponsors, and faculty editors. Through the publication process, we have come to know students' stories and have a clear understanding of the positive impact undergraduate research has made on their educational experiences. These student researchers are passionate, enthusiastic, and committed to producing high-quality undergraduate research for publication. It has been through all these interactions that we have developed a strong sense of optimism for the future of the field.

Likewise, we have also developed a strong sense of appreciation for our colleagues who have come before us. Both Mark Ware and Susan Burns have served as Managing Editors of *JPI* in the past. The number of hours each has selflessly devoted to the journal is far too high to speculate and we are grateful for their past contributions as well as their continued support. At this time, we also want to express appreciation to other faculty members committed to the success of the journal. Specifically, over the past year Drs. Christie Cathey, Stephen Davis, Jennifer Penner, and Bob Rycek have stepped down from their Associate Editor positions with the journal. We want to publically thank you for your years of dedication to the journal and undergraduate research. We know you have greatly touched the lives of countless students in your tenure with the journal.

So what does the future hold for *JPI*? To begin, we are excited to announce and welcome the newly appointed Associate Editors to the journal:

Jerry Frieman
Wind Goodfriend
Robyn Long
Janett Naylor
Elizabeth Nelson
Jeffrey Sable
Merry Sleigh
Josh Tanguay

Additionally, we would like to recognize those who will continue as Associate Editors:

Julie Allison
Frank Ferraro
Richard Miller
Jennifer O'Loughlin-Brooks

We are truly privileged to work with such a great group of Associate Editors. Each was selected because of their expertise in working with undergraduate researchers over the years. Furthermore, we know we can count on them to encourage students through the publication process while also pushing students to achieve success.

This is an important time in the history of psychology and more specifically an opportunity to continue *JPI*'s rich history of dedication to undergraduate students. As the new Managing Editors, we see a need to increase the visibility of *JPI* across the country. Therefore, we are planning to work with the Associate Editors to develop a strategic plan to see this through. In sum, it is important that more psychology students be aware of *JPI* and take advantage of this unique and enriching educational opportunity.

You will also notice that the cover of the journal has a new look. As will be true to our term as Managing Editors, the new look respects history by incorporating the original logo designed by Cathy Solarana some years ago. The new cover was designed by Britteny Funk, a Graphic Design student at Fort Hays State University. We thought it very fitting to have a student design the cover as another testament to the scholarly endeavors students are capable of producing.

As we conclude this editorial, we want to be sure to thank our many reviewers and faculty sponsors. The journal would not be possible without your contributions. Finally, we would also like to thank Brooke Zoller, the graduate assistant working with the journal. Brooke you have done an outstanding job assisting us with this first issue and we look forward to your continued contributions. To all readers, please know that we welcome communication on suggestions for new ideas and look forward to working with each of you in the future.

Best regards,

Jenn Bonds-Raacke and John Raacke
Managing Editors

Acknowledgement: Reviewers

The following individuals reviewed manuscripts for this volume of the *Journal of Psychological Inquiry*. We gratefully acknowledge their valuable contributions to the journal.

Richard Jackson Harris, *Kansas State University*

Ande Johnson, *Park College*

Beverly King, *The University of North Carolina at Pembroke*

Jean Mandernach, *Grand Canyon University*

Janett Naylor, *Fort Hays State University*

April Phillips, *Northeastern State University*

Darren Ritzer, *Winthrop University*

Merry Sleigh, *Winthrop University*

Julianne Steel, *University of Arkansas at Little Rock*

William Sturgill, *Rockhurst College*

Leslie Templeton, *Hendrix College*

Susan Tucker, *Missouri Southern State University*

Acknowledgement: Institutions & Organizations

The following institutions and organizations contributed financially to pay for the operating expenses of the *Journal of Psychological Inquiry*. We gratefully acknowledge their valuable support of the journal.

Avila University	Newman University
Benedictine College	Northwest Missouri State University
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Doane College	Union College
Emporia State University	University of Central Missouri
Fort Hays State University	University of Nebraska, Kearney
Kansas State University	University of Nebraska, Lincoln
Missouri Western State University	University of San Diego
Morningside College	Webster University—St. Louis
Nebraska Wesleyan University	Washburn University
Association for Psychological and Educational Research in Kansas	Nebraska Psychological Society

Cover:

Logo: The creation of the graphic for the logo came about by thinking of how ideas are formed and what the process would look like if we could see into our brains. The sphere represents the brain, and the grey matter inside consists of all the thoughts in various stages of development. And finally, the white spotlight is one idea that formed into a reality to voice. The entire logo is an example of creation in the earliest stages.

Cathy Solarana, Graphic Designer

Cover Design: The overall design was influenced by many aspects of psychology. Much of the inspiration was developed through the use of the iconic symbol for psychology as well as the beauty of psychology in its own right.

Brittney Funk, Graphic Designer

Instructions for Contributors

The Journal of Psychological Inquiry encourages undergraduate students to submit manuscripts for consideration. Manuscripts may include empirical studies, literature reviews, and historical articles; manuscripts may cover any topical area in the psychological sciences. Write the manuscript for a reading audience versus a listening or viewing audience.

1. Manuscripts must have an undergraduate as the primary author. Manuscripts by graduates will be accepted if the work was completed as an undergraduate. Graduate students or faculty may be co-authors if their role was one of teacher or mentor versus full-fledged collaborator.
2. Manuscripts must (a) have come from students at institutions sponsoring the Great Plains Students' Psychology Convention and the Journal of Psychological Inquiry or (b) have been accepted for or presented at the meeting of the Great Plains Students' Psychology Convention, the Association for Psychological and Educational Research in Kansas, the Nebraska Psychological Society, the Arkansas Symposium for Psychology Students, or the ILLOWA Undergraduate Psychology Conference. The preceding conditions do not apply to manuscripts for the Special Features Sections I, II, or III.
3. Submit original manuscripts only. Do not submit manuscripts that have been accepted for publication or that have been published elsewhere.
4. All manuscripts should be formatted in accordance with the APA manual (latest edition).
5. Empirical studies should not exceed 15 double-spaced pages; literature reviews or historical papers should not exceed 20 double-spaced pages. The number of pages excludes the title page, abstract, references, figures, and tables. We expect a high level of sophistication for literature reviews and historical papers.
6. In the references, please include the issue number for all journal references
7. Submissions are made online at: <http://www.edmgr.com/jpi>. You will need to first register with the website and then follow the steps outlined on the website for your submission.
8. When prompted, provide e-mail addresses for the author(s) and faculty sponsor.
9. Include a sponsoring statement from a faculty supervisor. (Supervisor: Read and critique papers on content, method, APA style, grammar, and overall presentation). The sponsoring letter should indicate that the supervisor has read and critiqued the manuscript. In addition, assert that the research adhered to the APA ethical standards. Finally, confirm that the planning, execution, and writing of the manuscript represents primarily the work of the undergraduate author(s). This sponsoring statement should be in pdf format and uploaded with the submission.
10. Ordinarily, the review process will be completed in 60 days.
11. If a manuscript requires revisions, the author(s) is (are) responsible for making the necessary changes and resubmitting the manuscript to the Journal. Sometimes you may have to revise manuscripts more than once.

PLEASE NOTE: Changes have been made to the submission process! All submissions and reviews will be done electronically using PeerTrack essentials. To submit your manuscript, log on at: <http://www.edmgr.com/jpi>.

Good Monkey See, Good Monkey Do: Imitative Prosocial Behavior in Children

Kelsey Crowder*
Buena Vista University

ABSTRACT—Bandura, Ross, and Ross (1961) classic Bobo Doll experiment established children model aggression, and later research showed this finding is especially true when the models are similar to themselves (e.g., Perry & Bussey, 1979). The present study investigated whether children will model prosocial actions and statements they see in videos. Two independent variables guided the study: video modeling condition and participant sex. Children viewed one of three videos (i.e., helping with reward, helping with punishment, and control). Dependent variables included various measures of imitation, including a differentiation between imitative prosocial actions versus imitative prosocial statements. Girls were marginally more likely to imitate behaviors in general compared to boys, which may have been due to the model being female. Further, a surprising interaction showed whereas girls were more likely to imitate actions in the reward condition than in the punishment condition, as expected, boys showed the opposite pattern. Results are discussed in terms of past work on modeling and future research possibilities on the interactions among gender, modeling condition, and prosocial behavior.

Keywords: Modeling, Social Learning Theory, Prosocial Behavior, Children, Gender

INTRODUCTION

One of the most established avenues of human learning comes from children learning through observation of models and reinforcement. Social learning theory (Bandura et al., 1961) suggests one will learn through observing the actions of models such as parents, peers, and strangers. If models are reinforced for their behaviors, children are more likely to repeat those behaviors. On the other hand, if models are punished, children will be less likely to repeat those behaviors (Bandura et al., 1961). This result is especially true if the model is perceived as similar to one's self. For example, Bussey and Perry (1976) stated:

If similarity cues achieve function, then it is easy to appreciate a child's imitation of a similar model when he sees the model incur positive consequences for his behavior. This is because the child can infer that he, too, will be rewarded for performing the behavior. (p. 1168)

The most well-known series of studies on

imitative modeling and children's behavior is the work completed by Bandura and colleagues on aggression, a socially negative behavior (Bandura & Kupers, 1964; Bandura & Mischel, 1965; Bandura et al., 1961). The purpose of the current research was to focus on the role of similar models and vicarious reinforcement or punishment on children's prosocial behaviors, to investigate whether modeling is applicable to socially positive behaviors as well. Although a great deal of media attention has focused on studies showing social learning of aggression is a problem in today's society with regard to the preponderance of television and video games (e.g., Barlett, Harris, & Baldassaro, 2007; Eron, 1987; Singer & Singer, 1981), less attention has been focused on the possibility social learning can instruct the next generation about positive social behaviors just as easily. Thus, we believed that a study investigating the role of modeling on prosocial behavior was warranted.

Modeling, Imitating Behaviors, and Gender

Classic research on modeling in children

*Wind Goodfriend served as Faculty Sponsor.

comes from Bandura et al. (1961); their Bobo Doll experiment was a pioneering step in the development of Social Learning Theory. In this study, children ranging from 37-69 months of age watched an adult model performing actions in a room of toys. In the critical condition, the adult displayed aggressive behaviors toward a Bobo Doll (e.g., hitting with a hammer, throwing the doll across the room, smacking the doll in the nose). Along with this physical aggression came verbal aggression. The adult would say things like, "Sock him in the nose...," "Hit him down...," "Throw him in the air...," "Kick him...," and "Pow..." Although half the children saw this aggressive model, the other half saw a nonaggressive model who ignored the Bobo Doll and instead played with other toys.

The results supported Social Learning Theory's premise children will imitate adults. Children who watched the aggressive model, overall, were more likely to show those same behaviors than were children who watched the nonaggressive model. More specifically, after viewing a same-sex model, children were more likely to imitate verbal aggression (compared to an opposite-sex model). The pattern was slightly different for physical aggression; both boys and girls were more physically aggressive after viewing the male model, but boys were still, overall, more likely to be more physically aggressive while watching either sex model (compared to girls; Bandura et al., 1961).

Other studies have supported the idea gender matters in a social learning context. For example, Perry and Bussey (1979) had adult models pick toys they "liked" (this was a cover story) out of a bunch of toys. Some adults picked gender appropriate toys whereas others picked opposite-sex appropriate toys. After viewing the models, children who observed these choices were likely to imitate behaviors of same-sex models, but only if those models chose gender appropriate toys. If the model picked a gender inappropriate toy, the children did not model this behavior; instead, they picked a gender appropriate toy in spite of the modeling (Perry & Bussey, 1979). The authors concluded children know their gender roles based on a pattern of reinforcement and punishment throughout their lives.

Many studies on the power of imitative modeling focus on aggression in children, a set of be-

haviors with socially gendered meaning; in general, aggression is viewed as more acceptable coming from boys or men than from girls or women (Eagly & Steffen, 1986). However, the focus of the current study was on positive social behaviors. Helping and altruism are not as stereotypically divided in terms of gender expectations as is aggression, but at least one meta-analysis showed that altruism is more common in women (Eagly & Crowley, 1986). In addition, a study on early adolescent years showed girls were more likely to demonstrate prosocial behaviors than boys (Fabes, Carlo, Kupanoff, & Laible, 1999). Persson (2005) found girls outperformed boys in helping behaviors in preschool years, 22-40 months.

Given Bandura et al.'s (1961) finding children are likely to model similar others, including along gendered lines, our first hypothesis was that girls will be more likely to imitate the behaviors and statements of the model in our video conditions, both because the model in all conditions was female and because girls are more likely to display prosocial behaviors in general. For the same reason, boys were expected to be less likely to model the model's behaviors and statements across all conditions.

Reinforcement and Punishment

Bandura and colleagues (1963) continued research by examining the power of reinforcing behaviors. Here, children watched videos of two boys; one of the boys was a bully and reinforced by receiving toys at the end of the video, and in another the boy got punished for his behaviors. In the punishment condition, the bully was verbally punished by an adult for being aggressive. Not surprisingly, children imitated the behaviors viewed more if they were in the reinforcement condition, compared to the punishment condition (Bandura et al., 1963).

Other research has shown children model the actions of adults even when they are in control of their own rewards or punishments (Bandura & Kupers, 1964). Given the power of vicarious reinforcement within Social Learning Theory, our second hypothesis was largely a replication of this effect, but applied to the context of prosocial behaviors. Specifically, we expected that children who viewed a video with the model being positive-

ly reinforced for helping behaviors and statements would be more likely to imitate those same behaviors and statements, compared to children who viewed videos showing punishment.

Prosocial Behavior and Age of Children

Although the history of research on social learning is strong, there is also a separate and large body of research on spontaneous altruism and/or prosocial behavior in children. Children can show altruistic behaviors and, perhaps surprisingly, are even more likely to do so for people they do not know (Wright, 1942). For example, Maruyama, Fraser, and Miller (1982) found children showed altruistic behaviors by giving Halloween candy to children who were sick in the hospital. According to Wright, children favor helping strangers because “they wish to eliminate any inequality between the stranger and their friend, they would like to gain a friend, and it is a social grace to favor the stranger” (p. 233).

At what age does one fully understand what it means to have altruistic tendencies? Peterson (1983) found there was not a way to predict how likely a child would be to display altruistic behaviors based off of age and sex. Participants in this study were eight boys and eight girls from either preschool, first grade, or sixth grade who listened to brief stories including some kind of helping behavior. When asked to put themselves in the story as a character, and what they would do in each situation, there was no significant difference in responses among different ages and sexes. Supporting this finding, Turner (1948) found altruism did not change over the years in his sample of boys; no age showed more altruism than any other age. However, other research has found conflicting results. For example, Bryan and London (1970) stated, “...children do learn some norm which dictates their aiding others and that allegiance to this norm increases with age until nine or 10 years” (p. 210). These researchers argue until the age of nine or 10 years, people cannot truly understand what it means to be altruistic.

Greener (1999) studied third to sixth graders to understand what being nice to peers looks like at each grade level. Overall, results showed including peers was the most common response to the question(s) “What do boys do when they want

to be nice to someone? What do girls do when they want to be nice to someone?” (p. 352). As age increases, the response of “including strangers” decreases, but the response of “becoming friends” increases. Sharing and caring responses were more salient and stable over the years. Other research (e.g., Carlo, Knight, Eisenberg, & Rotenberg, 1991) has found a correlation between age and displaying prosocial behaviors. Supporting this general trend is research by Kochanska and Aksan (2004), who suggest as children age they internalize prosocial behaviors as part of their conscience.

Perhaps the most relevant model regarding age and the display of prosocial behaviors was introduced by Hay (1994). Hay’s model indicates, in general, a motivation to enact prosocial behaviors is instilled in children progressively through the first year of life, and can be detected in children’s behaviors from approximately age one to age two years. However, Hay also suggested around a child’s second birthday, this motivation begins to decrease. This model was tested by Baillargeon and colleagues (2011), who confirmed at least in some children; those who have displayed prosocial behaviors prior to the age of 41 months may stop exhibiting these behaviors after 41 months. These authors conclude, “These results are consistent with Hay’s model...of prosocial development, according to which children learn to inhibit prosocial behavior during the fourth and fifth years of life” (Baillargeon et al., 2001, p. 238). The present study also focused on the general age range of three to five-year-olds, due to this particular age being important in the development of prosocial behaviors.

It is important to make the distinction between true altruism (i.e., behaviors displayed for purely non-selfish reasons, in which the actor does not expect any reward) and prosocial behaviors that, although positive, may be enacted with expectations for rewards. In the classic Bandura studies, a general theme was children were more likely to imitate behaviors after they had seen a model being rewarded. If children vicariously learn these behaviors may lead to a reward, their choice to perform the behaviors may therefore be due to expecting that reward themselves (an external motivation), not purely due to the perception that the behaviors are “good” in and of themselves (an in-

ternal motivation).

As stated above, whereas past research has focused on imitative aggression in children, and other research has studied how vicarious learning may affect positive social behaviors in adults, little attention has focused on combining these variables to investigate imitative prosocial behavior in children. We hoped to address this deficit, as well as to address the question of whether the display of prosocial behaviors is tied to age. This latter goal led to our third and final hypothesis, that older children would be more likely to show prosocial behaviors (i.e., a positive correlation between age and exhibition of helping behaviors). We believe older children have more understanding of socially acceptable behaviors, and therefore are more likely to imitate those helping behaviors—especially when they have been reinforced.

METHOD

Participants

Participants for this study were 18 children (8 boys and 10 girls) from various daycares and a martial arts school in Northwest and Central Iowa. After receiving permission from the daycare directors and teachers, participants' parents or guardians were given parental consent forms, available in two languages due to the demographics of the local area. Parents provided some basic demographic information for their children; the age of participants ranged from 36 months to 60 months ($M = 50.27$, $SD = 6.82$). Race of the participants was 72% White ($n = 13$) and 28% Latino ($n = 5$).

Independent Variable: Video Conditions

Each participant was randomly assigned to view one of three videos (each one min in duration). In all three conditions, the video began with a female model seated at a table with a variety of toys in front of her in a semicircle on top of a brown table. See the Figure, which is a photograph of how the toys were generally displayed in front of the model in all conditions. The model picked up various toys, spoke to the toys, and moved them in specific ways. The toys in each video were identical and included a plastic giraffe, a Cabbage Patch doll, a yellow plastic Jeep, a small fire truck, a plastic tiger, a plastic polar bear, a snow globe with a cow inside, a stuffed cat, and a stuffed dog. Behind the

model was a white wall with nothing on it.

Reinforcement condition. The video for the reinforcement condition first showed the model behaving in various prosocial ways. The videos were designed to display 20 specific statements and 15 specific actions through various role-playing acts. For example, the plastic Jeep was set up to be lying on its side on the table, next to the fire truck. The model picked up the Jeep with her left hand and fire truck with her right hand, looked at them, then stated, "Oh, look this car has fallen. I'll help it up!" A second example included the model picking up the plastic giraffe with both hands, looking at it, and then stating, "Giraffe your tail is crooked. Let me help that. How do you like your new tail?" A full list of each specific action and statement is available in the Appendix. After the series of helping behaviors, a second female adult appeared on the screen and said, "You played very nicely, thank you. Here's a cookie." The second model presented the first model with the cookie, and the first model smiled.



Figure. Photograph depicting toys as they were generally laid out in front of the model and child participants.

Punishment condition. The video for the punishment condition started with the exact same footage of the model helping the toys (identical to the reinforcement condition; again, see the Appendix for the full list of actions and statements). However, the video was then edited to have a different ending. In this condition, after the final prosocial act with the toys, the second female model appeared and said very sternly, "I told you not to touch the cat and dog." The first model then frowned and bowed her head.

Control condition. The video for the control

condition showed the same model displaying a series of specific behaviors that were similar to the first two conditions, but did not include prosocial behaviors (see Appendix for this list of actions and statements). The video was created to have the same number of statements (20) and actions (15), for coding purposes. For example, in this condition, the model picked up the Jeep with her left hand and the fire truck in her right hand, but then stated, "Fire trucks put out fires. I saw a red Jeep outside." The model also picked up the giraffe with her left hand, but in this video stated, "This giraffe has orange spots. He also has green and purple legs." In the control condition, the video ended after the final playing behavior, with no reinforcement or punishment shown.

Dependent Variables: Imitative Actions and Statements

After participants viewed the videos, they were given time to play with the same toys observed in the video. Children were told they had five min to play with the toys in whatever way they would like, and during this period the children were recorded with a camera placed next to the researcher. The camera was a Flip HD Video camera approximately three in tall and half an in thick), and it was in view of the participant but among other neutral items such as a laptop and textbooks. Later, two coders rated the actions and statements displayed by the participants; importantly, both coders were blind to the participants' experimental condition. Coders had a list of specific actions and statements that had been displayed by the model in each condition (similar to the Appendix), and they recorded how many of those actions and statements were enacted by the children themselves. Similar to Bandura et al. (1961), separate coding occurred for the physical actions and for the verbal statements. In order to be considered a "match," the participants had to either match exactly what the model said or how the model held each item. If the participant repeated a statement or action, it was only counted the first time. Each action or statement was therefore assigned either a dummy coding of 0 (for no match) or 1 (for a match). This dichotomous coding scheme resulted in a possible range of between 0 and 20 for imita-

tion of statements and a possible range of between 0 and 15 for imitation of actions for all three conditions. For the control condition, these measures are simply of imitation in general, whereas in the experimental conditions, these measures are of imitative prosocial behavior.

Procedure

Before conducting the experiment, the researcher set up the video the participant would be watching and the toys so they appeared in the same display as seen in the video. The rooms the participants were in had all other toys removed, so the participant could focus on the experimental toys. Children were run one at a time through the study.

After entering the room, the researcher introduced herself, stated the child would be watching a short video on a Dell laptop screen (15.4 inches), and that the child would get to play with the same toys that he or she saw in the video. The child sat down at the table, and the experimenter sat across the table with the laptop in between them, facing the child. The experimenter then turned on the video for the child to watch (randomly assigned across the three conditions). All three videos lasted approximately one min in duration. Due to the placement of the experimenter directly across the table from the child, she was able to monitor whether each child was looking at the video and was not distracted by anything else in the room. All children appeared to be closely monitoring the video.

After the video had played, the experimenter turned the laptop off and told the child now he or she had time to play with the same toys. While turning the laptop off, the experimenter turned on the video camera. The experimenter also stated she could not play because she had homework to catch up with; this procedure is similar to that of Bandura et al. (1963). After five min, which was timed on a stopwatch, the experimenter told the child it was time to let another child come play with the toys. The experimenter then led the child out of the room. When the child left the room the experimenter turned off the video camera and set up the room to prepare for the next participant.

RESULTS

Due to the factorial nature of the experimental design, several two-way ANOVAs were conducted. The first analysis tested for a main effect of participant sex, a main effect of video condition, and an interaction between these two variables on the dependent variable of imitative behaviors in general (i.e., including the control condition, which did not display prosocial behaviors). For the dependent variable, this test used a combination of all possible imitative actions and statements together. Thus, the possible range was 0 to 35, including the 20 statements and 15 actions displayed in each video condition.

Neither the interaction term [$F(2, 17) = 2.63$, $p = .113$] nor the main effect of video condition [$F(2, 17) = 2.60$, $p = .115$] were significant. However, there was a marginally significant effect of sex on imitative behaviors, $F(1, 17) = 4.55$, $p = .054$. All means and standard deviations are shown in Table 1. Confirming Hypothesis 1, girls were marginally more likely to display imitative behaviors in general ($M = 9.20$, $SD = 3.79$), compared to boys ($M = 5.50$, $SD = 3.59$).

Table 1. Means and standard deviations for all imitative behaviors.

Video Condition	Girls		Boys	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Reward	12.33	4.16	4.33	2.08
Control	6.33	4.16	4.00	3.61
Punish	9.00	1.41	9.50	3.54

Note. Possible range of imitative behaviors is 4 to 79, and includes both imitative actions and statements.

To further test both Hypothesis 1 and 2, additional ANOVA tests were conducted by separating imitative behaviors into strictly prosocial statements or prosocial actions (also removing the control condition from these tests). Using only the punishment and reward conditions, these analyses thus tested for the main effect of participant sex, the main effect of video condition, and the interaction between these two variables on each particular type of imitative prosocial behavior.

For imitative prosocial statements, none of the effects were significant. The main effect of vid-

eo [$F(1,11) = 1.38$, $p = .273$], the main effect of sex [$F(1, 11) = .50$, $p = .500$], and the interaction [$F(1, 11) = .50$, $p = .500$] all indicated that none of these variables influenced the children's likelihood of imitating prosocial statements they had witnessed in the experimental videos. See Table 2 for all means and standard deviations.

Table 2. Means and standard deviations for only imitative prosocial statements.

Video Condition	Girls		Boys	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Reward	1.33	2.31	0.33	0.00
Punish	0.00	0.00	0.00	0.00

Note. Possible range of imitative prosocial actions is 4 to 64.

This finding was not the case with imitative prosocial actions. The main effect of video condition continued to show no statistical significance, $F(1, 11) = 2.13$, $p = .183$, therefore providing no support for Hypothesis 2 (i.e., children in the reward video condition would be more likely to display imitative prosocial actions). However, there was a main effect of sex, $F(1, 11) = 7.34$, $p = .027$, with girls displaying more imitative prosocial actions ($M = 9.86$, $SD = 1.86$) than boys ($M = 6.20$, $SD = 3.70$), again confirming Hypothesis 1. This result is not particularly surprising given the first test of imitative behaviors in general, which also showed the main effect of sex, although a marginal one.

A surprising effect did come from the significant interaction, $F(1,11) = 9.77$, $p = .014$. As seen in the means displayed in Table 3, whereas girls in the reward condition were, indeed, most likely to display the imitative prosocial actions from the videos, surprisingly, boys in the reward condition were the least likely to display prosocial actions. Although researchers expected girls to be more likely than boys to enact prosocial imitative behaviors (hypothesis 1), researchers expected children in the rewarding video condition would be more likely to display these behaviors compared to children in the punishment condition (hypothesis 2). Based on these results, this latter expectation was only true for girls, and boys actually showed the reverse.

The final hypothesis was that older children

would be more likely to imitate behaviors from the videos, across all three conditions. A correlation between age and imitative behaviors in general across all three conditions revealed no significance or support for this hypothesis, $r(18) = .099$, $p = .694$. Further correlations that split prosocial actions from prosocial statements in the two experimental conditions also showed no association with age, both $ps > .300$. Thus, Hypothesis 3 received no support.

Table 3. Means and standard deviations for only imitative prosocial actions.

Video Condition	Girls		Boys	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Reward	11.00	2.00	4.00	1.73
Punish	9.00	1.41	9.50	3.54

Note. Possible range of imitative prosocial actions is 4 to 59.

DISCUSSION

Hypothesis 1 received some support from the results; girls were marginally more likely than boys to display any type of imitative behavior, across all three conditions, and were significantly more likely to display imitative prosocial actions. However, girls were not more likely than boys to display imitative prosocial statements. The lack of sex differences in prosocial statements may be an artifact of a floor effect or restricted range; examining the means in Table 2 reveals almost no children imitated prosocial statements, regardless of condition. This interesting differentiation the children in this study appear to be making between the statements in the video and the actions of the video is unexpected. Fifteen prosocial actions were modeled in the videos, and on average, around eight or nine of these actions were imitated across all four prosocial video conditions.

In addition to the evidence these participants did make a distinction between modeled actions and statements, results also indicated boys and girls reacted differently to the videos. Although girls' imitative actions fell into line with predictions expecting more imitation in the reward condition, boys' imitative actions surprisingly showed the opposite pattern, with more imitative actions in the punishment condition. This unexpected result

could be interpreted in a variety of ways. Perhaps the boys did not fear the punishment they saw at the end of that video because the model was female; previous research has established that imitating models is more likely when the model is the same sex as the individual who viewed his or her behavior (Bandura et al., 1961; Perry & Bussey, 1979). This construct of model similarity is therefore one possible reason why girls followed the expected pattern of imitation, whereas boys did not. Another layer of interpretation comes from the context of altruism and prosocial behaviors; perhaps girls are simply more likely to display prosocial behaviors, because it is a socially acceptable "feminine" behavior (Eagly & Crowley, 1986; Persson, 2005).

However, another very real possibility is simply that the patterns found in our results are tied to the very small sample size in each condition. With only three boys and three girls in each video condition, it is unwise to make any conclusions regarding how generalizable these results may be. The lack of a larger sample also makes it difficult to reach conclusions regarding why Hypothesis 3, regarding age and prosocial behaviors, was nonsignificant. Past research on the association between age and prosocial behaviors has been mixed, as reviewed in the introduction. Additional research is needed to help understand whether age itself is a predictor of prosocial behaviors, or whether age serves as a moderator of other relevant variables, such as cognitive development or personality factors (e.g., extraversion, conscientiousness).

Limitations and Future Research

As noted, one clear limitation to the current investigation is the small sample size. In addition to this concern, the current study was limited in the age range of participants. All the children were between 36 and 60 months (or three to five years of age). In order to fully test Hypothesis 3 (i.e., age and imitation are positively correlated), a wider range of ages would be helpful. Collecting child data is relatively difficult, due to additional concerns regarding ethics, parental consent, and recruiting. Research in this area should also include a wider age range to include children at the age of two and beyond five years of age, as past research has identified these ages as critical to the display of

prosocial behaviors (Baillargeon et al., 2011; Hay, 1994). A wider age range may lead to more detailed data analysis, such as the identification of curvilinear patterns of change.

Another limitation was the consequences at the end of the reinforcement and punishment videos were not exactly matched in terms of degree. In the reinforcement condition, the model received both verbal praise and the tangible prize of a cookie. Alternatively, the model in the punishment condition received only verbal punishment. In order to more closely match the degree or valence of the two conditions, future research could show the model holding a cookie which is then taken away by the second model. In this scenario, the second model might say a statement such as, "I told you not to play with the cat and the dog. Now you cannot have this cookie." The experimental room might also display a large bowl of cookies on the table, further making the possible reward or punishment salient and realistic to the participants.

Past research on imitation in children has typically used models of both sexes (e.g., Bandura et al., 1961; Bandura et al., 1963; Perry & Bussey, 1979). Sex, age of the model, and other demographic variables will likely have an effect on any form of imitation in children's behaviors. This situation was another limitation of the current investigation: lack of a male model. In the present study we found boys were more likely than girls to imitate prosocial actions in the punishment condition. As previously discussed, this result may be in part to boys being less likely to display prosocial behaviors in general, or it might be due to the model being female in all conditions (i.e., a similarity effect). Future research should include three additional conditions with male models in order to fully control for all possible predictor variables.

A final limitation is the lack of a manipulation check by the researchers. The purpose of a manipulation check would be to examine if the children were truly attending to the video clip. Although the child watched the movie clip, the first author watched each child. Although toys were placed in front of the child, the researchers told the child to pay attention to the short video clip and then they could play with the toys just like in the video. Children appeared to attentively watching the video, and the fact that in all conditions chil-

dren imitated some of the behaviors they had seen in the videos brings evidence to this assumption. However, without a manipulation check, we cannot be sure. In order to avoid this limitation, future researchers could ask the children a few short questions between the end of the video and the start of the five min playing period.

Conclusion

With current research, we attempted to further the extant literature on imitative behaviors in children by specifically investigating the impact of modeling on prosocial behaviors. Although many studies have been completed regarding the conditions in which children model negative behaviors, such as aggression (e.g., Bandura et al., 1961; Bandura et al., 1963; Eron, 1987; Singer & Singer, 1981), less attention has focused on whether they will also model positive behaviors. Results indicated some trends supporting the idea that girls are more likely to imitate behaviors in general (a marginal effect), and particularly more likely to imitate prosocial actions. However, conclusions drawn from the current study must be cautious, due to the small sample size. Whereas much media attention has focused on ways in which the next generation is learning about sexuality, violence, or aggression through modeling, perhaps more attention should be placed on how society could teach positive behaviors as well.

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APPENDIX

List of specific behaviors and statements in each video condition

Reward and Punishment Conditions

Model at the stuffed cat and dog→

Statement1 [holding cat]: My head hurts.
 Statement2: [holding dog]: Here let me make it better.
 Statement3: [makes kissing noise]
 Statement4: Thank you dog that feels better.
 Statement5: You're welcome cat!
 Behavior1: Dog in right hand
 Behavior2: Cat in left hand
 Behavior3: Moves the dog and lets it kiss the cat

Model at Indiana cow snow globe→

Statement6: Cow, are you thirsty today?
 Statement7: There, you're not thirsty anymore.
 Behavior4: Snow globe in right hand
 Behavior5: Shake the snow globe

Model at tiger and polar bear→

Statement8: Help I can't get up.
 Statement9: Oh, I'll come help you polar bear.
 Statement10: Thank you tiger.
 Statement11: You're welcome polar bear.
 Behavior6: Tiger in right hand
 Behavior7: Polar bear in left hand
 Behavior8: Moves tiger to help polar bear up

Model at fire truck and Jeep→

Statement12: Oh, look, this car has fallen.
 Statement13: I'll help it up.
 Statement14: Thank you fire truck.
 Statement15: You're welcome car.
 Behavior9: Fire truck in right hand
 Behavior10: Jeep in left hand
 Behavior11: Moves fire truck to Jeep
 Behavior12: Fire truck "picks up" Jeep

Model at baby→

Statement16: And this baby has fallen.
 Statement17: Here, baby, there you go
 Behavior13: Picks baby up in right hand
 Behavior14: Flips the baby facing up

Model at giraffe→

Statement18: Giraffe your tail is crooked
 Statement19: Let me help you with that
 Statement20: How do you like your new tail?
 Behavior15: Fixes giraffe's tail with both hands

Control Condition

Model at the stuffed cat and dog→

Statement1: This dog is long.
 Statement2: This cat has a lot of stripes.
 Statement3: I wonder if I can count them...one, two three.
 Statement4: I like the dog, he's soft.
 Statement5: Cats go "meow."
 Behavior1: Dog in right hand
 Behavior2: Cat in left hand

Model at Indiana cow snow globe→

Statement6: I didn't know cows live in Indiana.
 Statement7: I wonder where Indiana is.
 Statement8: Cows go "moo."
 Behavior3: Snow globe in right hand.
 Behavior4: Shakes snow globe.

Model at tiger and polar bear→

Statement9: This tiger is orange and black.
 Statement10: This polar bear is white.
 Statement11: Tigers live in Asia.
 Statement12: Polar bears live in the Arctic.
 Behavior5: Tiger in right hand.
 Behavior6: Polar bear in left hand.

Model at fire truck and Jeep→

Statement13: Fire trucks put out fires.
 Statement14: I saw a red Jeep outside.
 Statement15: Firemen ride in fire trucks.
 Statement16: Jeeps go "vroom vroom."
 Behavior7: Fire truck in right hand
 Behavior8: Jeep in left hand
 Behavior9: Moves fire truck around
 Behavior10: Moves Jeep around

Model at baby→

Statement17: Baby, your shirt is yellow.
 Statement18: And your shorts are green, baby.
 Behavior11: Baby in right hand
 Behavior12: Flips baby onto back to examine back
 Behavior13: Makes baby fly in the air

Model at giraffe→

Statement19: The giraffe has orange spots.
 Statement20: He also has green and purple legs.
 Behavior14: Giraffe in right hand
 Behavior15: Pushes button on bottom of giraffe

Judgments of Memory: Do the Number and Presentation of Cues Available Help?

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ABSTRACT—In this experiment, participants were given word-pairs, such as LOST-FOUND, and asked to judge those word-pairs for their semantic or associative strength. Semantic strength is how strongly words have the same meaning; whereas associative strength denotes how often words are used in the same context. Although participants report these tasks to be easy, previous research shows their judgments of strength are fairly poor when compared to database answers (Maki, 2007a). To aide participants, repeated cues were given the first word in a word-pair, similar to a previous study (Maki, 2007b). To examine the effect of these repeated words, some participants saw all cue words grouped together, whereas other participants saw cue words mixed. Participant judgments were found to be better than random guessing. Both semantic (Maki, McKinley, & Thompson, 2004) and associative (Nelson, McEvoy, & Schreiber, 2004) database answers were used to examine which memory source, semantic or associative, helped participants with the task and the interaction with mixed or blocked repetitions of cues.

Keywords: Judgments of Memory, Associations, Semantics, Memory

INTRODUCTION

Memory was once thought of as one solid cohesive entity, but that thinking is no longer supported. Memory is now divided into multiple systems (Schacter & Tulving, 1994). The focus of this paper is on the differences between two types; associative and semantic memory. Associative memory is based on the relationships of words that occur together frequently in text and speech, such as OLD-NEW, and is thought to be episodically based (Tulving, 1993). Associative memory is also dependent upon the culture in which individuals are immersed. An example of cultural influences on the associations made between words is ROCK-ROLL, an association that would not exist if not given its notoriety in American popular culture. Associative memory is normally studied through tasks such as word norming. For example, Nelson et al. (2004) compiled a database of associative word norms, all of which are scaled in percentages to determine how commonly words are paired together in speech and text.

The Nelson et al. (2004) database of free

association norms is a set of cues, their targets, and the probability of those cue-target pairings. Associative links between cues and targets were determined by instructing participants to respond to a cue with the first word (target) that came to mind. The frequency of that cue-target response was then recorded to determine the forward strength (abbreviated: FSG). Therefore, forward strength is the probability of a cue eliciting that target as the response. An example of a possible cue-target associative pair is LOST-FOUND (FSG = .75) or CAT-MOUSE (FSG = .25). The backward strength for each associative cue was also recorded, which is the probability of the target for a specific cue eliciting that cue. For example, the word-pair CAT-MOUSE have a backward relationship of MOUSE-CAT (BSG = .54). The scale for forward and backward strength ranges from 0-1, with 0 being completely unrelated and 1 indicates the high probability of a target when shown the cue word.

Semantic memory, on the other hand, is generally described as a mental dictionary or the set of facts and world knowledge we have obtained

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through life experiences (Tulving, 1993). For instance, we know that CATS and DOGS both have fur, tails, and four-legs, but they make very different noises. Based on this information, concepts can be measured on how related they are, or the semantic distance between pairs. Semantic distance is conceptualized as the overlap in meaning between words. Therefore, CAT and DOG would have a high overlap because they have many of the same basic features. Database information on word relationships can be collected in the same way as with associative norms, namely with participants listing word meanings and features (McRae, Cree, Seidenberg, & McNorgan, 2005). Alternatively, the online dictionary WordNet's hierarchical structure was examined for the distance between words (Maki et al., 2004). For example, CAT would be connected to the concept of ANIMAL, which would in turn be connected hierarchically to the concept of LIVING THINGS. Jiang and Conrath (1997) created a distance scale for this hierarchy ranging from 0-32. A score of zero means that the words can be found on the same tier and are very related (RANK-RATE or POLICE-LAW), whereas a score of 32 means the words are extremely unrelated (CELLO-JELLO).

One use of these databases is to examine participants' judgments of association between word pairs. In several judgments of associative memory (JAM) experiments, Maki (2007a) gave participants a cue-target pair with instructions on how to rate them. Participants were instructed to rate how often college students would give the second word (target) if given the first word (cue). For example, if participants were given OLD-NEW, they should rate the pair around "50," because 50 people out of a 100 would list NEW when shown OLD. By using this technique, Maki was able to view some significant trends with regard to participants' abilities to make associative judgments. When compared to database information (forward strength) from the Nelson et al. database, JAM ratings were both elevated and insensitive to the differences between low and high frequency pairs. Sensitivity was shown in the slope of the function relating forward strength to JAM. The slopes of the JAM function were different from zero, but significantly lower than perfect (slope = 1.0) at slopes of 0.2 - 0.3. Participant's ratings were then compared

with semantic relatedness database scores (WordNET), and the JAM function was not affected by semantic relatedness. Thus, participants are able to use some information about word frequency from memory (otherwise slopes would not significantly differ from zero) and are able to ignore competing semantic memory information when asked to make an associative judgment in the JAM task.

Assessments were also done to determine if training could improve JAM (Maki, 2007b), specifically, if training would influence bias (the intercept of the JAM function) or sensitivity (the slope of the JAM function). Several participant groups were given feedback training on associative judgments in which they were shown JAM performance. The trained groups were less biased in their judgments than were the untrained groups, but training did not affect the slope of the JAM function when all participants were tested on new word-pairs. In short, participants were able to adjust their judgments when given feedback, but they showed a clear inability to transfer their training to new word pairs. As with Maki's (2007b) research, Koriat and Bjork (2006) have also found that the JAM function was resistant to several different manipulations, such as varying study-test conditions.

Maki (2007b) also tested the effect of multiple targets for the same cue on judgments, which is the main concern of this research study. In his experiment, two groups of participants were shown a cue and four targets associated with that cue. Participants were asked to rate the cue-target pairs through self or other reference. However, this distinction did not change the JAM function. For the cue four-target pairings, judgments were restricted so that the total of the four pairs' ratings must equal 100. Maki found that by limiting the numerical ratings for the cue-target pairs lowered the numerical ratings given (hence, bias), but the slope of the JAM function remained shallow. Even with this rating constraint, participants still showed bias towards overestimation in their judgments with regard to the cue-target pairs' forward strength. Therefore, it appears that people have difficulty judging their context-based memory, even when experiments are designed to improve judgments. While biased, it is important to note that these judgments are still better than random guesses as

slopes would not differ significantly from zero.

In comparison to judgments of associative memory, the overlap in semantic features can correspondingly be judged by participants to see if they show the same insensitivity and bias. For example, Maki, Krinsky, and Muñoz (2006) asked participants to provide estimates of the extent that they felt the two concepts shared features. Results showed participants were able to judge semantic relatedness with a high inter-rater reliability, as raters showed remarkable agreement as to which pairs shared many, few, or all features. Their mean ratings were shown to accurately predict semantic dictionary relationship and did so significantly better than other database norms.

The present study combined the experimental paradigms mentioned above to examine differences in memory judgments of strength. First, participants completed both an associative judgment task (JAM) and a semantic judgment task on different word-pairs in one experiment, so comparisons between judgment types could be made. Next, we examined the effect of multiple targets with repeated cue words. Because no research to date has shown the effect of repeated cues on semantic judgments, participants were randomly assigned to trial conditions where repeated cues were shown together (blocked) or mixed throughout the experiment (mixed). The blocked condition mimics Maki's (2007b) experiment by grouping repeated cues with their targets, whereas the mixed condition will examine if multiple targets throughout the experiment will impact judgments. Their judgments were then compared to the database scores for association (Nelson et al., 2004) and semantics (Maki et al., 2004) to examine judgment performance. Matching scores (i.e., associative judgments to associative database) were used to examine how well participants are able to judge the right memory connections. Conversely, non-match scores (i.e., associative judgments to semantic database) were used to examine interference from the opposing memory connection. Participant sensitivity was examined by testing if slopes were greater than zero, indicating that they could judge memory connections better than guessing. Experiment hypotheses are listed below.

Hypotheses

- Hypothesis 1: Block and mixed trial conditions will show different patterns of judgment ability across semantic and associative judgments.
- Hypothesis 2: Participant's judgment scores will be significantly related to the database scores in match conditions (i.e., semantic judgments-semantic databases, associative judgments-associative databases). This hypothesis examines if participants are sensitive to the differences in associative or semantic relatedness when judging those relationships.
- Hypothesis 3: If our study replicates previous research (Buchanan, 2009), associative database scores will be related to semantic judgments, but semantic database scores will not be related to associative judgments (i.e., the non-match condition). This hypothesis examines the extent to which participants rely on the opposite memory information they are not being asked to rate.
- Hypothesis 4: If Hypothesis 1-3 are supported, we will examine the strength of judgment beta weights across mixed and blocked trial conditions as a post hoc test. First, Hypothesis 1 will examine if differences across experimental conditions occurred. If supported, Hypothesis 2 and 3 examine if judgments are better than participant chance guesses (i.e., zero). This hypothesis will examine the non-zero judgment combinations to portray which condition (blocked or mixed) participants were able to perform more accurately.

METHOD

Participants

Participants (N = 102) were recruited from the undergraduate participant pool at a large southern University for course credit. Their age range was approximately 18-24 years old. Power analyses indicated approximately 82 subjects were needed for an $\alpha = .05$ and $\beta = .80$.

Apparatus

The computers used for the experiment in-

cluded IBM clones, Dells, and HP personal computers. The computers all had 15-inch monitors and were set to a display rate of 60 Hz.

Materials

Associative Pairs. Associative pairs were selected using the Nelson et al. (2004) free association norms. Associative word pairs were assembled based on the cue forward strength, which is the probability that the first word shown (cue) will cause people to think of the second word shown (target). Word-pairings were selected based on the following procedure:

- a. All cues with more than four cue-target pairings were selected from the database. For example, COMPUTER has 30 associated targets, such as KEYBOARD, GAME, and PROGRAM.
- b. A random set of 25 cue words were chosen from the list created above. These cues were sorted by their target forward strength. Therefore, COMPUTER targets would be ordered PROGRAM, KEYBOARD, and GAME due to their forward strength probabilities.
- c. The top four strongest forward strength cue-target pairs from these sets were used.

By selecting 25 cue words with four targets each, we created 100 associative judgment pairs.

Semantic Pairs. We used the same procedure described above to create the semantic judgment pairs with one exception:

- a. Cues with at least four related targets were selected from the Maki et al. (2004) database of semantic dictionary relationship. For example, ACHE would be related to HURT, PAIN, HEAD, and BACK.
- b. A second random set of 25 of cue words were chosen from the list created in step 1, so that none of the cues overlapped the associative cues. These cue-target pairs were sorted by their semantic dictionary strength. ACHE is most related to HURT, followed by PAIN, then HEAD, and BACK.
- c. Finally, the top four semantic cue-target relatedness values were used.

This selection procedure created 25 cue words with four targets each, thus generating 100 semantic judgment pairs.

Stimuli. All cue-target pairings were unique for both the 100 associative judgment pairs and 100 semantic judgment pairs. However, 25 of the target words repeated (e.g., SOUR-GRAPE and VINE-GRAPE). Target words were allowed to repeat because we decided to use the strongest associative and semantic database values. Each cue-target pair has a different relatedness value (SOUR-GRAPE should be rated low for association and semantics, while VINE-GRAPE should be rated high for association and semantics), which should minimize the effect of repeated target words.

Procedure

Participants were brought into the lab and asked to sign a consent form. They were given a participant number and placed at a computer. Each participant was randomly assigned to one of two trial conditions: mixed or blocked. Participants who were assigned to the mixed trial condition were shown the set of cue-target pairs in a randomized order that varied from subject to subject. Participants who were assigned to the blocked trial condition were given the set of cue-target pairs in a specified order. For the blocked trial condition, cue words were first randomized using Microsoft Office Excel's random number generator. Then the matching target words were randomized within those cues. Whereas the cues and targets were randomized into blocks of cues, the blocked order did not change across participants. Participants were then randomly assigned to rate associative or semantic judgments first, and this order was counterbalanced across subjects to control for judgment order effects.

Once they were seated and the program was started, they were given instructions on how to judge the associations or semantics of the word pairs. They were given 15 word pairs as practice for rating the cue-target pairs. In the associative judgment condition, participants were asked to rate how many people out of 100 would say the second word (target) if shown the first word (cue). For example, if shown LOST-FOUND, participants were to rate the number of times someone would say FOUND, if given the word LOST. The judgment

scale was based on a scale from 0-9, where 0 indicated 0 to 9 people, 1 indicated 10 to 19 people, etc. For the semantic judgments, participants were asked to rate the cue-target pairs on how much their dictionary definitions overlapped. The judgment scale was a similar 0-9 scale; however, with this scale a rating of 0 meant that the word pairs had no semantic overlap, a rating of 3 meant that the word pair had some semantic overlap, and a rating of 9 meant that there was complete semantic overlap. Participants rated the 100 judgment pairs for each associative and semantic block.

Word-pairs were manipulated so that each cue-target pairing was rated in either the semantic or associative judgment condition, but not both for one participant. Across participants, cue-target pairs were rated in both conditions. Judging the same cue in both associative and semantic judgment pairs allowed the associative and semantic context of that cue to be examined without having a single individual judge the same cue in both contexts, thus counterbalancing each judgment made on an individual cue. Once a participant had completed the experiment, they were debriefed and instructed that they would receive course credit in approximately one week for their participation in the experiment.

Design

The procedure for this experiment results in a 2 (group: mixed, blocked) X 2 (judgment type: associative, semantic) X 2 (database match: match, non-match) design. The group independent variable was between subjects, as participants only rated word pairs in the blocked or mixed trial condition. The judgment type independent variable was within subjects because participants performed both the semantic and associative judgment rating tasks. Finally, the database match independent variable was within subjects. Participant ratings for associative judgments were compared to both associative and semantic database scores and vice versa for semantic judgments. The dependent variable calculated was the standardized regression coefficient (beta) for each judgment and match combination (matches: associative judgment – associative database, semantic judgment – semantic database; non-matches: associative judgment – semantic database, semantic judgment – associa-

tive database). The standardized regression coefficient indicated how well a participant was able to judge word pairs for their associative or semantic relationship. Scores close to zero indicate participants are not able to discern the difference between no to little relationship and high relationships (little sensitivity), whereas scores close to one indicate participants are able to judge the different relationships in word pairs (high sensitivity).

RESULTS

The overall subject pool contained 102 participants. Forty-eight individuals were assigned to the blocked-cue group, however data from two were eliminated for failing to follow instructions. Fifty-four participants were assigned to the mixed-cue condition, which made the total number of participants in this experiment $N = 100$. In all analyses, data were screened for statistical assumptions and multivariate outliers.

Hypothesis 1 – Group Differences

Participant judgments were compared to the associative and semantic database scores for each judgment type. Using the database norms, we calculated the standardized beta weights for judgments matching conditions (i.e., associative database-judgment, semantic database-judgment) and for non-matching conditions (i.e., semantic database-associative judgment, associative database-semantic judgment). These standardized weights give an indication of how well participants were able to discriminate between word-pairs with different strength relationships (low versus high), where larger beta weights portray better judgment performance. We expected to find blocked and mixed conditions would show different patterns of judgment weights.

A 2 (associative versus semantic judgments) by 2 (database match versus non-match) by 2 (blocked versus mixed condition) mixed factorial ANOVA was used to analyze the data. First, the main effect of judgment type was significant, $F(1,98) = 67.753, p < .001, \eta^2 = .409$. Overall, participants were better at semantic judgments ($M_{beta} = 0.107, SE > 4.459$) than associative judgments ($M_{beta} = 0.065, SE > 4.458$). The main effect of the matching database to judgment was significant, $F(1,98) =$

109.051, $p < .001$, $\eta^2 = .527$. Participants performed better in the match conditions ($M_{beta} = 0.049$, $SE > 0.017$) than the non-match conditions ($M_{beta} = 0.007$, $SE > 4.456$). Finally, the blocked versus mixed between groups main effect was not significant, $F(1,98) = 1.435$, $p = .234$, $\eta^2 = .014$.

All three of the two-way interactions were significant: judgment type and blocked or mixed condition, $F(1,98) = 11.275$, $p = .001$, $\eta^2 = .103$; database match and blocked or mixed condition, $F(1,98) = 6.750$, $p = .011$, $\eta^2 = .064$; judgment type and database match, $F(1,98) = 6.358$, $p = .013$, $\eta^2 = .061$. However, the three way interaction between judgment conditions, database match, and blocked or mixed conditions was significant, $F(1,98) = 4.522$, $p = .036$, $\eta^2 = .044$. Consequently, because the three-way interaction was significant, we analyzed only this interaction. First, Hypotheses 2 and 3 were

examined as a post hoc analysis, where match condition beta weights were expected to be greater than zero and non-match condition beta weights were expected to be greater than zero in the associative judgment condition. If beta values were zero, then participants could not use the extra cues to judge the relationship between words. We analyzed this data separately for the mixed and block conditions, outlining the different pattern of results from Hypothesis 1. We tested each database match by trial condition combination against zero, resulting in eight post hoc t-tests. Therefore, we used single sample t-tests with a Bonferroni correction experiment-wise to control for Type 1 error rate. The corrected Bonferroni alpha was set to $\alpha = .006$, which kept $\alpha < .05$ for eight comparisons experiment-wise. Average beta weights are shown in Figure 1.

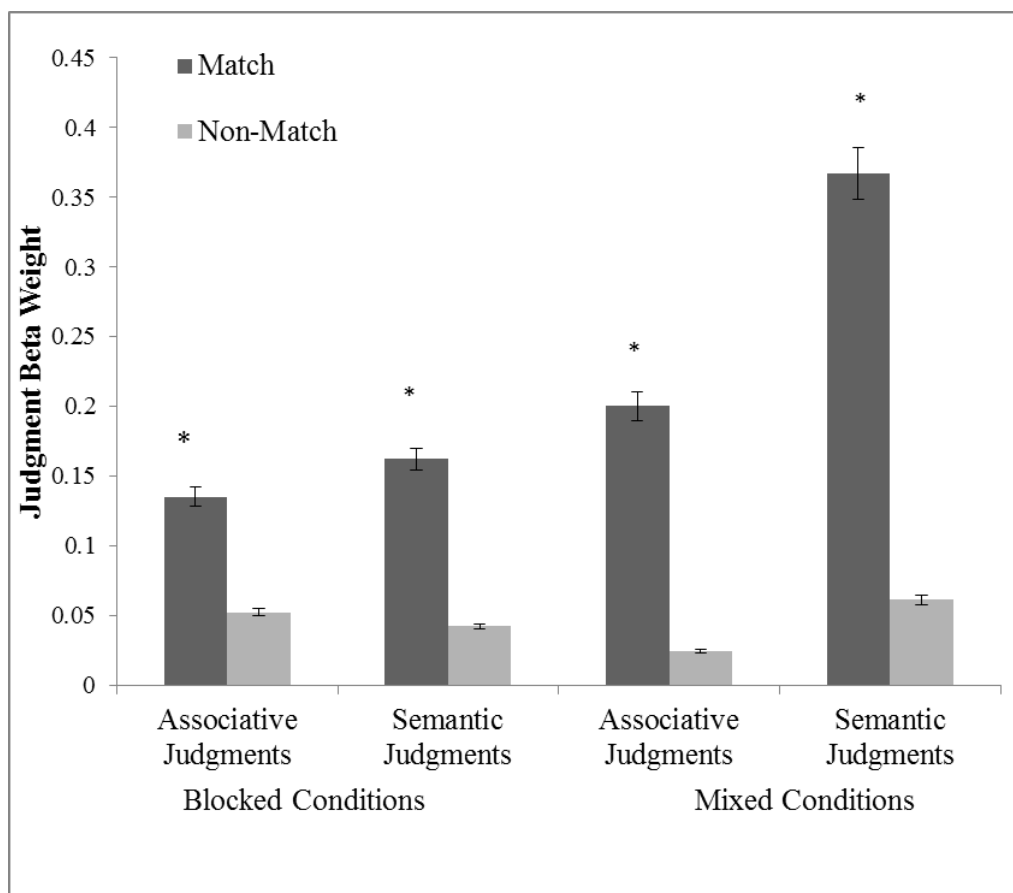


Figure 1. Associative and Semantic betas for each judgment condition averaged across subjects. Larger beta weights indicate better judgment ability. Match conditions are when judgment type and database comparison match. Error bars are standard error. Starred values represent beta values significantly greater than zero.

Hypothesis 2 – Database Match Condition Performance

Mixed Trial Condition. As seen in Figure 5, both match conditions were significantly greater than zero, supporting our hypothesis. Associative judgments compared to the associative database scores were greater than zero, $t(53) = 7.452, p < .001, d > 6.665$. Semantic judgments compared to semantic database scores were significantly greater than zero as well, $t(53) = 10.287, p < .001, d > 3.070$. When multiple cues were available (i.e., seeing the same first word several times) and mixed together, participants were able to judge word-pairs better than random guessing.

Blocked Trial Condition. The same pattern of results was found for the blocked trial condition. Associative judgments compared to associative database scores were significantly greater than zero, $t(45) = 4.520, p < .001, d > 5.78^1$, and semantic judgments compared to semantic database scores, $t(45) = 3.266, p = .002, d > .^318$. Therefore, blocked multiple cues helped participants judge word-pairs better than chance estimation, which implies participants are able to judge specific memory relationships as described in the introduction. The differences in judgment beta weights between blocked and mixed trial conditions will be examined Hypothesis 4 as described above.

Hypothesis 3 – Database Non-Match Condition Performance

Mixed Trial Condition. Analysis of beta weights for opposing judgments and database scores (i.e., associative judgments to semantic databases) illustrated that participant judgments are not influenced by other memory information when making judgments. With the Bonferroni correction, associative judgments related to semantic databases were not significantly different from zero, $t(45) = 2.605, p = .012, d > .^111$. Semantic judgments related to associative database scores were not greater than zero, $t(45) = 1.521, p = .135, d = .453$.

Blocked Trial Condition. The blocked trial conditions showed the same results as the mixed trial conditions, where the opposing memory information did not influence participant judgments. Associative judgments related to semantic databases was not significant, $t(53) = 1.026, p = .309, d$

$= .306$, as well as semantic judgments related to associative databases, $t(53) = 2.264, p = .028, d = .675$ with the Bonferroni correction. Therefore, this hypothesis was not supported.

Hypothesis 4 – Differences Across Trial Conditions

Hypothesis 1 indicated an interaction between judgments, match conditions, and trial conditions. Hypothesis 2 and 3 showed that participants are able to judge memory connections in blocked and mixed trials when compared to the matched database scores. This hypothesis examined the interaction further to indicate if one of the trial conditions showed better judgment scores. Because non-match database beta weights were not significantly different than zero, we only examined the match database beta weights comparing blocked to mixed conditions. Trial condition did not differ for associative judgments, $t(98) = 1.615, p = .110, d > 4.76^0$. Therefore, participants are able to make associative judgments about the use of words together with multiple cues, but the presentation of the cues (together or random) did not impact their performance. However, cue presentation did change semantic judgments, where participants did better in the mixed condition (see Figure 1 for mean beta weights) over the blocked condition, $t(98) = 3.416, p = .001, d = 0.690$.

DISCUSSION

Results from our experiment partially support our hypothesis. First, we found participants' judgment scores, when compared to matching or non-matching databases, were significantly different across mixed and blocked trial conditions (Hypothesis 1 – interaction). As a follow up, we first analyzed if these judgments were better than arbitrary guesses on a Likert scale. Or, more simply, can participants accurately perform the task? Using single sample t -tests, we found participant judgments were better than zero when examining matching judgment and database conditions (Hypothesis 2), but not when examining non-matching judgment to database conditions (Hypothesis 3). Lastly, we assessed if the order of the word-pairs affected participant judgment performance. This analysis revealed t mixing cue words did not change associative judgments, but semantic judgments were improved in the mixed

trial conditions over blocked trial conditions (Hypothesis 4).

Maki's (2007a) and Buchanan's (2009) previous studies on judgments were supported by our findings in Hypothesis 2. Maki showed associative judgments are related to the associative database scores, and participants are able to judge word-pairs related by context in memory better than guessing. Buchanan's research portrayed the same results for semantic judgments, where judgments are related to semantic databases. Therefore, this hypothesis was supported. However, Buchanan also showed opposing (as measured by the databases, the non-match conditions) influences on judgments. This prediction was tested in Hypothesis 3 but was not supported. Participants were able to ignore other memory information when instructed to judge only one type of memory – context or meaning. This mechanism could be part of activation suppression, which was suggested by Hutchison and Bosco (2007). Activation suppression occurs when the activation of word linkages is suppressed due to the tasks demands. Each judgment task only requires the use of corresponding information (associative - associative, semantic - semantic); therefore the opposing information activation was dampened during that judgment condition.

Finally, we found partial support for Hypothesis 4, which examined the differences in judgment ability across mixed trial and blocked trial conditions. Maki (2007b) showed participants' judgments did not increase when they were shown four cue-target pairs with the same cue word (e.g., ACHE with HURT, PAIN, HEAD, BACK). In his experiment, participants saw all four cue-target pairs together and made associative judgments on the set of word-pairs. In our experiment, judgment ability was the same in mixed and blocked conditions for associative judgments. This result showed participants were approximately equal at estimating context relationships from memory, regardless of the order the word-pairs were presented.

However, semantic judgments were better in the mixed trial conditions. Participants were better at judging word meaning information when word-pairs were mixed so that the same cue words did not repeat in order. The reason behind this phenomenon could be related to the structure of asso-

ciative and semantic information in memory. When trying to judge meaning, concept features are activated (i.e., DOG has the feature BARK, TAIL). Then the features are compared for correspondence. When word-pairs were shown together, the previous word processing could interfere with the new word processing for the current judgment. As more words are related in memory, the processing of those concepts slows (Anderson & Reder, 1999) and putting all cues together hindered semantic judgments. In the mixed trial conditions, cue words were randomized, and therefore, the previous word-pair would not interfere with the current word-pair judgment process.

The experiment presented here showed judgments of associative and semantic memory are comparable to previous research even with presentation of four cue-target pairs. Overall, judgments are task appropriate: greater than chance when judgment type is matched to database information, and essentially zero when compared to the opposing database information. Activation suppression is suggested to be a mechanism that aids in the judgment process by creating task appropriate processing. Furthermore, context memory connections (association) were judged equally well in blocked and mixed conditions, indicating that judgments are not affected by word order. Judgments on word meaning (semantics) are positively influenced by mixing words, possibly because the previous information does not interfere with the current task. Further research could examine why differences are found with semantic judgment conditions and not associative judgment conditions, which would not only elucidate judgment processes, but the structure of the underlying memory network as well.

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Motivational Levels & Personality Traits: Exploring Choices in Specific Types of Physical Activity

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ABSTRACT—Physical activity is an outlet for stress and anger for many individuals, whereas for others it is a way to socialize and interact. The purpose of the current study was to examine the differences between motivational levels and personality traits with regards to specific physical activities. A total of 44 participants were recruited from a recreation commission and given a short survey to complete after engaging in the physical activity of their choice. Specifically, the Ten Item Personality Scale (Gosling, Rentfrow, & Swann, 2003) and the Intrinsic Motivation Inventory were administered (Ryan, 1982). Results indicated personality variables did vary by selected physical activity, although not by sex. In addition, perceived enjoyment varied by physical activity and gender. Finally, relationships between motivation and demographic variables were found. These results are discussed in light of increasing participation rates in physical activities to improve mental and physical well-being in individuals of all ages.

Keywords: Zumba, Motivational-Levels, Personality Types, Exercise, Physical Fitness, Personal Training, Fitness Class, Group Exercise, Agreeableness, Fitness Benefits

INTRODUCTION

Research consistently notes the physical and mental benefits of regular exercise. Both anaerobic and aerobic physical activity have been found to improve overall health and well-being, and consequently adults are recommended to participate in at least 30 minutes of it every day (Blumenthal & Edenfield, 2011). In addition to traditional exercise, routine physical activity is encouraged as well. Examples include speed walking, car washing, and gardening (Ströhle, 2008). To better understand the role of exercise, relevant literature is reviewed in this paper. This review will include a discussion of the impact of exercise on moods, the use of exercise with specific populations (e.g., elderly, individuals with depression, individuals with chronic pain), and important factors related to the exercise experience such as characteristics of a fitness leader, music, and group size.

Much research documents physical behavior improves individuals' moods, creating a "feel good effect." Studies on this particular "feel good effect" date back to over 2,500 years ago (Blumenthal &

Edenfield, 2011). In a related study, a total of 39 women participated in a 12 week, 50 min aerobic exercise class program. Researchers found mood increased after the program and personality traits changed toward better personal adjustment, including a decrease in trait anxiety and an increase in self-efficacy (i.e., belief one is capable of performing in a certain manner to attain certain goals) and optimism (Guszkowska & Sionek, 2009). Physical activity can also be of benefit to specific populations. For example, physical activity can give someone a feeling of accomplishment and for the elderly in particular, a reason to live. The sense of accomplishment and feel-good sensation can make the elderly feel successful, which is also supported by theories of aging regarding activity and continuity (Kurz, Melzer, Ruch, Sarid, & Shahar, 2010). Similarly, physical activity can even be suggested as a potential therapy for depression and anxiety. Exercise is often suggested as an add-on therapy for individuals who experience depression (Ströhle, 2008). Although it is not used as an independent therapy, and the affects from it may wear

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off over time, it is used to decrease the worsening of depression because sedentary people are more apt to become depressed in the first place (Blumenthal & Edenfield, 2011).

A specific form of physical activity, dance therapy, has been effective in decreasing stress hormones for those individuals with chronic pain. When 36 women diagnosed with fibromyalgia participated in a 14-month study that consisted of 6 months of treatment and 8 months of follow-up, dance therapy was more effective than numerous regular therapy sessions in reducing stress and pain (Anderberg, Bojner-Horwitz, & Theorell, 2003). Another specific form of physical activity, aerobic exercise, has been found to improve self image, self-esteem, physical condition, and an evaluation of the environment for middle-aged women. Hos (2005) recruited 25 participants who were put in a year-long aerobic exercise program (experimental group), whereas 28 participants were not (control group). Self-esteem and self-image were tested various times within the two groups using the Rosenberg Self-Esteem Scale and Tennessee Self Image Scale. Results indicated tension and anxiety were found to decrease during physical activity, whereas calmness increased. Thus, this researcher concluded physical activity, as a whole, can improve the physical and mental well-being of specific populations.

In addition to research exploring how exercise can benefit different populations, researchers have investigated how specific factors impact the exercise experience. First, it has been found enjoyment of physical activities in general could be impacted by many factors, not just the mere performance of the physical activity. For example, research demonstrates individuals are more committed to an activity when the fitness leader: (a) displays a positive attitude, (b) focuses on the particular group assignment, (c) develops a relationship with different individuals within the group, and (d) is committed to providing the best service possible. As a result, the authors indicate that fitness leaders should use team-building activities to provide a more cohesive workout experience (Carron, Loughead, & Patterson, 2008).

Next, studying music's effect on the brain during exercise has been the focus of several recent studies. For example, previous research shows

an adequate music selection during exercise can enhance performance and mood (Abel, Askew, Schneider & Strüder, 2010). The effects of music preference and exercise intensity were studied with regard to exercise enjoyment, perceived exertion, and attentional focus. Specifically, 200 participants were given one of three music preference conditions to listen to while walking/running on a treadmill at various speeds for 20 min. Results found participants who enjoyed and focused on the music while engaged in the physical activity displayed higher levels of enjoyment (Dyrlund & Winger, 2008). Researchers have also investigated the intrinsic (i.e., occurring wholly within or belonging wholly to a part of the body) and extrinsic (i.e., coming or operating from outside) brain patterns finding there is a strong relationship between the two during physical activity (Abel et al., 2010).

Finally, enjoyment of physical activity may also be influenced by the group size of the physical activity. Brawley, Carron, and Widmeyer (1990) conducted a study with a total of 47 fitness classes varying in size from 5 to 46 participants to determine the relationship between group size and behavior. Although what is considered a "small" and "large" group size can vary from person to person, results indicated individuals' evaluation of a class was influenced by their perspective of the class size. For example, concentration and awareness, along with the ability to retain information, is more likely to be present in either large or small exercise classes, rather than medium size classes. In addition, small and large classes are preferred over medium classes due to the compactness and amount of time available for social interaction. When classes are small, the relationships are more personal, and in large classes there can be a group mentality that takes place and makes the size of the group feel more comfortable.

Because physical activity is such an important factor for a person's well-being, it is ironic that more than half of American adults are not involved in more than minimal physical activity. Long-term commitment to exercising is not likely in the United States, where 25% of the population is mostly sedentary. Even those in physical rehabilitation programs, usually due to health reasons, are likely to discontinue physical activity after six months (Blumenthal & Edenfield, 2011). To better

understand this situation, motivation determinants in women's dropout and participation in physical activity were studied using a Sport Motivational Scale. Participants who showed lower levels of self-determination were more likely to drop out of the physical activity program due to higher levels of amotivation, or the inability/unwillingness to participate in a normal social situation (Boiché, Scanff, & Stephan, 2010). Lack of physical activity causes serious health problems, including physical and mental. Some physical effects of physical inactivity include coronary heart disease, diabetes, certain cancers, obesity, and hypertension, which in all can cause mortality. Some mental effects of inactivity are depression and anxiety (Ströhle, 2008). Stress and anxiety can also be minimized by physical activity, making it sensible for more people to participate in it.

Thus, additional research is needed to better understand how motivational levels and personality attributes contribute to physical exercise. Based on review of the relevant literature, the following predictions were made. First, we hypothesized scores on the personality dimensions would vary by selected physical activity, specifically looking at agreeableness. We believed those who participate in group exercise will be more agreeable than those who chose to exercise alone based upon previous research findings that individuals who participate in group exercise are more optimistic after the program (Guszkowska & Sionek, 2009). We also predicted scores on the motivational subscales of perceived choice and enjoyment would vary by selected physical activity. Due to previous research finding that team-building exercise provides a more enjoyable experience, we believed those who participate in the group exercise will enjoy fitness more than those who exercise alone (Carron et al., 2008). Similarly, we hypothesized sex would impact scores on the motivational subscales. Finally, positive relationships between motivational levels and the variables of age and weekly exercise were predicted.

METHOD

Participants

Participants were recruited from a public, recreational center to participate in a study on personality types and motivational levels in individu-

als who select different physical activities. There were a total of 44 participants (25% men and 75% women) with a mean age of 37 years ($SD = 12.65$). Of the participants, 86.4% were Caucasian, 6.8% were Hispanic, and 6.8% were classified as other. For their participation in the study, participants did not receive any sort of compensation. At the conclusion of the study, all participants were debriefed and provided with contact information for the researchers.

Materials and Procedure

After the participants finished either individual training or a fitness class, they read and signed consent forms. Next, participants were asked to complete two scales. This yielded a 2 (gender: male and female) X 2 (type of physical activity: fitness class and individual training) between-subjects factorial design. Participants were told to complete questions on both, personality traits and motivation, based upon the physical activity they had just completed. The first scale, Ten-Item Personality scale, measured personality traits like extraversion, agreeableness, conscientiousness, emotional stability, and openness (Gosling, Rentfrow, & Swann, 2003). There were 10 statements on the scale and participants were asked to rate themselves on the different traits using a 1 (*disagree strongly*) to 7 (*agree strongly*) scale, to indicate the extent to which the individual agreed with the statement. For example, participants read the words "extraverted, enthusiastic" and rated to what extent the statement described them. Reliability and validity were acceptable on this scale.

The second scale, Intrinsic Motivation Inventory, measured motivation factors such as perceived choice and enjoyment (Ryan, 1982). Using the same 1 to 7 scale, participants were asked to rate a series of statements from the Intrinsic Motivation Inventory regarding motivational factors in participating in the physical activity they had just completed. Examples of this scale include, "I found the task very interesting" and "I did the task because I had no choice." Validity for the Intrinsic Motivation Inventory was shown to be strong. Finally, demographic information such as age, gender, and ethnicity was collected.

RESULTS

A MANOVA was conducted to examine the effect of selected physical activity (i.e., fitness class and individual training) on scores of: extraversion, agreeableness, conscientiousness, emotional stability, and openness. MANOVA results indicated selected physical activity significantly influenced the combined dependent variables [Wilks' $\Lambda = .34, F(5, 16) = 6.22, p < .01, h^2 = .66, \text{power} = .97$]. Univariate ANOVAs were conducted as follow-up tests. ANOVA results indicated agreeableness significantly differed by selected physical activity, $F(1, 20) = 9.58, p < .01, h^2 = .32, \text{power} = .84$). Table 1 contains the means and standard deviations on agreeableness by selected physical activity. An independent samples *t*-test was conducted to determine if these differences on agreeableness could be due to gender. However, men and women did not significantly differ on agreeableness or any other disposition measure listed previously.

Table 1. Means and standard deviations on agreeableness by selected physical activities.

Selected Activity	Mean	SD
Fitness Class	11.30	1.81
Individual Training	7.00	2.83

Next, an independent samples *t*-test was conducted to determine if scores on the motivational subscales of perceived choice and enjoyment varied by selected physical activity. Although there were no differences on perceived choice, there were significant differences between the selected physical activities on enjoyment, $t(38) = 2.79, p < .01$. See Table 2 for means and standard deviations on the enjoyment subscale by physical activity. Again, analyses were conducted to determine if results were due in part to sex. Although men and women did not differ on the perceived control subscale, there were significant differences on the enjoyment subscale, $t(38) = -2.11, p = .04$, with women indicating higher levels of enjoyment ($M = 44.34$) than men ($M = 39.38$).

Finally, a series of correlations were conducted to better understand the relationships between scores on the motivation subscales and the variables of hours per week devoted to physical activity and age. Results indicated scores on the

subscales of perceived choice and enjoyment were positively correlated, $r(33) = .42, p = .001$. Additionally, scores on the enjoyment subscale were negatively correlated with hours per week devoted to physical activity, $r(40) = -.39, p = .001$. Finally, age of participant was negatively correlated with scores on the enjoyment subscale, $r(38) = -.36, p < .05$.

Table 2. Means and standard deviations on enjoyment subscale by selected physical activities.

Selected Activity	Mean	SD
Fitness Class	44.41	5.93
Individual Training	37.33	4.23

DISCUSSION

A wealth of literature on the benefits of physical activity exists (e.g., Blumenthal & Edenfield, 2011; Simono, 1991), making it important to investigate the reasons for choosing to engage in a certain type of physical activity. For example, researchers have found forms of fitness to increase feelings of accomplishment and helping behavior among the elderly (Kurz et al., 2010). Also, physical activity minimizes the risks of various conditions including coronary heart disease, diabetes, certain cancers, obesity, hypertension, depression, and anxiety (Blumenthal & Edenfield, 2011). Specific types of activities, including aerobics and dance therapy, have been found to decrease stress, increase self-esteem, and increase self-image (Anderberg et al., 2003; Hos, 2005). Consequently, the purpose of the current study was to compare personality types and motivational levels to the likelihood to engage in specific types of fitness.

For the first hypothesis, two groups of participants were compared. The first group was composed of individuals participating in one of two fitness classes and the second group was participants involved in individual training. Specifically, the group fitness classes were Zumba (i.e., a combination of Latin and International music with a fun, upbeat and effective workout system,) as well as core training (i.e., core exercises help build strength in all of the muscles in the mid-section of the body). The group classes were compared to individual training (i.e., participants who would lift weights, run on the treadmill, stretch, or use other gym equipment). The prediction personality di-

mensions would vary by the type of physical activity was supported. Specifically, agreeableness varied by the choice of physical activity and was found to not be affected by sex. These findings indicated individuals who participated in fitness classes were more agreeable than individuals who participated in individual training. Previous research on agreeableness has indicated individuals who are highly self-focused are likely to engage in a frequent exercise routine, but no other research has been done on its relation to choice of physical fitness (Lewis & Sutton, 2011).

The second hypothesis stated scores on the motivational subscales of perceived choice and enjoyment would vary by type of physical activity. Specifically those who participate in the group exercise will enjoy fitness more than those who exercise alone. No differences were found when comparing perceived choice of the two types of activities; however, a difference was found when looking at enjoyment. Moreover, people in the group fitness classes reported higher levels of enjoyment than individuals working out alone. These findings could be related to class size because previous research indicates individuals' evaluation of a class is influenced by their perspective of the class size (Brawley et al., 1990).

The third hypothesis of this study was sex would have an effect on personality measures and motivational levels. Sex did not have a significant effect on any measure of personality. The enjoyment of physical activity, on the other hand, was significantly different between women and men. Women tended to report enjoying physical activity more than men. However, this difference could have been a result of the group setting because more men participated in individual training than women and more women participated in fitness classes than men.

Our final hypothesis regarding personality traits stated the level of enjoyment of physical activity was related to the amount of activity engaged in weekly. A negative correlation was found between the amount of time devoted to physical activity and ratings of enjoyment of the physical activity. It could be assumed that individuals who are spending more time engaged in physical activity are doing so because of health issues. Thus, there is a possibility individuals who are spending a great

amount of time engaged in physical activity may not actually enjoy the activity but must participate in it for other reasons. Another explanation for the negative correlation found could be the possibility of a plateau effect, where the outcomes of consistent physical activity don't show as readily as they do with infrequent or beginning exercise. Future researchers should question participants' perceived reason for engaging in physical activity. A second reason for the negative correlation might be individuals exercising could be insecure about themselves. To determine if this explanation could in fact be the case, a self-esteem scale could be administered to investigate if there is a correlation between self-esteem and enjoyment of physical activity. The Rosenberg Self-Esteem Scale or the Tennessee Self-Image Scale used in a previous study (Hos, 2005) involving physical activity would be good options.

The findings that larger amounts of engagement in physical activity are negatively correlated with enjoyment of physical activity shows an opposite view from the many studies that have found physical activity to improve mood states and well-being, although research did indicate too much strenuous physical activity can increase your stress level (Simono, 1991). Previous research has also found those who become addicted to engagement in physical activity can develop signs of depression and anxiety if withdrawn from the physical fitness (Blumenthal & Edenfield, 2011). Thus, "what amount of physical activity is too much?" Further research needs to be conducted to find if there is an unhealthy amount of physical activity, leading to a reduction in the enjoyment of the activity. If this is the case, focusing on achieving an optimal balance of healthy physical activity would be desirable. This goal could be accomplished by fitness facilities regulating the amount of time a member is allowed to spend at their establishment.

When examining relationships to enjoyment of physical activity, interesting findings emerge. First, the age of participants was negatively correlated with enjoyment levels. As stated before, it is likely elderly tend to have more health risks and problems than younger individuals and are consequently engaging in physical activity for these reasons (Abdul-Rahman, 2008), leading to lower levels of enjoyment. Next, perceived choice of physical

activity was positively correlated with enjoyment levels. This correlation illustrates individuals who had more options enjoyed the activity more than individuals who did not feel they had as many options. These findings could be utilized by fitness leaders by giving participants more than one exercise option when targeting a specific part of the body. It is also worth noting women attended more fitness classes than men did. Individuals who attend fitness classes enjoy themselves based on the positive atmosphere, teamwork building structure that the fitness instructor provides (Carron et al., 2008), and upbeat music (Dyrlund & Wininger, 2008).

Limitations of the current study include small sample size and the inability to randomly assign participants to treatment conditions. Future research should address these limitations discussed and explore how body style relates to the variables in question. Despite these concerns, the study advances our knowledge of how agreeableness varies by physical activity and how variables of enjoyment and perceived choice relate to the exercise experience.

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Religious Attitudes Toward Embryonic Stem Cell Research

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ABSTRACT—The present study examined religious affiliation and attitudes toward embryonic stem cell research. Forty-five participants (23 Christian and 22 Jewish) completed two surveys inquiring about demographic information and personal moral stance on embryonic stem cell research for scientific advances. An independent samples t-test showed a significant difference between Christian and Jewish support for such research, with Jewish participants indicating more support. The results indicate a consistency between individual beliefs and religious doctrine concerning embryonic stem cell research. The results also showed significant differences between participants' religious attendance, age, and education level with regard to embryonic research approval. Future research should examine the influence of other factors including participants' cultural and ethnic identities, as well as individuals who would directly benefit from the potential advances in embryonic research.

Keywords: Embryonic Stem Cell Research, Religion, Christian, Jewish

INTRODUCTION

Embryonic stem cell research has been the focus of political, ethical, and social argument in recent years. Despite public controversy about using embryos for research, the potential benefits of embryonic research seem infinite. In fact, the prospective scientific advances of embryonic research would benefit an estimated 100 million Americans who suffer from an array of physical ailments (Perry, 2000). Embryonic stem cells are undifferentiated cells, early in fetal development, that contain genetic information for all cell types. The undifferentiated characteristics of stem cells allow researchers to manipulate them to develop into various types of cells including neurons, blood cells, skeletal muscle cells, and other types of specialized tissues. Scientists can then study how certain cells develop, and can compare the function of specialized cell types in fetal development. The findings from such research may allow scientists to prevent birth defects, such as Tay-Sachs disease, that occur at various stages of fetal development (e.g., Chapman, Frankel, & Garfinkel, 1999).

Embryonic stem cells have the ability to divide indefinitely, which may enable them to regenerate inefficient or damaged organs and tissues. These cells could further contribute to medical advances by acting as a universal donor for bone marrow and organ transplants, thereby lowering transplant complications and cost for transplant recipients (Chapman et al., 1999). Researchers may also use embryonic research on a pharmaceutical level to test the efficiency of drug therapies for assorted viruses and diseases. This type of research may lead to new advances in treatments used for cancer, Alzheimer's disease, schizophrenia, diabetes, Parkinson's disease, and other conditions that affect millions of people worldwide (e.g., Meyer, 2000). Although the potential benefits of embryonic stem cell research have been well publicized, strong religious and political opposition has inhibited continued research (e.g., Robertson, 2010).

Media Attention and Political Debate

In recent years, media attention has

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brought the issues surrounding embryonic stem cell research to the forefront of public debate. According to Ho, Brossard, and Scheufele (2008), from 1975 to 2000, media outlets focused less on the controversial aspects and more on the potential scientific progress of embryonic research. However, media attention began to shift to ethical concerns about embryonic research with negative connotations for future scientific advances in 2001, after President George W. Bush signed an executive order related to the issue (Ho et al., 2008). Bush limited federal funding of embryonic research by restricting it to currently existing embryonic cell lines. The Bush order banned derivation of new embryos, thus inhibiting scientific progress in embryonic stem cell research. Once media attention on the subject increased, the stem cell debate became a more controversial social issue (Nisbet, 2004).

From 2000 to 2001, public awareness of embryonic stem cell research rose from 20 % to 50 % (Nisbet, 2004). However, shortly after President Bush's 2001 televised announcement regarding stem cells, public awareness on the topic decreased due to reduced media attention. Furthermore, in a public survey following Bush's decision, only 28 % of respondents correctly stated his stance on embryonic stem cell research. The findings of this poll indicated that many people did not understand what embryonic stem cell research entails, how embryos are collected and used for scientific purposes, or what legislative policies have been implemented regarding stem cell research.

Previous studies have suggested that public awareness and continued education increase support for scientific work pertaining to embryonic stem cell research. Individuals with higher levels of education are more aware of stem cell research compared to those with no college education (Hudson, Scott, & Faden, 2005). The researchers also found a steady increase of stem cell approval across increased levels of education. For instance, 63% of individuals with no college education supported stem cell research, whereas 74% of individuals with bachelor's degrees approved, and 75.1% of those with post-graduate education supported continued research. Taken together, these findings highlight the importance of education and of media attention to public awareness and support of stem

cell research.

In 2008, President Barack Obama lifted restraints imposed by the former executive order, enabling scientists to obtain new embryo cell lines for research. However, federal funding was limited, forcing scientists to rely on private funding to continue embryonic research (Robertson, 2010). With increased media attention in the wake of Obama's executive order, a subsequent public opinion poll found that 54% of Americans supported embryonic stem cell research, whereas 32% opposed destruction of embryos for medical research (The Pew Research Center, 2009).

Political affiliation may play a pivotal role in level of approval for embryonic stem cell research. In recent years, young voters (30 years of age and under) have identified more with Democratic ideals and tend to approve of stem cell research, along with other liberal views on social issues (Pew Research Center, 2008). In addition, previous research has suggested that age may also play a role in support for this research; according to Abdel-Moneim and Simon (2011), 61% of individuals from 18-29 years of age supported embryonic stem cell research over protecting unused embryos, compared to 50% of adults over age 65 who supported such research.

Supporters of embryonic stem cell research have argued that this type of research will continue with or without federal funding (e.g., Saltzberg, 2008). The advantages of federal funding include regulated research and public engagement, which are lost with private funding, and non-regulated funding for scientific research allows the private sector to have increased power over embryonic research guidelines that may lead to unethical practices (Saltzberg, 2008).

Religious Influence on Embryonic Research

Regardless of the potential benefits of embryonic stem cell research, religious opposition has influenced political views on future funding of such scientific exploration. Previous research has suggested that conservative Republicans hold more traditional religious views compared to liberal Democrats (e.g., Punyanunt-Carter, Corrigan, Wrench, & McCroskey, 2010). These findings may explain why the majority of individuals who oppose embryonic stem cell research are religious

conservatives who incorporate religious doctrine into political agendas (Walters, 2001). Most religious conservatives believe human life begins at conception and consider termination of embryos for scientific purposes comparable to murder. The steadfast beliefs of religious conservatives promote strong opposition to federal funding of embryonic stem cell research, despite apparent inconsistency with their support of assisted reproduction, such as *in vitro* fertilization (Robertson, 2010). There is a lack of understanding or consideration for the estimated 400,000 unused embryos that fertility clinics must inevitably discard each year after the *in vitro* process is complete (Greif & Merz, 2007).

In the case of *in vitro* fertilization, 60% of Americans support embryonic research (and disregard embryonic human rights) in order to use these embryos (Robertson, 2010). Thus, it appears that increased public knowledge of particular methods increases support for use of embryos in research (Ho et al., 2008). However, those in favor of research often oppose the use of embryos created for the sake of scientific advances and insist on strict regulation of continued embryonic study. The ethical divide among supporters has led to ambiguity of perspectives and important political implications for federal funding policies (Robertson, 2010).

Religiosity influences the stringency of political policies for several social issues, including therapeutic cloning, abortion laws, and embryonic stem cell research (Fink, 2008). Furthermore, previous research has suggested that religiosity and frequency of attendance at religious gatherings contribute to attitudes toward abortion and stem cell research (Gallup Poll, 2005; Gallup Poll, 2006; Matthews & O'Brien, 2008). According to these findings, increased attendance at religious gatherings is associated with decreased approval of abortion and embryonic stem cell research because it conflicts with religious doctrine. Many religious groups have voiced ethical concerns regarding the use of embryos as a source of scientific advancement, and public disapproval of embryonic stem cell research has influenced legislation on the issue. According to Nielsen, Williams, and Randolph-Seng (2009), religiosity influences individual attitudes toward social issues, and especially embry-

onic stem cell research. The attitudes held by religious individuals reflect the beliefs of their various religions; this is evident, for example, in the strong opposition role taken by the Roman Catholic Church concerning the ethical and moral implications of embryonic stem cell research.

Religious Attitudes toward Stem Cell Research

Christianity. In general, Christians strongly oppose the use of embryos for scientific purposes. Most Christian sects, especially the Roman Catholic Church, are also opposed to any form of artificial reproduction that involves masturbation or therapeutic cloning that jeopardizes the moral status of embryos (Saltzberg, 2008). Many Christians believe that human life begins at conception, and that embryos, therefore, deserve equal consideration as any other living being. They believe human life expresses the image of God and, therefore, personhood is a covenant of God's love and grace (Jones, 2005). Consequently, most Christians believe that embryos possess a soul and have the right to live without interventions that may violate that right (e.g., Walters, 2001). Furthermore, many Christians consider any intentional harm to embryos immoral and wrong. Therefore, several Christian denominations believe that scientific advancements or therapeutic treatments gained from embryonic research do not justify the termination of one life to benefit another (Evans, 2002).

Judaism. In general, Jewish tradition including Conservative Judaism holds that conception is not the beginning of human life. Rather, the moral status of a human embryo begins 40 days after fertilization. It is at this time when an embryo acquires the same moral consideration as any other human being and, therefore, has the right to life (Walters, 2001). Jewish law regarding artificial reproduction and embryonic research states that embryos living outside the uterus do not have the same inherent value as a developing embryo within the mother (Dorff, 2000). Therefore, Jewish law has no legal or moral opposition to the use of donated embryos from artificial reproduction for regulated scientific advances. Further, Jewish doctrine strongly emphasizes the importance of saving and preserving the sacredness of life through whatever means necessary. Rabbi Dorff, a prominent figure in the Conservative Jewish sect, stated, "Given that

the materials for stem cell research can be procured in permissible ways, the technology itself is morally neutral. It gains its moral valence on the basis of what we do with it" (p. C-4). In addition to traditional Jewish values, Conservative Judaism also believes that Jewish Law should adapt to modern culture in accordance with Jewish morals. Due to these beliefs, Jews generally support embryonic stem cell research as a way to save others and to prevent and cure illnesses (e.g., Evans, 2002).

The purpose of the present study was to investigate religious attitudes toward embryonic stem cell research. Based on religious doctrine and previous research, I hypothesized that:

- a. Christian participants would be more opposed than Jewish participants to embryonic stem cell research.
- b. Jewish participants would support the use of embryos for scientific purposes more than Christian participants.
- c. Participants who opposed legalized abortion and those participants who attended religious gatherings more often would support embryonic research less than participants who were not opposed to legalized abortion and those who attended religious gatherings less frequently.
- d. Based on previous studies (e.g., Nisbet, 2004), participants with higher levels of education would be more supportive of continued embryonic stem cell research compared to participants with less education.
- e. Younger age groups would support embryonic stem cell research more than older age groups.

METHOD

Participants

Forty-five religiously affiliated participants (23 Christian and 22 Jewish) voluntarily completed a 20-item questionnaire concerning their personal attitudes toward embryonic stem cell research. Jewish participants were members of a Conservative Jewish Synagogue. Christian participants were members of a university Christian fellowship club. Demographically, the participants ranged from age 18 to over 50 years with varying education levels, political views, and frequency of religious involve-

ment (see Table 1).

Instruments

The present study utilized two types of questionnaires to compare religious attitudes toward embryonic stem cell research. The first questionnaire consisted of a modified version of Ouyang's (2000) undergraduate embryonic stem cell research survey. Questions asked for basic demographic characteristics of the participants including sex, age, education level, political views, and religious affiliation. This instrument also inquired about participants' stance on legalized abortion and whether they had known anyone diagnosed with a terminal illness.

The second questionnaire was a modified version of Nielsen et al.'s (2009) Moral Objection Scale. This 12-item questionnaire used a Likert scale to measure participants' moral stance on various facets of embryonic stem cell research. Examples of items on the moral objection questionnaire included: "Embryos have souls," "Funding embryonic stem cell research would indirectly fund abortion," and "Using embryonic stem cells is necessary for medical progress."

Procedure

Jewish volunteers completed both questionnaires at the synagogue during a family oriented religious gathering, with instruction to return the questionnaires by the end of the event. Christian participants from a university Christian fellowship club completed and returned both questionnaires at the end of a weekly gathering.

RESULTS

Total moral stance and personal attitude scores toward embryonic stem cell research ranged from 19 to 60, with higher scores indicating more approval of embryonic stem cell research (see Table 1). An independent-samples *t*-test comparing mean approval scores for embryonic stem cell research showed a significant difference between Christian and Jewish participants $t(43) = 4.45, p < .01, d > 5.7^0$, with Jewish participants supporting embryonic stem cell research more than Christian participants (see Table 2). A second independent-samples *t*-test comparing mean support scores for legalized abortion was also significant, *t*

Table 1. Means and Standard Deviations of attitudes toward embryonic stem-cell research and respective participant demographics

		n	Mean	SD
Gender	Male	15	45.77	9.42
	Female	30	42.73	8.86
Age	18-25	16	36.56	7.74
	26-35	5	52.8	1.64
	36-50	16	49.31	6.07
	50+	8	46.89	6.77
Education Levels	High School	2	36	0
	Some College	16	37.69	8.34
	Bachelor's	15	50.07	6.08
	Master's	9	47.56	6.91
	Doctorate	3	51.33	3.79
Political Affiliation	Conservative	11	42.91	7.99
	Moderate	20	42.5	8.09
	Liberal	14	49	9.89
Legalized Abortion	Yes	30	49.2	5.99
	No	15	35.47	6.65

Table 2. Mean scores and Standard Deviations of attitudes toward embryonic stem-cell research for religious affiliation and attendance.

		n	Mean	SD
Religion	Christian	23	39.77	9.06
	Jewish	22	49.78	5.75
Attends Services	Weekly	23	40	9.08
	Monthly	11	48.45	7.05
	Yearly	11	50.45	4.59

(43) = 6.99, $p < .01$, $d > 0.57$, showing that those who supported legalized abortion were more inclined to support embryonic stem cell research. However, there were no significant differences between scores of men and women or between those of participants who had known someone who was terminally ill and those of participants who had not known a terminally ill person.

A one-way ANOVA across participant religious attendance level (weekly, monthly, or yearly) revealed a significant difference in attitudes toward embryonic stem cell research, $F(2,42) = 8.56$, $p = .004$, with a Tukey *post hoc* analysis showing a significant difference between scores of those who attended religious gatherings weekly and monthly ($p = .004$), and between those who attended weekly and yearly ($p < .01$). Those participants who attended weekly services showed higher opposition to embryonic stem cell research than monthly or yearly attendees (see Table 2).

Further, a one-way ANOVA across participant age groups showed a significant difference in attitudes toward embryonic stem cell research, $F(3,42) = 13.55$, $p = .001$, with a Tukey *post hoc* analysis revealing a significant difference between participants aged 18-25 and those 26-35 ($p < .01$), 18-25 and 36-50 ($p < .01$), and 18-25 and over 50 ($p < .01$). Each comparison showed participants 18-25 in age were less approving of embryonic stem cell research than older age groups (See Table 1). Christian participants were predominantly from the youngest age group (65% 18-25; 0% 26-35; 13% 36-50; and 22% 50+), whereas the Jewish sample had more individuals in the middle age ranges (5% 18-25; 23% 26-35; 54% 36-50; and 18% 50+).

A third one-way ANOVA across participant education level also showed a significant difference in attitude toward embryonic stem cell research, $F(4, 40) = 7.99$, $p = .001$. A Tukey *post hoc* analysis showed a significant difference between participants with some college education and those with a bachelor's degree ($p < .01$), some college and a master's degree ($p < .05$), and some college and a doctorate ($p < .05$). Thus, participants with more education supported embryonic stem cell research more than participants with less education (See Table 1).

The one-way ANOVA across political views

(conservative, moderate, or liberal) showed no significant differences in attitude toward embryonic stem cell research. However, liberal participants had a slightly higher embryonic stem cell research approval score (See Table 1).

DISCUSSION

The results of the present study supported the first hypothesis and were consistent with previously reported religious beliefs concerning embryonic stem cells used in scientific research. Christian participants expressed lower levels of support for embryonic stem cell research than did Jewish participants, consistent with the notion that Christians are generally more conservative and uphold more traditional belief systems in accordance with religious doctrine (Punyanunt-Carter et al., 2010). These findings are consistent with prior research involving traditionalism and disapproval of embryonic stem cell research (Nielsen et al., 2009). Increased public awareness of Christian attitudes toward embryonic stem cell research, especially the Roman Catholic stance against it, may have affected the results. Christian participants may have answered in accordance with established doctrine rather than personal opinion, especially while in a religious gathering. Religious views on other social issues, including abortion, may also explain why those opposed to legalized abortion had less favorable views toward embryonic stem cell research, supporting my third hypothesis. Additional factors that may have affected the results include participants' understanding of embryonic stem cell research, media exposure, and personal experiences.

The results also indicated that those who attend religious services more frequently have less favorable views toward embryonic stem cell research. These findings are consistent with the third hypothesis, as well as previous Gallup Poll (2005) results that revealed 63 % of weekly religious attendees do not support funding for embryonic stem cell research, whereas 45 % of monthly and yearly attendees show similar opposition. A possible explanation for these findings may be the increased exposure individuals may have to religious views about various social issues, including embryonic stem cell research, while in religious gatherings. Therefore, those who attend religious ser-

vices more frequently tend to hold traditional views in accordance with their belief system (e.g. Willits, 1989). Previous research has also suggested that religious socialization, commitment, and beliefs are often the basis for development for one's worldview (Cornwall, 1987). Religious socialization to a particular worldview may influence both social and political realms, which in turn may influence an individual's stance on issues that contradict religious doctrine.

The results confirmed the fourth hypothesis that participants with higher levels of education tended to express more support of embryonic stem cell research. However, these findings may also be due to age differences between Christian and Jewish participants. The Jewish sample included some older individuals who have had time to acquire higher levels of education, whereas the Christian sample primarily consisted of currently enrolled college students. Participants with lower education levels may not understand the scientific processes or benefits of embryonic research. Due to a lack of understanding, these individuals may base their views of embryonic research on other social factors, including religion or political orientation. In this regard, it is important to address the impact that increased education may have on understanding the various facets of social issues. Education may play a crucial role in attitudes toward embryonic stem cell research, technology, methods, and potential benefits of continuing such research regardless of religious doctrine.

The data did not support the fifth hypothesis that younger participants would be supportive of embryonic research. In fact, the current study suggests that younger age groups (18-25 years of age) hold less favorable views of embryonic stem cell research. A possible competing explanation for these results may involve age differences between participants. The Jewish participants were older members of their congregation, whereas the Christian participants were predominantly university students. Higher opposition to embryonic research in the younger Christian sample may be a result of socialization in traditional views by parent-child relations. Previous research has suggested college-aged (17 to 23 years) students tend to have congruent political views to their parents because of political socialization through adolescence (Niemi,

Ross, & Alexander, 1978). In addition, Niemi et al. found a decline in parent-child political congruence when young students left home for longer periods of time.

There are several limitations to the present study, including the small convenience sample, which limits generalizability of these findings. Further, the various religious denominations for the Christian sample (e.g., various Protestant and Catholic groups) were unknown due to the type of religious gathering in which participants completed the questionnaire. Therefore, the differences between Christian religious sects are indistinguishable, thus limiting the generalizability of these findings. Other limitations of the study include the non-religion-based differences between the groups (e.g., age, location).

Future research should examine the effects of other factors on attitudes toward embryonic stem cell research. Researchers should investigate the influence of media coverage on understanding and views of embryonic stem cell research. Additionally, research should investigate how political legislation affects public opinion about embryonic research. Finally, researchers should consider possible differences between ethnic groups, as well as differences between specific religious sects (e.g., specific Christian denominations) in their attitudes toward embryonic stem cell research.

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Special Features

Conducting Psychological Analysis: Current Events

Provoking a “Storm:” Gender Schema Theory and the Public’s Reaction to a Genderless Child

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ABSTRACT—The present article seeks to investigate the intense public controversy surrounding the recent decision of Toronto couple Kathy Witterick and John Stalker to keep the sex of their third child, Storm, a secret. To do this, Gender Schema Theory is drawn upon, as it may help to explain the discomfort that many people feel when considering the possibility of parents raising a "genderless" child. Indeed, Gender Schema Theory sheds light on Western society's need to classify individuals according to gender binaries, and makes sense of the public's extreme reaction to the news of "genderless" baby Storm.

Keywords: Gender Schema Theory, Genderless Child, Gender Stereotype

INTRODUCTION

The publication of the Saturday edition of the Toronto Post newspaper on May 21, 2011, brought with it a flurry of international media attention for Toronto couple Kathy Witterick and David Stalker. Their story sparked a heated cross-national debate on issues surrounding gender, parenting, and the possibility of living in a genderless society (Poisson, 2011a). Indeed, the decision of Witterick and Stalker to keep the sex of their third child, Storm, a secret from friends, family, and the general public, seemed to touch a nerve with readers. Critics and supporters of the couple's attempt to raise a "genderless" child bombarded the newspaper's website with comments, making the story the most accessed in the history of its online news website (Porter, 2011). The controversy began when, shortly after Storm's birth, the child's parents sent an email to friends and family members,

saying, "[w]e've decided not to share Storm's sex for now — a tribute to freedom and choice in place of limitation, a stand up to what the world could become in Storm's lifetime (a more progressive place? ...)." Despite the deluge of criticism they received as a result of this announcement, the Toronto couple defended their actions by stressing the importance of keeping children free from the restrictions imposed by gender norms, and of allowing them to make independent decisions about their own tastes, interests, and gender identities (Poisson, 2011b).

From a psychological perspective, the speed and intensity with which the controversy over Witterick, Stalker, and baby Storm materialized reveals the immense social importance that has been placed on the concept of gender within North American society, as well as the extreme emotional investment that people have in maintaining its im-

*Carmen Poulin served as Faculty Sponsor.

portance. An opinion poll on the website for the *Today Show*, for example, revealed that 11% of respondents believe the decision of Storm's parents to be a "great idea," whereas an overwhelming 89% say it is a "terrible idea" (Today, 2011). While these statistics certainly cannot be considered a representative sample of the opinions of most North Americans, the fiery nature of the debate over the story suggests that there are many people who are profoundly uncomfortable with the idea of parents raising a genderless child.

The discomfort that many people experience when confronted with the idea of genderlessness may be partially explained by Bem's (1981) gender schema theory. This theory posits that, beginning at a very early age, people form gender schemas. Gender schemas are mental maps of gender with linked information used to facilitate the processing and filtering of incoming sensory information. When meeting someone new, for example, gender schema theory would suggest that people rapidly make a judgment about whether the newly-encountered person is male or female. This process occurs when a comparison is made between the person's appearance and existing schemas of what constitutes a "male" and "female" appearance. Once the determination has been made, a gender schema is then drawn upon for information about how to behave towards and interact with this new person. When the gender of the other person is not clear; however, people are not able to draw on any readily available cognitive framework for information, and this can make the encounter more difficult and awkward to navigate. As such, gender schemas represent an inherent mechanism by which people collect and store information that facilitates smooth interactions in social situations. Through schemas, people are predisposed to process information on the basis of gender, and to view the world in terms of gender binaries (Bem, 1981; Hyde, 1996).

Gender schemas are not fixed, however. They can be adapted and modified based on new experiences and information, and because they are first formed through social learning during childhood, their content may also differ somewhat depending on family upbringing and cultural context (Bem, 1981; Hyde, 1996). This unfixed nature of gender schemas becomes particularly evident

when certain cultures outside of North America are considered. One small community in the Dominican Republic, for example, has been found to have a large population of males born with 5-Alpha Reductase Syndrome. These males are born with a vaginal pouch and a clitoris-sized penis, rather than the typical male organs. Thus, at birth, the child's genitalia appears to be female. During puberty, however, a larger penis develops, and the adolescent typically develops a heterosexual interest in females. Rather than viewing this pattern of development as abnormal, the Dominican people have formed a social structure that allows for the existence of three gender types: the male, the female, and the "Guevodoce," meaning "penis at twelve" (Herdt, 1990; Hyde, DeLamater, & Byers, 2009). Although it could be argued that the Guevodoce simply switch from performing the female gender role to performing the male gender role, and therefore do not genuinely constitute a third gender category, this example nevertheless demonstrates that certain societies are able to take a more flexible approach to gender by accepting more ambiguous and non-continuous paths to adult gender identity.

If rigid definitions of male and female are not an inevitable aspect of human nature, as the Guevodoce example would suggest, gender schemas must also stem in part "from the society's ubiquitous insistence on the functional importance of the gender dichotomy, from its insistence that an individual's sex makes a difference in virtually every domain of human experience" (Bem, 1981, p. 362). In other words, the intense controversy and discomfort provoked by the gender ambiguity of baby Storm cannot be interpreted solely as the result of an inherent tendency to see people in terms of gender binaries. Such reactions also reveal the influence of a culture that places a great deal of importance on gender as an identifying variable.

Indeed, rather than accepting that some people may not clearly fit into one gender category or the other, Western society tends to frame gender ambiguity in pathological terms. This pathologizing of gender ambiguity is evident, for example, in the treatment of children born with intersex "conditions," which are characterized by the presence of genitalia that may not be clearly male or female, or that may be incongruent with the child's

genetic sex or their “X” or “Y” chromosome (Hyde et al., 2009). Instead of allowing for the existence of these naturally-occurring variations in the traditional male/female sex structure, many of these children are shaped into “boys” or “girls” through surgery early in life. Furthermore, parents of intersex children are often highly distressed by the inability of doctors to uncover the “true” sex of their child, and may report feeling unsure of how to connect with or “reach” their newborns in the absence of a clear gender assignment (Zeiler & Wickström, 2009). While the predicament of intersex individuals may seem unrelated to the issue of genderless baby Storm, who was not born with ambiguous genitalia, the underlying principle is similar: Western society is profoundly uncomfortable with those who cannot be straightforwardly classified as either female or male.

A further example of Western society’s intolerance for and pathologization of gender ambiguity comes from academic literature on gender nonconformity. When scanning the list of article titles that result from typing “gender nonconformity in childhood” into a psychological research database (i.e., Psycinfo), a disproportionate focus on the negative consequences of nonconformity is revealed. Indeed, the titles listed on the first page of results contained 24 negative words (e.g., harassment, suicide, body image conflict, rejection, homophobia, mental distress, anxiety, and victimization) and only 2 positive words (i.e., intelligence and resilient). This negative focus speaks not only to how gender nonconforming people are treated in society, but also to an automatic tendency (even within academia) to frame gender nonconformity in problem terms. Unfortunately, this negative focus obscures the liberation and agency that are also involved in moving beyond traditional binary oppositions of gender. The appearance in 1980 of the diagnostic criteria for “Gender Identity Disorder” in the Diagnostic and Statistical Manual of Mental Disorders has only formalized Western society’s assessment of gender ambiguity as a problematic “disease” that must be corrected (Winters, 2005).

The deep-seated discomfort with gender ambiguity that seems to underlie the discourses of intersex and gender nonconformity may reveal something important about the public’s reaction to Kathy Witterick and John Stalker’s decision to keep

the sex of baby Storm to themselves: in a society where people must be placed in one gender category or another, a genderless child just does not fit. Kane’s (2009) study on parents’ monitoring of their children’s gendered behavior shows that many parents go to significant lengths to discourage gender nonconforming behavior in their children and will allow their children to stray from traditional gender norms only within certain socially-acceptable limits. Witterick and Stalker’s choices have clearly extended beyond these socially-determined limits, as evidenced by the public outcry that has resulted from their story. Over recent years, there has been some movement in academic literature toward understanding children who act or identify in ways incongruent with their biological sex (e.g., Paechter & Clark, 2007); however, there is little precedent for understanding children raised in an environment where it is not necessary to identify strictly as one gender from the beginning. Having attempted to move beyond traditional gender dichotomies, the Witterick/Stalker family has transgressed a deeply rooted social boundary, and as a result, has been subjected to the backlash that typically accompanies such breaches of social norms.

Regardless of which side of the Storm debate one falls on, the mere presence of such a passionate discussion on the matter indicates that gender is still an issue of great importance and sensitivity in North America. The public’s emotional response to the story is revealing of the extent to which gender schemas (Bem, 1981) are drawn upon in everyday interactions, as well as the considerable weight that is placed upon clear and traditional definitions of gender in Western society.

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Special Features Evaluating Controversial Issues

Should Parents be Allowed to Select the Sex of Their Baby?

Parents Should Be Allowed to Select the Sex of Their Baby

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ABSTRACT—The process of sex selection is considered a relatively low risk and safe procedure in the medical world. The potential benefits of sex selection, such as eliminating sex-linked genetic diseases, family balancing, and ensuring an individual's and/or couples reproductive rights, outweigh any concerns for these new sex selection technologies. Sex selection also allows for people to fulfill their desires for a balanced family. The majority of families considering these second-generation sex selection techniques are already participating in assisted reproductive techniques, and it is a logical extension of the process. There is no valid medical, social, or economical reason for limiting the use of second-generation sex selection techniques like Preimplantation Genetic Diagnosis and MicroSort.

Keywords: Sex Selection, Benefits, Reproductive Techniques, Technology, Preimplantation Genetic Diagnosis

INTRODUCTION

Science and technology are ever changing entities that societies of the world sometimes cannot keep up with. Discoveries in the area of genetics are particularly controversial for many ethical and scientific reasons. One of the most attainable developments has been the substantial advances in the ability to predetermine the sex of a human embryo. The parental right to actively choose the sex of their unborn child is an issue under much

debate. Tests revealing the sex prenatally have been in use since in 1968 and “genetic screening” technologies for pre-pregnancy diagnoses, like Preimplantation Genetic Diagnosis (PGD) were being explored in the 1970s. By the late 1990s, these methods were being utilized for sex selection as well as other extensions of genetic testing (Williamson et al., 2003). The benefits of these processes outweigh the risks for both the patient and the future child. Therefore, parents should be granted this right to sex selection provided that they are under the appropriate conditions.

Three main methods of determining a fetus's sex are practiced today, each with their respective advantages and disadvantages. First, there is amniocentesis. This test can be conducted at week fifteen of gestation and involves collecting a sample of amniotic fluid, which is tested for genetic diseases and sex. If the baby is the undesired sex, the only alternative to carrying the baby to term is performing an abortion (Rispler-Chaim, 2008). Next, there is PGD, a technique commonly used in conjunction with assisted reproductive techniques (ART). With PGD, embryos are preselected and implanted into the patient's uterus, potentially based on sex. Advantages to PGD are that male and female embryos are equally likely to be formed and it is highly accurate (Bhatia, 2010). However, it is expensive. In vitro fertilization treatments cost around \$9000 per attempt and if a couple wants to include PGD that adds an extra \$4000 to \$7500 to the cost (Access to PGD, 2011). Finally, there is MicroSort, a technique that sorts sperm based on the chromosome attached to it to determine sex. It is more effective at producing X chromosome samples, increasing the likelihood of having a girl. MicroSort is unique because selection is done before conception and it does not involve abortion or discarding embryos (Bhatia,

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2010). MicroSort costs approximately \$3,200 per attempt (Rispler-Chaim, 2008). PGD is a more accurate method of sex selection (Bhatia, 2010) because it involves fertilizing the eggs prior to implantation ensuring filtering out a certain sex. Conversely, while MicroSort is less invasive, it is more likely that an undesired chromosome will be included in the inseminated sample, therefore increasing the likelihood of conceiving a child of the undesired sex.

Couples are motivated by several reasons to go through any of the methods of sex selection. The most common reasons are medical in nature. Firstly, if couples are allowed to choose the sex of their baby they have the opportunity to prevent the transfer of passing on a single cell or X linked disease, such as hemophilia and Duchenne muscular dystrophy (Bhatia, 2010). By examining the embryos before transplantation for signs of genetic, sex linked diseases, the couple can avoid implanting those that carry genetic material that would negatively affect their child's future (Rispler-Chaim, 2008). Since PGD was first successful twenty years ago, there have been about 50,000 cycles performed worldwide and significant progress has been made in the technologies used. New, less invasive approaches for fetal sampling and molecular technologies for DNA analysis include embryo-biopsy samples and free fetal DNA in the plasma of the pregnant woman's blood (Peyvandi, Garagiola & Mortarino, 2011). Secondly, infertile couples or couples who have had a history of challenges with fertility (Williamson et al., 2003) may also benefit from technologies like PGD (Bhatia, 2010). They are already investing a lot in ART, so it is a logical extension of that process to allow the parents to choose the sex of the baby. Laboratories today are even capable of specializing tests specific to individual patients and specific diseases (Handyside, 2010). Finally, the same tests can be performed to evaluate the susceptibility of embryos to late onset conditions as well as early onset conditions (Darnovsky & Robertson, 2010), including but not exclusive to serious Mendelian diseases, a greater risk for cancer, and Huntington's disease (Williamson et al., 2003). Extending the uses for PGD is utilizing the technology to its full potential, enables parents to help their children avoid as much future pain and

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struggles as possible in their early and later years.

As long as the benefits are balanced against the risks of PGD or any medical treatment, there is no physiological reason to prohibit performing the procedures. Risks for couples already undergoing ART (infection, bleeding, ovarian hyperstimulation, etc.) are not aggravated if they decide they want to utilize these technologies (Merhi & Pal, 2008). Furthermore, these treatments target chromosomal abnormalities that result from female meiosis in older women, who represent more than half of IVF patients (Williamson et al., 2003). Testing for these anomalies with PGD can improve ART outcomes (Merhi & Pal, 2008) and filter out genetic disorders, such as cystic fibrosis, and fragile X syndrome (Williamson et al., 2003). There is an increasing emphasis on early diagnosis and ART, PGD, and other second generation sex selection techniques have become the modern way of preventative medicine thanks to "the availability of new molecular genetic diagnostic tools" (Handyside, 2010).

Other motivations for couples to choose sex selection are related to social factors. Over 80% of United States pregnancies now involve some form of prenatal screening, and therefore "genetic selection by negative exclusion is already well-installed in contemporary reproductive practice" (Robertson, 2001). Family balancing, or having offspring of both sexes, is not a new desire but it has become more realizable. Through extensive research, Pennings (1996) found that 60% of couples approved of sex selection for family balancing purposes, revealing popular support for sex selection in cases of a couple desiring a balanced family. Pennings (1996) found that 65% of respondents in his study would use sex selection under certain conditions, including family balancing, depending on the technique (PGD, MicroSort, etc.) and the sex of their earlier children. In light of the fact that this is such new technology, it has been proposed that the best societal approach to incorporating these techniques would be to start slowly by exclusively using families seeking to increase the variety of sex among their offspring (Robertson, 2001) There is also the social and constitutional issue of procreative liberty. Choosing to utilize modern sex selection technologies and even sex-selection abortion is a reproductive

right and government regulations interfere with the issue of a woman's and a couple's freedom of choice (Robertson, 2001; Bhatia, 2010). Provided that no harm is done to anyone else and the individuals fully understand and accept the risks that are associated with the treatments, people have the right to medically "alter or enhance themselves or their lifestyle" (Bhatia, 2010, p. 267). Finally, techniques like PGD minimize the psychological stress that comes from the social stigma of terminating a pregnancy (Merhi & Pal, 2008).

The final reason for sex selection is economical. In some nonwestern countries, like India and China, population control is a significant issue. One of the ways the population is regulated is by limiting the number of children per family. This policy has potential for pure numerical benefits, however the cultural norms for gender preference are very deeply rooted. Some cultures see men as more pivotal to the culture and the economy because sons are the ones who go to work and inherit businesses (Rispler-Chaim, 2008). As a result, sex selective abortions, an archaic method of sex determination, are often used as a countermeasure when a child of the undesired sex is conceived. China banned sex selective abortions in 1993 and India banned sonograms and amniocenteses for sex determination in 1994 but these practices still occur (Zilberberg, 2007). The introduction of advanced sex selection methods in countries with a strong son preference could lessen the pressure parents feel with their pregnancies. It may prevent sex selective abortions and infanticide in countries like India and China if they know they have the option to choose for their second or third child (Pennings, 1996).

Additionally, some regulations on family balancing and sex determination could prevent the issue of couples having too much or too little freedom in the process (Pennings, 1996). If families can only apply for PGD or MicroSort treatments after having two or three children of the same sex, the potential sex ratio issue is circumvented and they are satisfied that their family will be balanced. Recent studies of Western societies show that it is very unlikely these procedures will lead to an imbalance in the global sex ratio (Merhi & Pal, 2008).

The data available shows that these meth-

ods are safe, but resources are limited. The Preimplantation Genetic Diagnosis International Society provides guidelines for good practices in PGD and encourages research in this growing field (Guidelines, 2007). The premise for using PGD and other second-generation sex selection techniques needs to be studied more for current trends and the impact it will have on genetic sciences. Parents should have the right to utilize sex selection methods because there is no great physiological risk in the procedures, it is a logical extension of the ART process, and there are ways to circumvent any concerns over sex ratio and gender preference without infringing upon the individual's right for procreation.

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Reasons for the Prohibition of Prenatal Sex Selection

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ABSTRACT—Sex selection is a technologically-based method parents can utilize in order to choose the sex of their unborn child. Originally sex selection became available as a solution for sex-linked diseases, but it is becoming more popular for other non-medical reasons, such as family balancing or sex preference. Sex selection is fairly new and, therefore, a major subject of dispute. There are many negative side effects resulting from this contemporary innovation. These unfavorable consequences include, but are not limited to, the possibility of an uneven male to female ratio, the promotion of another movement towards eugenics, and the misuse of medical resources for non-medical reasons. Taking into consideration all the risks associated with this unnecessary procedure, this manuscript will explore why sex selection should not be allowed.

Keywords. Prenatal Sex Selection, Sex Linked Genetic Disorder, Preimplantation Genetic Diagnosis, Sex ratio, Eugenics

INTRODUCTION

In the last few decades, there have been numerous medical advancements changing the field of medicine. The more technology improves, the better the medical diagnosis and treatment becomes. However, some of these advancements could be viewed as more negative than positive. For instance, prenatal sex selection is an unnecessary procedure and should be globally prohibited. It allows for the potential imbalance of the sex ratio, could lead to another eugenics movement, and utilizes medical resources that should be used towards other areas of medicine. The disadvantages outweigh the benefits of this new medical concept and, therefore, it should not be permissible.

Prenatal sex selection is the process involving parents choosing whether they want a boy or girl for their child. Once a woman discovers she is pregnant, certain tests can be run to determine the sex of the baby, such as amniocentesis, chorionic

villus sampling, and ultrasound scans. One test is particularly used for sex selection identifies the sexes of various embryos obtained through in vitro fertilization, followed by the implantation of the desired sex (Hollingsworth, 2005). This technique, preimplantation genetic diagnosis (PGD) testing, was originally performed in order to eliminate sex-linked genetic disorders, also known as X-linked disorders. Sex-linked disorders occur when there is a mutation on the X chromosome that is passed on to the child. There are approximately two hundred known sex-linked diseases, including color blindness, hemophilia, and muscular dystrophy (Human Fertilisation & Embryology Authority, 2002). Unfortunately, this technique is now, additionally, being used for parents to choose the sex of their baby.

In some cultures, sons are preferred over daughters. These cultures mostly include countries in Asia, the Middle East, and North Africa. In these cultures, males have a larger earning potential, can continue the family line, and are the main recipients of inheritance (Hesketh & Xing, 2006). By contrast, females, due to the dowry system, are considered financial burdens. This need to have a son is even more prominent in China, owing to the One Child Policy the government has imposed. Due to this fact, the Chinese are only allowed to have one child, the majority of people desire sons. The sex ratio in China has dropped from 95:100 daughters to sons, which is approximately the natural outcome, to 88:100 (Van Balen, 2005). Previously, when technological sex selection techniques were not available, abortions were performed instead, as well as infanticide and neglect.

There is an estimated 100 million “missing females” due to sex selective methods, including abortion and infant mortality (Hesketh & Xing, 2006). Governments in these cultures have recognized a problem and have started to prohibit some of these practices. Sex selective abortions were banned in China during 1993 and criminalized in 1995. Additionally, India made sonograms and amniocenteses illegal in 1994 for sex determination purposes. However, both of these practices in China and India continue today (Zilberberg, 2007). Therefore, in order to stop this son preference from occurring and, more importantly, the killing of innocent females, society needs to rebuild in a

way in which women obtain more value and acceptance. To start, technologically-based sex selection, such as PGD, should be prohibited. The allowance for this type of sex selection only reinforces the ideas involving male preference, and contributes to the acceptance of female devaluation. Furthermore, considering the high accuracy of PGD, this technology would only magnify the problem and biases encompassing sex preference. Thus, the banning of sex selection methods, like PGD, could help to promote the cultural changes necessary in order for women to gain more equality.

The countries where men are more valued and, therefore, have larger sex ratios, are noting some consequences. For example, there is a greater amount of single men who will be unable to have families. Cultures, like in China and India, depend on marriage for acceptance and social status, presenting a problem for many of the single men, especially men in lower socioeconomic classes who have little education (Hesketh & Xing, 2006). They become marginalized without family prospects and ways of releasing their sexual energy. This situation in turn may lead to more violence and antisocial behavior, threatening society’s stability as evidenced by the following quote: “It is a consistent finding across cultures that an overwhelming percentage of violent crime is perpetrated by young, unmarried, low-status males” (Hesketh & Xing, 2006, p. 13273). Comparatively, this excess of single men may lead to the oppression of women if men turn to illegal ways in order to rid of their built-up sexual urges, including forced marriages, bride trafficking, prostitution, and rape (Hollingsworth, 2005). Although the simple status of being single is not the direct cause of an increased rate of violence in unmarried men, it may be related.

There are other reasons why parents seek one sex over another, such as family balancing. For example, a couple may already have a female child and would prefer it if their second child was a male, or there are three sons in a family but no daughters. However, a person’s sex does not determine the type of person they are going to be or the characteristics they obtain. Any activity that one sex would enjoy, such as sports, games, arts, and hobbies, a child of the other sex can enjoy just as well. Women can carry on the family name if de-

sired, and there are more job opportunities becoming available to women. Thus, there is no reason to choose one sex over the other. "A stronger reason to oppose sex selection by prenatal diagnosis is that, whenever it is done, it undermines the major moral reason that justifies prenatal diagnosis and selective abortion—the prevention of serious and untreatable genetic disease. Gender is not a disease" (Wertz & Fletcher, 1989, p. 24). Sex selection originated as a means of eliminating sex-linked diseases. Additionally, there are no justifiable reasons for choosing one sex over the other.

In the late nineteenth century, there was a "eugenics" movement concerning the idea of finding the perfect person. Some fear sex selection will lead to parents choosing other traits for their children, in this attempt to create the supreme being. "What's the next step? As we learn more about genetics, do we reject kids who do not have superior intelligence or who don't have the right color hair or eyes?" (Hollingsworth, 2005, p. 130). Many individuals question these concerns and wonder what the stopping point will be. Once sex selection becomes more prominent, parents could attempt to pick out every characteristic of their children, eliminating the natural process of reproduction all together. Research shows in general people believe sex selection is acceptable to use when pertaining to sex-linked diseases only. For non-medical reasons, like eugenics, people believe sex selection could do more harm than good. In fact, some people indicate they oppose sex selection even under the circumstances of preventing genetic disorders. They emphasized the fact illness is an important aspect of human life. Removing illness could lead to an attempt to remove every undesirable circumstance thus interfering with the cycle of life and loss of diversity (Iredale, Longley, Thomas, & Shaw, 2006).

One last aspect to consider is the medical resources involved in sex selection. There is a substantial amount of time, money, and skills invested in this process. One clinic estimated the cost of PGD at \$10,480, not including all additional costs (Hollingsworth, 2005). If sex selection becomes more accepting and widespread, additional physicians and resources will be directed towards participating in these methods. As a result, more important, medically-related issues will be given less

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attention and funding. With the current shortage of physicians, there are concerns about the distribution of medical resources (Hollingsworth, 2005). Because sex selection is an elective procedure, medical resources should be focused towards more crucial areas of medicine, such as cancer. Many sex selection procedures are used for non-medical reasons. Hence, medical resources should not be devoted to these types of procedures.

Taking into consideration all the negative components of prenatal sex selection, this issue should not be allowed. Sex selection could lead to a higher sex ratio, another surge in eugenics, and the misuse of medical resources. Instead, research should focus on the cures for sex-linked diseases and leave sex selection up to nature.

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Psychologically Speaking

Take Your Discipline Seriously and Yourself Less So: An Interview with Mitch Handelsman

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Richard L. Miller

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BACKGROUND—Mitch Handelsman was born and raised in Philadelphia and received a BA in psychology from Haverford College where he was inducted into Phi Beta Kappa. He then studied at the University of Kansas where he earned a doctorate in Clinical Psychology. He is currently a Colorado University President's Teaching Scholar at the University of Colorado at Denver (UCD) and Health Sciences Center. Mitch has received several major awards for his teaching, scholarship and service, including the CASE Colorado Professor of the Year, the Outstanding Teaching Award from the Society for the Teaching of Psychology, and the Distinguished Service Award from the Rocky Mountain Psychological Association. In addition to his many journal articles and book chapters, he, along with Joseph Palladino contributed a regular humor column for Eye on Psi Chi and for the past three years, he has authored a column on ethics published regularly in Eye on Psi Chi.

Miller:

The Journal of Psychological Inquiry publishes undergraduate student research. In addition, there is a Special Features section that serves a variety of purposes. It is a forum for student essays on topical issues and also features, from time to time, articles that provide information of interest to both faculty and students related to the research process. We have asked you for this interview in order to explore your thoughts on the role of undergraduate research in teaching. The audience the interview is primarily designed for are students, and secondarily for faculty. Particular emphasis is on the



scholarly component of teaching and learning and how that relates to students conducting research and subsequently presenting and publishing the results of that research. The three students who will be conducting this interview are Markeya Dubbs, Seneca Widvey, and Antoinette Foster.

Markeya is a senior at the University of Nebraska at Kearney who will be entering the doctoral program in Educational Psychology at the University of Nebraska-Lincoln in the Fall. Antoinette attends the University of Colorado and serves as a Peer Advocate Leader in the Psychology Department. Seneca is a senior at Metropolitan State College of Denver and plans on pursuing an advanced degree in neurosciences after graduation. So without further ado, I will leave you in the capable hands of these students, who have prepared a series of questions.

Dubbs:

Who influenced you to become a psychologist?

Handelsman:

Everybody! I went to a small school, Haverford College in Pennsylvania. The faculty were unbelievable. So, I can rattle off a bunch of people. Doug Davis, Doug Heath, and Sidney Perloe were my big three psych influences, and I got to see them in action. Not just teaching and not just in the classroom, but talking to guest speakers. Because of this I was invited to dinner with people like James Brady, a visitor on campus who had done studies with executive monkeys. I will tell you a story about him if we have time. There were also people like Stuart Valins. I got to meet these people and watch my faculty members interact with them--which was cool, because these were people I wanted to be like. I still find myself influenced by those three professors, trying to do for my students what they did for me. They were the big three in undergraduate. When I got to graduate school Rick Snyder, my advisor, mentor, and thesis-dissertation advisor was

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pretty much my mentor through the next ten years of my career.

Miller:

Did you know it was Psychology that you wanted to study when you first went to Haverford?

Handelsman:

I was thinking about law school. I was interested in Psychology, and I read some Freud. I took Political Science and Psychology as a freshman. The Political Science class was really good and I learned a lot, but I got a B and got an A in Psychology. From then on Psychology looked really good. And again the people who were in it just seemed like nice people. We would talk about ideas, so it was a relatively easy thing for me to do Psychology.

Foster:

What was the reaction of your family and friends to your choosing Psychology as a career?

Handelsman:

My mother's reaction when I said I was going to major in Psychology was, "Psychology, Why?" and I said, "Because it's fun." She said "Fun, What is that?" And she was half joking, because she has always been incredibly supportive. She was also half serious. She was terrified, because with law school you can identify jobs you can have, but Psychology not so much. So she would say, "What are you going to do with that?" I remember talking to a neighbor of mine who said in Psychology it's hard to get jobs. I said, "Well I will just have to be good."

Again I credit Haverford College and my mentors there for teaching more than anything else how to work hard. Doug Heath, one of the professors there, did a longitudinal study looking at Haverford graduates 10 years, 20 years, and 30 years after graduation. And he found that by 10 years after graduation alumni generally couldn't re-

member the name of any course they took as freshmen. What they remembered about college was how to work hard. And they are an achieving bunch of people, because it's a really good school. But it wasn't just about the content. For me it was both. I learned good work habits, and was infused with Psychology.

Widvey:

As a student, which courses had the largest impact on you?

Handelsman:

Theories of Personality! I can actually answer that question, because Doug Heath taught the class, and I took it as a sophomore. It was known as a hard course. We read a lot of primary sources and had a lot of guest speakers. One thing that happened on the midterm was he had us write a question and answer it. We had to write the question first, and he came around and looked at it, and if he didn't think it was a good question then he would write his own. And he came by, read my questions, and then gave me one to answer. Also, 5 to 10% of the course grade was self-evaluation and I think I gave myself an 85-87, and it turned out that cost me an A. (His evaluation of me was much higher than that.) But the experience was unbelievable.

He was really the first person in my career who did things that were innovative; and this was in 1973. He was doing small group stuff, which is still today considered innovative, which is unbelievable. He would also tell us why he was doing it. I found myself as a shy kid in a group of three. He would tell us why three, because you can't hide in a group of three. I got to learn how to express ideas, and how to have ideas. And then a few years later I got to be TA for that class and had my first teaching experience in 1975. We learned how to do review sessions and we taught a class. And we would meet with him every week. And I got to take another course with Doug called Psychological Issues

of Education where we read Skinner's book; we also read Freedom to Learn by Rogers. Those were influential courses.

Foster:

Who do you consider to have been your research mentor?

Handelsman:

Sidney Perloe was the first mentor, research or otherwise. I wrote about him in my teaching autobiography, and in my blog. I will tell you this story quickly to illustrate his influence as a teacher: He was doing a review session and he came in with no notes, and I thought, "how can one person know all that stuff." I asked him, "What is this ridiculous study about \$1 and \$20?" Sidney said, "That's a classic study, that's like a really important study," and he said it in such a way that it was clear that I offended him professionally, but not personally. He responded to me and he explained the study. He was taken aback, but he engaged me with it. I thought that was really cool to respect me as an individual even though the question showed that I really didn't get it. So those kinds of interactions made me feel really fortunate.

Sid Perloe and Rick Snyder were my two biggest research mentors. That doesn't include all the other folks in and out of Psychology, but those two were really influential. A student of Joy Barrenberg did a study for History of Psych here at UCD and looked at all the UCD faculty and our professional genealogies. And for me it was me, Rick Snyder to Jerome Frank to Sigmund Freud. I thought, "Wow; we are a young profession!" For me to be an intellectual great grandchild of Sigmund Freud is pretty recent.

Dubbs:

What were your early research interests?

Handelsman:

As a freshman our second intro class was a statistics class and we did a research project.

We studied dreams because Doug Davis, who was teaching the class, was a Freudian, and that was the exercise. We did another class project with Doug Heath, working with

The ways that psychologists studied behavior and tried to get scientific about really complex behavior was fascinating.

kids on nonverbal communication and empathy. We pulled elementary school children out of class, with permission, and we had them do a tug-of-war with no rope. We measured the number of times one pulled while the other moved in the same direction. For me that was so cool. The ways that psychologists studied behavior and tried to get scientific about really complex behavior was fascinating. I did another class project as a senior with another student on stereotypes. This study came from work by Clark McCauley, Doug Davis, and Sid Perloe. Many people believed that having a stereotype meant that you felt that everyone in one group has a particular characteristic. We believed that stereotyping meant that the characteristic is diagnostic—it is not universal, just more prevalent in one group than another. So we used Bayes' Theorem, which looked at base rates. This was a very complex issue for us students, especially trying to translate that into SPSS. In those days we had to type commands on punch cards, one command per card. But we did, and it was a year-long project. We did 6 studies. We had people look at a series of faces that we created with or without mustaches, beards and hair on the head. We showed them 100 pictures to see if they could pick out themes. I forget what we found, but it was an amazing year! I remember once we met with Perloe and McCauley. Sid said, "This weekend I am going to bury myself in these data and see what we have." And I had this image of him covered with all this paper. That's when I got the idea that this was a passion for these

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folks, and that it wasn't an exercise. This is what these people did for a living.

I went to the University of Kansas (KU), because I'd learned how to meditate, and I wanted to study meditation. I looked up the research and found this guy in Kansas who was doing meditation research, but I never met him. I never got to do research on that, but that's when I got to meet Rick Snyder. He was doing work at that point on the Barnum Effect, about how we accept personality interpretations after having taken a psychological test. Those interpretations are vague, general, and double-edged and they apply to everybody. So it really tied in a little bit with Bayes' Theorem. And it tied in a lot with work I did in Atlantic City one summer working on the Boardwalk.

I believe my Boardwalk experience was one of the reasons I got into graduate school. The summer of my junior year in college I worked in a place called a jam joint, which looked like an auction house, but was basically a rip-off place. I worked there all summer, because I needed the money, and then I took a course with Rick McCauley. There I wrote a paper looking at the social psychological phenomenon that were used at these jam joints; like foot-in-the-door and other persuasion techniques. We managed to get that published in *Psychology Today*, which was my first publication. Rick Snyder had published an article on the Barnum Effect with them a year before. So when I interviewed at KU we talked about the editors at *Psychology Today*, and it was an interesting conversation. By the way, when I went to the *Psychology Today* headquarters I saw this young associate editor with this big Afro and huge beard. It was Daniel Goldman, and I knew him at the time because I read *Psychology Today*.

The *Psychology Today* episode was also meaningful because the article got published in May of 1976, and about that time I was in the senior seminar at Haverford. One of the

guest speakers was Jack Block from the University of California Berkley, a personality researcher. He got to talking about the state of psychology. He talked about how psychology was presented to the public, and the lack of rigor in *Psychology Today*. My advisor looked at me and a lot of the students looked at me because they knew I was publishing in that magazine within a month or two, and Jack Block said, "Psychology Today is an abomination!" I didn't have the presence of mind at that point to say, "I don't think it's so bad!" Everybody just looked at me and it was almost like my advisor Doug was heartbroken, like it was going to kill me. But I was heading to graduate school and I knew that the *Psychology Today* article got me there. So I was fine using an abomination! And now 30 years later I am blogging for *Psychology Today*. So it's come full circle.

Dubbs:

What would you say was the most valuable thing you drew from your early research experiences?

Handelsman:

I think the most valuable thing I drew was the passion with which my mentors approached research, and approached their teaching mission at the same time. I also got what a lot of people get out of research, which is that you have to be rigorous and you have to be careful. You can't play around with this stuff. In general for me it was an emotional mission.

I came from a family that was not very intellectual; my mother didn't go to college and my father was the first person in his family who went to college, to become an engineer. So the life of the mind, the intellect, was new for me at Haverford. I wasn't taught by the TA, I was taught by the people who were publishing the books. And that helped a lot because I got to see the processes involved and I got to see the emotions involved.

I don't consider myself intellectually curious.

For me, research is an emotional pursuit and it's a set of relationships. So for me what I research is not as important as the process. I have never said to myself that I have to know the answer to a given question before I die. I consider myself a blue collar intellectual. I got really good training because I understand what those folks are doing. The passion to engage in a process that is at the same time interpersonal, intellectual, and beneficial is what drives what I do.

Widvey:

What motivated you to write on the topic of Ethics in Psychology?

Handelsman:

Remember when I said I wanted to go to Law School? That's a piece of it. There are a lot of streams that went into it. Interestingly enough we didn't have a course in ethics in graduate school, which was a problem. When I was in graduate school, I started to talk to a student one year ahead of me about friendships with clients and other issues that came up. We had an ethics workshop or two and that was fascinating to me. There's a saying and I forgot who said it, "Law is a way for a Jewish boy to become a detective without getting shot at." So there is a religious tradition of Talmudic debate. I don't know how I got that other than just living in that neighborhood. But I think that was part of it.

When I applied at this job at UCD it said in the job ad that it would help to have an interest in Applied Ethics. The Dean was thinking at that point it would be nice to have a center or something like that. I thought ok, I can do that. I developed, in the few weeks from the time I applied to the time I had the interview, more of an interest in applied ethics.

I started a group of students who all did an independent study to talk about ethics. We found an article on the readability of surgery consent forms, and they found the forms to be unreadable. One of my students, Melinda

Kemper, brought the article in and we talked about it. I said, “Gee, I wonder what the situation is in Psychology?” There it was. That was the beginning of 10 years of research on informed consent for psychotherapy. I also did a survey on master’s programs on whether they had ethics courses. There had just been some research on PhD programs and APA was just moving toward requiring ethics training for their accredited programs.

Foster:

How have you involved undergraduate students in your research?

Handelsman:

In that informed consent project there were a few graduate students and undergraduate students. For me having students involved in undergraduate research was all about teaching. Again, there wasn’t anything in particular I needed to know, but when students had ideas I tried to be supportive of those ideas, and then I would mentor them. When we were doing informed consent research we had groups of students, some graduate and some undergraduate. Every once in a while we would have a topic and a group of students would come together. For example, one of the students in one group published an article on informed consent with me as second author. It was Mark Walter, who is now a professor at Salisbury State. It became really fun to teach a small group of students at a time, and have them spin off projects. At UCD, we have sometimes had an Undergraduate Research Opportunity Program (UROP), so every once in a while a student in class would have a good idea, and I would say, “Let’s talk about it.” Recently my involvement has not been as great, because I have been working on my books or theoretical stuff where undergraduates are not going to learn some of the techniques they really need to know. So my involvement with undergraduates has gone in and out. I’m much more involved in teaching undergraduate courses than I used to be, but not as much

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undergraduate research. I did not do what a lot of my colleagues have done, where you set up a lab and set up a mechanism by which students will continuously run through that lab. I don’t know if it’s lack of organization or lack of discipline or my background as a jazz musician, needing to be more improvisational. I don’t know what it is.

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Dubbs:

In your research “Empowering Students: Class-Generated course Rules” (2005), you demonstrated that when students participate in creating the class syllabus there is less negative behavior. You also point out in the discussion that one of the limitations was the teacher was not blinded to the experiment. How would you change the experiment to correct for this limitation?

Handelsman:

That study was generated by Jeannie Di-Clementi who was a student here in 1982 when I got here. When I gave my job talk she was in the audience and volunteered for an exercise. She wound up publishing with me as an undergraduate, and then went on to a PsyD program. Now we’re colleagues and we’ve published together again 20 years later. So that was her idea. In that kind of research you do the best you can, so we did the best we could. Obviously, to make it more scientific what we would have to do is recruit a bunch of instructors who could

work on a two class period course and give students things to do, some of which we are studying and some of which we are not. The problem with that, so I can defend what we did a little bit, is that if you're going to involve students in creating the rules, you've got to be passionate about that. You have to want to do that. So to use instructors who may not want to do that would be a problem. Another issue is I that would not want to recruit inexperienced teachers to do it. I would want to recruit instructors or professors who had the experience to give it a fair test. I just wrote a blog a month ago about lecturing, and some people who lecture, and lecture in critical thinking course about you have to have evidence, say things like, "I use lecturing there because it worked for me," which is absolutely anecdotal evidence that's not critically evaluated. If a freshman turned in that argument in a critical thinking course (that the instructors themselves taught) they would get a D at best.

One of the things I am most proud of in my work is trying to do empirical research on things that have typically not been valued, like empirical research on ethics and teaching. I didn't start any of that, but I'm on the bandwagon and in my approach to ethics and my approach to teaching I will try to make use of some of those empirical data. Some of the people who teach about empirically supported treatments denigrate people who use person-centered therapy and psychoanalysis because they are not empirically supported, but they will use teaching methods that have little data to support them.

Widvey:

People usually talk about student behavior and tend to neglect how teachers should interact with students. How do you view the role of the teacher within the classroom?

Handelsman:

Again, I saw what Doug Davis and Rick Snyder did and for me they were paradigms. I asked Rick Snyder for a letter of recom-

mendation once for a teaching award. It was 10-15 years after I'd graduated. I said, "You know, you must be getting tired of me asking you for these things." He wrote back and he said something that I remember almost every day. He said, "No, no, no. This teacher student thing is a lifetime deal." I remember thinking when he died 5 years ago that I didn't get the full lifetime because he was only 61.

Teachers have an obligation that mirrors therapist's ethical obligations to clients. I would suggest that it goes beyond that in some ways. I have certain core values. One of them is respect, another is transparency, and another is veracity. I'll answer this a little by example. In a faculty meeting we talked about having a subject pool for our intro Psych course. And we were talking about telling students about the pool as a way for them to learn something about research. I raised my hand and I said, "No, I think we should tell them that we're doing it because we need to publish. That's why we're doing it, because if none of us were doing research we wouldn't have subject pools to teach them about research. Let the students know that they are doing us a favor, and in return we will teach them something about research. So we have an obligation at that point to give them some debriefing that is relevant, useful, and that's pedagogically sound." I think that's the idea, and for me a lot of it comes from Doug Heath who had reasons for doing what he did, and telling us what they were. Now in articles about how to teach the millennial generation it says you ought to tell them about why you do what you do. Heath was doing it 40 years ago. It's only been in the last few years that I have been able to do that.

Two years ago I co-taught a course on teaching skills, which is a very intimidating course to teach and to co-teach. We came up with a rule called the RTO, the Reflective Time Out, we told our students that at any point during the class anyone of us could call a time out

and ask us why we were doing what we were doing. We would then have to talk about it, and I have now gotten to the point where I can offer RTOs in any class I teach. For me that's actualizing a value of respect. I'm not averse to the consumer metaphor for teaching, but it's not only that, it's much more than that. I see it as a special relationship.

Widvey:

In the field of psychological science as well as many other fields of research there are many tools that scientists can use. What are the most common tools that you use in your research?

Handelsman:

Pencils, Likert scales, vignettes and people's reactions to them. The tools are internal. Lately I haven't done as much empirical research as before. I have been doing more scholarship: theoretical work and writing. I would consider that research in a broader sense. The tools are internal, and include values like precision. If we're going to do science, we better do it right. And yeah there are going to be studies that are without blind participants and without control groups and all that. To the extent to which we can answer a question, we want to be precise. We want to follow the technical rules. We ought to have reasons for the research we are doing other than as an exercise. Then it's a waste of time. When I have done research with undergraduates, I have never done research that I didn't anticipate publishing, partly because we have to get published and that's what we get paid for and partly because I wanted to model for students that research is important and should be important enough to have an audience--otherwise it's not really science. So, research should be done with a purpose. I also think research is a collaborative enterprise. I've published some things myself, but not many, especially the research stuff. Because research is collaborative we have an obligation to those with whom we do the

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research. Students, for example, have obligations after graduation; if they want to continue with the research they will have to contribute in some way. Faculty members have that same obligation. So that's the beginning of that list of tools. And I'm not sure that's the answer you expected. I've done a lot of work on ethics and have done a lot of work on people's responses to stimuli and we try to make those stimuli somewhat realistic so that it becomes applicable. So that's another value, application.

Foster:

When considering ethical issues and dilemmas, how should counselors/researchers make "good" decisions, and what processes should they use to come to those conclusions?

Handelsman:

We just published an article about that called "Non-rational Processes in Ethical Decision Making." I have done a lot of work about this over the last five to ten years with my colleagues Sam Napp and Mike Gottlieb. There are many ways to answer this, so stop me when you've had enough. The first element is, when we make ethical decisions we have to understand who we are as ethical beings, who we were before we became psychologists, and how we integrate the values and traditions of "humanhood," whether religious or secular or whatever, and the values and traditions of psychology as a profession. We cannot just follow APA as if it were external to us: we need to integrate. Secondly, and this was the point that we made in that article in the American Psychologist, ethical decision making cannot be entirely cognitive and rational. It is not like science where you try to get rid of all that stuff, and you can produce science that is reasonably free of emotional components, although I can argue that too. But for ethics we have ways of making decisions that people like Daniel Kahneman have told us are not rational. Sometimes we make a decision and then reason out why we made that deci-

sion, which may or may not be good. We have to account for our emotional involvement. It is the same thing when we say, "I'm going to have a subject pool so that students can learn about research."

I met a guy at a conference once, and he was complaining that his college didn't let him do private practice in his office because he was a professor. He said, I think that doing psychotherapy is really important to help keep me current and so I am a better teacher because I do psychotherapy." So I said jokingly, "So naturally you would do it for nothing." The idea is, let's be honest with ourselves, as well as with other people. It is okay to say that I have an interest in something. If our interest is, for example, to do good work in psychology, we have to be honest about that. If we have a financial interest, that's acceptable. However, when that overrides too much, for example, the interest of a client to get good therapy, then we have a problem.

So we have to integrate what we have, we have to be honest with ourselves about everything that goes into that decision and not deny that those non-rational factors are happening. We've labeled this positive ethics. We didn't invent this, but we labeled it. My colleague Sam Knapp and I labeled this positive ethics, which means we have to go beyond the minimum. It's not enough just to follow the rules and not get complained against. Can you imagine on your ethical tombstone, here lies so and so, an ethics committee never complained against him? That's not how we want to be remembered. I encourage people to remember what they wrote, or what they will write, on their graduate school applications. We don't write: "I want to be a teacher because I want to give tests." We don't write: "I want to be a researcher because I want to fill out IRB forms." We don't say: "I want to be a therapist because I want to see if I can do it without getting caught at doing something bad." We say: "I want to help people. I want to find out things about the world." So we need

to have high ideals, high values, for ethics, not just stay out of trouble.

Miller:

One of the things I remember from a conversation we once had is you had said you can't just take the ethics you have as a good person and apply them to a clinical setting. Can you expand on that?

Handelsman:

Yes, that's what we've called ethical acculturation. Being a nice person doesn't make you an ethical therapist. It's like when you go to France, you're going to have your salad after the entree. There is going to be stuff about how you act in your new culture that's different. Gottlieb, Knapp, and I developed the idea that becoming an ethical therapist is like going to a different culture, so we looked at the acculturation literature. We found that there are different strategies that can be used. John Berry's work suggests that integrating your culture of origin with the new culture works the best. People who give up their old culture don't do as well. People who never acculturate at all don't do well, so you have to integrate both.

For example, if Antoinette says, "Gee my parking meter is out, I don't have any money. Can I borrow a dollar?" I am going to say sure. But as a client, if she were to ask me that, I am not going to give her the dollar. Some people have trouble with that, because the client needs something and I want to help people. There is your preexisting value. The value of helping people still holds, but how that value is implemented in psychotherapy is really different. Psychotherapy is a constrained professional relationship. That works best when it's protected from contaminating features, like other relationships and boundary violations, or confidentiality violations. As you become a professional, actualizing your values in a different way, or reorganizing your values will be required. For example, loyalty is a very nice value, but it's not the highest value in a professional

setting as it is in some people's friendships. Loyalty to colleagues for example, is not the highest value in the profession. If you were to find your colleague acting unethically, your loyalty to the profession trumps your loyalty to that individual. So we have to do some cognitive and emotional work to acculturate to psychology. That's where a lot of my work has been over the last few years.

Dubbs:

With the increase of technology what approach ethically should clinical psychologists take in regard to email and texting?

Handelsman:

One approach is for psychologists to think about every email and every text they send a client as being published. The APA Ethics Code says you have to tell clients that if they're using the Internet, like email, it might compromise confidentiality. Of course, a letter can get lost and read. We don't know yet how much more ethically difficult these new technologies are going to be, but we have to be concerned. We know APA has task forces looking at these issues. The value of convenience and enhanced communication is on one side. That can be really cool. On the other side, however, convenience can lead to sloppiness. It's like not locking a file cabinet. The idea is that technology allows us to be much sloppier. So we have to be really careful.

A lot of the content I used when I started teaching isn't content anymore. It's outdated, but the processes and the thinking patterns that students develop will last them forever.

I'm going to make a link to technology and teaching as well. We have to look at what we gain by using technology, and what we lose.

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We have to overlay all of that with ethical concerns like respect and boundaries. Texting a client and getting texts back may be more evidence of friendship. I had a student a while back who talked about how he texted his psychologist all the time. He said, "I know it may be unethical, but it works for me." When we talked about that, he mentioned that his therapist never texts back, and I thought that's kind of cool. The client can do whatever they want; clients don't have those ethical obligations. At some point the therapist and the client should talk about what this communicating means, and what it does.

Technology is like anything else in therapy; it should be discussed. The client and the therapist should talk about what it means to both of them. I can see the client getting upset, stating, "You never respond to my text," and the therapist needs to be upfront about why not. To me, that is evidence of positive ethics, going beyond the rules to talk about what kind of relationship do we have and what does it mean when we text. At this point I believe texting means were friends, we have a connection that we don't have with other people. That might be good for therapy, but it may not be. It's like saying, "Let's go get coffee," because that's what I do with my closest friends. Going to get coffee with a client is evidence of one of these boundary crossings; as a human being of course you're going to do that, but as a professional you're not.

Widvey:

How has your teaching style evolved over the years?

Handelsman:

It's very hard to answer, because it's evolved in ways that I am not even aware of. It has become much more transparent. It has moved more into process rather than content. A lot of the content I used when I started teaching isn't content anymore. It's outdated, but the processes and the thinking

patterns that students develop will last them forever. A couple years ago I stopped lecturing, because the data suggest that it's often a waste of time, and after all the years I've been at this, I don't have enough time to waste anymore. I was giving lectures because they were convenient; I had good jokes and good PowerPoints. I had made the transition to PowerPoint a number of years ago, and they were really good, so I wanted to use them. What students were learning was less of a consideration. Now I ask, "What do I want students to experience in this class?" not, "What do I want to tell students?" With the advent of technology and online courses, teaching as the provision of knowledge is obsolete. If that is what I do in class, I am wasting everyone's time, and I am obsolete. I have to think carefully about what I am doing in class that students cannot get by googling a topic. They can get better diagrams than I could ever provide, because where am I getting them? I am getting them from the Internet. But this question about evolution for me is really intriguing, because I believe I am either getting closer to what Doug Heath did in those Theories of Personality classes, or moving from what he did. I don't remember because I was too young at the time to know exactly what he was doing, but I think it's a combination of both. I am actualizing the principles that I learned long ago.

There are several models of teaching. The first model is Sage on the Stage. I have knowledge that you don't and you have to pry it out of me, and I am going to make sure you memorize it even though I have notes when I teach it. The other is Guide on the Side, with problem-based learning, and collaborative learning. I'm not opposed to either model, but I am evolving a model myself called Guide on the Stage. Students need to experience stuff. Once they graduate they're not going to have people telling them what's important. They have to develop skills of their own. I may be a bit more active than other professors at getting them to do that.

Sometimes I think that's laziness on my part, because if I worked harder to prepare, I could move further to the side. Other times I think maybe it's a nice balance, because I am not opposed to telling students things; lecturing has its place. But for me lecturing has its place a few minutes at a time. Although I am not sure that that's based on sound evidence. There's controversy over whether our attention span is that short.

Foster:

What are the advantages for faculty in working with undergraduates in research?

Handelsman:

One is that they get publications that they wouldn't get otherwise, so it's personal self-interest. Now having said that, that's not enough, because you can often train a graduate student much quicker. Another advantage: It is a way to teach that is unbelievably fulfilling. I worked with a student named Jenna Goesling on an honors project as an undergraduate. She was an amazingly good student, who has a doctoral degree now. She published this in 2000 with a graduate student and me. We were looking at the data, and she said, "What if one person was different than the hypothesis, and that person went up instead of down?" and I said, "That's why we have groups of people in these conditions," and she said, "Oooohh." I could tell, at that moment, she really got it. She was an A student all the way through and got a 104 average out of 100 in my intro class. At that point two years after she had statistics, she understood what analysis of variance was. That's when it happened, and how cool to be present at that moment, and teaching in a way that is so impactful. It's inefficient because you're doing that 1-4 people at a time, but it works.

Another advantage is to collaborate, and there's not a whole lot of difference between undergraduates, graduates, and professors, other than professors can find things out quicker. Undergraduates and graduates may

need a little bit more background before they are able to develop really good ideas. Other than that, it's simply a really nice source of collaboration, and it's an opportunity for inspiration.

Speaking of undergraduates: One semester an Intro Psych student on a midterm course evaluation said, "I don't understand how you could be so enthusiastic every day." I thought seriously about that, and I came up with something that guides my teaching almost every day. The next day I came back to class and said, "You asked me how I can be so enthusiastic every day." I told them this, which I really believe: "Somewhere during the course of this semester, it's possible that I could change your life. I had my life changed by interactions with professors. It's usually just one interaction that can change someone. The problem is I don't know who it is, or when it will happen, so I have to treat every interaction as if this could be the one."

It's easy in class, but it's harder when I'm doing research and a student comes in and asks, "Do you have five minutes?" and I'm about to explain to them for ten minutes why I'm so busy that I can't meet with them for five, and then I say to come on in and have a seat, because this could be it! This could be the moment! Working with undergraduates, in general, keeps me on my toes. After thirty years, with technologies like Skype, I could literally phone this in. But when there's real people involved, I have an obligation. I feel that obligation more and more, because I am less beholden to colleagues and to my own career advancement.

Dubbs:

Your background involves therapy as well as teaching; how does your experience in therapy influence your approach toward teaching?

Handelsman:

I used to tell people I approach therapy as an educator, because of cognitive behavioral

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stuff like giving homework, and I approach education as a clinician. There are some commonalities in my teaching and philosophy as a therapist. Often teaching is seen as a less important or less risky venture, so we don't think about our ethical obligations in the same way. We can, however, and I think it helps us teach better. We want to provide benefit in both teaching and in therapy. The benefit is different, but we have to think about what we are providing, what students getting. This would include whatever we do; classroom teaching, advising, research mentoring, informal interactions in the hallways, etc. Teaching involves risk, just as therapy does. It involves an empirical base in the same way therapy does.

Through a lot of grad school I was thinking of myself as a clinician, although I loved to teach. I received a job offer to be a family therapist on a Tuesday. On a Wednesday, I got a job offer to be an assistant professor. I figured, let's try this professor thing for a while. This turned out to be a really good while, since I'm still teaching. So the idea of involvement in a professional relationship to create benefit transcends therapy and teaching. The way I started my career is that providing information to students is not as big a part of teaching as it seems.

Widvey:

Which of your teaching awards has meant the most to you?

Handelsman:

Every single one of them is unbelievable, literally. They are a really nice burden, because every time I get one, I think to myself: now I have to earn it. I know this because the next class that I start after I get the award, students look at me like, "Who are you, and what do you have to offer me?" At that point, the award does me no good. If I say, "Hey look, I won an award!" do you know what they say? "So what, we're here now. I don't care what you did in the old days, so what have you got?" I have to an-

swer that, so I do it in a way that the people who gave me the award don't want it back. It's the old Harvard Medical School situation, where students thought they got in because of a technical error. I know that in five years I will be doing things differently and better than before. Every five years I think, I should go to the students I had five years ago and get them their money back, because I'm doing something better now. So the award is a time limited issue, and I need to keep going.

Foster:

What is your favorite course to teach?

Handelsman:

It used to be Theories of Personality, and you don't have to be Freud to figure out why that is. I taught that a long time. Every course has its own issues, its own people. One course I am teaching now is a first year seminar course called How to Think Like a Psychologist. It's interesting to me, because I have to go back all the way to the beginning with first semester freshmen, and see where they are and how I can get them to think more empirically, more critically, and more ethically. Those are the three pillars of the course. That is just the coolest thing. Some of my colleagues ask why I would want to teach freshmen. It's because I can get them before they develop bad habits.

Of course, I also enjoy teaching ethics, because I love that stuff. To get students to say, "Wow, I thought this was going to be a really boring class, but it wasn't." No matter what I teach its good, but for ethics it's wonderful. I believe ethics is a core of the psychology curriculum, in the same way that a lot of people think that statistics is a core. You can substitute the word statistics for ethics and give the reasons why you should teach statistics, and apply them to ethics. Statistics is basic to psychology, and so is ethics. When you join APA, you don't get a statistics book, you get a copy of the APA Ethics Code. Statistics is used in all phases of psychology, or should be. Statistics needs its own course

because it's a foundation for higher-level thinking. You can't do statistics as part of individual courses. I would make the same argument for ethics. I have heard students say that they have learned more about psychology in the ethics course than in any other course they've taken as an undergraduate, and I have taught ethics at undergraduate and graduate levels.

So they are my favorites now, but whatever course I teach next, I will make that my favorite, as I owe it to my audience. As Ethel Merman said, "You have to perform everyday on Broadway as if it is your first time, as it is the first time these people are seeing it." Again, it has to do with obligations to students. My students now don't care how many times I've taught this, nor do they care that I did a good job last time. I have to give them the same product or a better one.

Dubbs:

How can instructors increase the appeal of research for their undergraduates?

Handelsman:

That's an empirical question, so I don't know the answer to that. From my theory, I would deduce that passion is key. When I started to teach, I got bunches of books about teaching, and the key word throughout all of them was enthusiasm. So in research, you have to be enthusiastic about it, and particularly in ways that students might engage. There's a number of ways to engage; you can engage when you teach or do research in the material, in the technology, in the pedagogy, in the people. No one is going to engage in your research in the way you do. As a teacher you can't say, "Wow look at the grey matter in the brain, look at serotonin. Isn't this amazing?" Why? Because students are going to say, "What's amazing? I am texting my friends." What was amazing for me about research was that people work so hard at it, nice people worked at it, and it was part of who they were. So you need to be open to working with students, and to portray re-

search as more than something that will get you into graduate school. Graduate school is more than research, and life is more than research, so research has to be like in a Special K Breakfast: part of a well-balanced meal.

I think it helps to communicate to students that it's not rocket science. This can be done, it just takes work. There is no secret handshake when you start doing research. It's not like you're in this club now, and you will understand things that the peons don't understand. I'm trying to give this message in my first year seminar class. I tell them, when you go home, and you turn your lamp on and it doesn't work, how many people change the bulb, change the fuse, change the wiring, buy a new lamp, then turn it on? We don't do that, so what do we do? We change the bulb first, and then we turn it on. If that doesn't work, we put the original bulb back, and then we change the plug. We do research. We systematically test hypotheses. I think it's really important to make the connection between how human beings think and how researchers think. Somebody to read on this issue is George Kelly, who is a forgotten theorist. He wrote about doing therapy and research. He said something like: My first hour of the day was a research meeting, and I was talking to students about observing the world carefully, making and testing hypothesis. My next hour was a therapy hour. It was different. I was talking to my clients about looking at their lives, and coming up with their ideas about what their lives were. Testing out their ideas and changing based on what they get. Next hour, research again, back to science. And he talked about how we act as scientists, to some extent, naturally. So to do some undergraduate research is not about changing everything you do. It's about taking predilections that we have and honing them.

Widvey:

What were some of your best and worst moments as a teacher?

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Handelsman:

I am going to do a little flip and say my worst moment became my best moment. My worst moment was when I was teaching Introduction to Psychology. I gave the first test and people did pretty well. I gave the second test and people bombed it. They were really angry about this. I realized that I had made a mistake; I made the first test easier than usual and the second test harder than usual. Tests can get a little harder, and that's usually OK, but this big disparity was clearly my fault, my mistake. I didn't have the research, I didn't have perfect data, but I knew that this was not the usual, and that students concerns were correct. One student said to me, "I don't see any reason in studying anymore." That is the opposite of, "I don't understand how you can be so enthusiastic." It was the worst thing that someone could have said to me: Because of my performance as a teacher, they are off studying. The reason why it became the best moment was because I had a Student Management Team. This is an idea that I learned from Ed Nuhfer who is now at California State. It is a group of students in the course who meet with me regularly to give suggestions about how the course could go better. We had a pretty intense meeting after this test. I mentioned that I was concerned about this course failing, that everything that I am trying to do in this course could blow up because if the customers turn and run, there's no business. What do we do with this? I made a huge mistake that has big consequences. So one of the students, a pre-med student, suggested we have the students take test three, and then average test two and three, then that could be the grade for test two. That plan built in a correction factor, so if students study, they won't only do better on test three, but also better on test two. They can learn that studying pays off. So I went into the class the next day, admitted my mistake, and the Student Management Team presented the idea for the solution. After that class I had students come up and thank me for the oppor-

tunity to make this situation right. They said no professor has ever listened before when they had a complaint about a grade. I'm not sure any professor has ever made such a big mistake, either. But that turned into a moment where I was able to demonstrate to students that I care and that there were ways to solve problems, and that students were involved in that. So I think I modeled some good things. I learned that you can deal with students, because they are just like people!

Foster:

Graduate education is a vital step in becoming a psychologist. How has this education changed since your time?

Handelsman:

When people ask me that, or when people ask me questions about how students are different now, I can't answer because my lens is set differently now. Colleagues sometimes say things like, "Students now aren't as good as we were." First of all, we were the best students in our class, so we didn't notice the people behind us. There have always been bad students; we just never hung out with them! And there are more first-generation college students going to college now, so there are student who don't know what college is like the way we did. We had the college tradition instilled through our upbringing. Students are the same in many important ways; there are good ones and bad ones.

I have seen changes in graduate school, but again, I don't have the wide-angle lens that would be useful here. Academia has changed, as it may have become more money driven; getting grants has become more important than getting research, to the extent that students have to get socialized into that earlier. It takes away from being able to think about bigger ideas. This is something that I think Jack Block might have said, because I couldn't listen too well after he told me that *Psychology Today* was an abomina-

tion, but I think he was talking about how theory is devalued. You have to publish a lot of stuff, and theory is published in big things, and not every year. So the ability to think deeply, to think widely, and to be a generalist may have been more possible than it is now. I don't want to get into the trap of saying it was much better in my day, because another issue is the increased opportunities to collaborate and to get research done.

I remember there was a time when I had written a paper with a colleague or two, without ever having seen them, maybe without even talking on the phone. It was all emails. That has made the opportunities for graduate students to get feedback from the field much greater. So the good and the bad is that we can get a lot more done a lot quicker, which has made the ante go up about how many publications and post docs you need for graduate school. But the opportunities are greater to begin with. However, this is all anecdotal evidence; we would need the surveys.

Miller:

For many people the end of a graduate education comes in the form of a dissertation. How long do you think a good dissertation should be and how long was yours in comparison to your peers?

Handelsman:

Did you look at mine?

Miller:

No but there are former classmates of yours who talked to me.

Handelsman:

This is a setup. I will talk about the good and bad of that. I typed my thesis on a Smith-Corona typewriter, and my thesis and my dissertation combined ended up totaling 100 pages exactly. I had colleagues who were in the hundreds and hundreds of pages for their thesis. The good news was that Rick Snyder was my advisor, and his goal was to

get me out of graduate school. I remember being at a research meeting and Tim Smith, who is now a really big name in Health Psychology out in Utah, and Rick was going around the room. He said Tim's goal was to get a dissertation. I helped him with his dissertation; that's the only connection I have, other than we played on the same softball team. Then Rick turned to me and said, "You want to get out of here." So I spent five years and a few extra months, because my research assistant got sick, in graduate school. A lot of colleagues took ten or more years at big name programs, where Rick got me out in the allotted time. The bad news is that there are a lot of skills I don't have. When I need to do a factor analysis I have to go to colleagues. If you look at my research record, it is not as empirically substantive as some of my colleagues. The good news is, I got out, and was able to make a living and learn a lot. During my first five years of teaching, I learned a lot while my colleagues were still in graduate school. So the good news was I was able to maintain an applied focus to my research, and I am a good mentor for students who may not be so passionate about research that they want to spend ten years in a graduate program. I will not say I got as much out of graduate school as my colleagues, but that's fine. It's a big field with a lot of ways to do it. My colleagues came out of that program to do a lot of great things; Tim Smith is one of them. I have made my contributions in other ways.

Dubbs:

What can novice educators do to improve their teaching style when they are struggling to balance tenure requirements with educational duties?

Handelsman:

I work with a lot of younger folks. I often have them do a teaching autobiography in the same way that I encourage students to do an ethics autobiography. What is teaching about? What does it mean to you? How do you see yourself as an instructor? The issue

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is one of pedagogical acculturation. Pedagogical acculturation is like ethical acculturation. How do you turn somebody who likes to talk about stuff into someone who is educating other individuals to be good psychologists, good citizens etc.? I think some of that bigger thinking about the values that underlie behavior is important.

A lot of young professionals are really concerned about good teaching and they spend a lot of time preparing lectures. If they spent the same amount of time preparing activities with good thoughts about what the goals are, and they take some risks, they are going to do really well.

Some of that balancing act is strategic; for example, working on undergraduate research counts as research as well as teaching or mentoring. There are ways to combine the research and teaching enterprise. In terms of classroom teaching, I think younger faculty have to read the teaching literature in the same way they would if they were going to do research. You're not going to do a study on terror management until you read Pyszczynski entirely.

Some of the relatively new ways of teaching, although they are forty years old, may not take that much more time when compared to generating a really good lecture. It's amazing how little time you can take to prepare a lecture that sounds like its acceptable. A lot of young professionals are really concerned about good teaching and they spend a lot of time preparing lectures. If they spent the same amount of time preparing activities with good thoughts about what the goals are, and they take some risks, they are going to do really well.

When I came out of graduate school, after having had Doug Heath, and doing collaborative learning, and getting good teaching mentorship at KU, I thought I was about five years ahead of the pack. I thought, I am innovative and five years ahead, and in five years, I will be ordinary if I don't do anything. I am still five year ahead, partly because I have progressed, but also partly because the field has not progressed as quickly as it looked like it was going to in the seventies. If you go into classrooms at random, way over fifty percent would be primarily lecture. So we haven't taken advantage of the stuff that we know works. There are a lot of reasons for that. It's not laziness by any means. There are a lot of cultural and institutional and personal reasons. My view is that my younger colleagues are starting to win teaching awards by doing small things that, interestingly enough, may save them a little time, but are also true to their own goals of teaching.

Widvey:

How do you infuse what you are passionate about and interested in inside of a classroom that has predetermined learning objectives?

Handelsman:

One way to do it is to work long enough, and to have a department chair nice enough, to allow me to teach courses (a) in which I decide what the learning objectives are, and (b) are ones I would do anyway, like the ethics class. Here is what I have been doing recently. I decided that the textbook has enough information in it, and if students read the book, they would learn everything they needed to learn. When you lecture, it's almost like your saying, "Here's the important stuff, unlike that other stuff that's in the book." I don't want to communicate that. Students want notes; sometimes in my course evaluation I have students complain that I don't give notes in my class, that I force them to have to think for themselves and find out what's important themselves.

And I say, "I have a complete set of notes; it's called the textbook. If you want to read the 3,000 studies that are referenced, go ahead, but we've made it easy for you, because we have narrowed it down to just this." I don't do review sheets, because again, its saying this is all they need to know, and I think they need to know everything. However, I am going to spend class time and I am going to have exercises to help students learn how to learn that material. I'm going to explain to them how to read the chapter, how to pre-read, how to take notes, how to write reaction papers. In class we're going to talk about and practice how to process information. We're going to play games in class, and the home version of this game is: what we do with one section, you can do with all the other sections. I tell students that they are in a professional relationship with me, and their obligation is to spend time out of class working. There are lecturers on the Internet that are better than what I can provide. Why try to beat their lectures? What I can do is have this group of people learn stuff in a way that works best for this group of people. That's my clinician working.

I call my assigned papers in my first year seminar RAPS, Reflections and Applications in Psychology. Nine times during the semester students have to write a one-page paper that does something more than question or summarize with the material they read for that day. The feedback I get is that at first they hate it. They have to decide when to do their RAPS, and they usually wait until they have no choice left. They are confronted with their own procrastination, and they have to do something about it. So that's one way of learning. Another is, it forces them to get the reading done for that day. The biggest advantage is that I have students tell me that when they read, they are reading differently. Most of the time when a student reads an assignment, they are saying to themselves, "How many words left before I can go get pizza?" Now when they read, they're asking themselves, "What does this have to do

with my life, and what does this remind me of?" That's the way to read. That's one of my process goals. When they do that, they will get the content better. I'm dragging the content along with the process. A lot of times in lecture, you drag the process along with the content. You are assuming the students are thinking critically, or they are thinking about what they read, but you do it by giving them the information. I do it in reverse.

And whether I am successful or not is an empirical question. You would have to get a group of my students and a group of other professor's students in upper division courses to see if mine were better. So I make no claim that I am more effective than anyone else.

Foster:

How does it feel to serve as a mentor for students and what qualities are necessary for a student to have in order for you to mentor them?

Handelsman:

It feels wonderful. Professionally, there is nothing better, except to have everyone crack up at my jokes in a really big class, but that doesn't happen as often as mentoring. Students need some degree of passion, some degree of enthusiasm, and good work habits. The answer to this question is really mundane. You can look up research on what it takes to be a good employee; good work habits, reliability, showing up on time, and the liberal arts skills that psychology majors have: for example, reading critically, thinking critically, writing, and communicating. Some intellectual curiosity is nice. They may need more when working with me, because that's not necessarily where I inspire people. They need to meet me halfway. There are a lot of bright students who are saying that they need to do some research to get into to graduate school, so show me what to do. That's like saying, "I am a great leader, just show me what to do." That's not good enough. If courses work well, then students

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should come out understanding that there are things we don't know, and that there are ideas about how psychologists go about answering some of those questions. If we are doing well in the classroom, we should be cultivating people with a certain level of curiosity.

Widvey:

Pop culture has created many misconceptions about psychotherapy and the field of psychology in general. What do you think can be done to change these views?

Handelsman:

Well, Psychology Today isn't the answer, is it? I have a trite answer to that and that is better education. If we teach people to think more critically and to understand that the world is not simple and none of the professions are simple, that might help.

I'm trying to think of an anecdote from class. We were critiquing an article in my first-year seminar and it was about the millennial generation. There was something in the article that said, "Millennial are this..." and one student raised her hand and said, "Well, then that means she's saying all millennials are that way." And I said, "Where does it say that? It doesn't say that." So we got to talking about, "Well, if not all of them are that way than this is totally wrong. And I said to the one guy who asked me the question, "Are you seven feet tall? And he said "no." So I said "then you must be totally short." And this kid's like six foot, and he said "no." I said, "Oh, ok, so just because it doesn't meet one criterion, doesn't mean it's totally different."

Helping students understand that life is complex and at times needs complex reasoning and solutions to problems, I think is an antidote to the onslaught of pop culture, one of them anyway. The idea of having students use what they read about for the last class period this class period helps with that as well. If students understand that knowledge

and skills build up and there's processes involved, when they see pop culture they're not going to say, "Oh, that must be the way it is; I guess ESP exists because, you know my Aunt Martha said that she had a dream." The issue is "Wait a minute, my Aunt Martha had a dream every day for the last 40 years and only one of them was right; maybe ESP doesn't exist." To process information rather than just absorb it is important. With YouTube it's really hard, because it used to be when I was young we would say, "Look at what I can do, look at what I can build! I built a telephone out of two tin cans," and now it's "Look what I can see, look what I can watch." And that's a different thing. What about "Look what I can do with what I can build with what I've watched!" would be the next step.

Widvey:

How do you change the view socially, because you see a lot of people that are in college, that are taking psych that have no clue about psychology and their understanding is pop, how do you change that?

Handelsman:

Like at parties and stuff?...

Widvey:

Yes, like you go to a party and tell someone, "Oh, I'm learning psychology," and the first thing they usually say is, "Ok, so are you going to psychoanalyze me?" That just happened at the hotel.

Handelsman:

One issue is to be able to engage people at whatever level they are in a way that doesn't make it look like you're trying to teach them formally. If they're joking about it, I'll make a joke. "Are you analyzing me?" "I don't work on the weekends." Or, "I'm not that good!" Or, "I spend my life talking about ethics. There's an ethical issue here. I can't analyze you without your consent." So there's different levels at which we would interact and that would be a matter of judgment, and

how much wine we've had, and what the relationship is.

Foster:

For many years you co-authored a column on humor for Eye on Psi Chi. How did you get started on that?

Handelsman:

Joe Palladino and I met, and I couldn't listen to what he said without laughing. I tried to top him, and we got to talking. We started writing and performing "Psych Follies" together at conferences. He was the inspiration for all of this. I tagged along and said, "Can I help?" And he was gracious enough to share the activity and share credit. But he started Psych Follies. He knew somebody at Psi Chi who wanted to publish a column and he brought me along with that. It was a lot of fun, and the nice thing was that you have to understand a little psychology to get some of those jokes. It was a way to communicate with more people. Now I'm writing an ethics column for Psi Chi. The humorous stuff was nice because I developed a reputation among the Psi Chi folks and I realized this was a way to disseminate knowledge. So some really good stuff came out of the humor- not just the humor and the t-shirts.

Miller:

T-shirts?

Handelsman:

We had requests from several chapters when we published our international symbols for psychologists. Psi Chi chapters wanted to use that on their t-shirts. It was great because it was Handelsman, Butler (who was our cartoonist), and Palladino. So I considered that a publication! Doing the Psi Chi work has been really fun and gratifying, because it's a way to communicate with more students.

Dubbs:

In graduate school you were a member of the PsychoBats. What position did you play

and were you any good?

Handelsman:

I played first base for a while because Rick Snyder pitched for the first couple years, then he retired from the PsychoBats and I followed in Rick's footsteps in many ways. I was an OK softball player, and that was about all. Slow-pitch softball was about the limit of my athletic ability. And then when I got here to Denver, I signed up for one of the city league teams. I realized that I was ready to quit playing softball when I stopped imagining that I was in the major leagues and started imagining that I was in the old-timers' games. It was at that point that I started playing music; it was a little bit easier on my knees. I was ok, but there were people who were much better than me, some of them really well known psychologists. Rick Ingram, now at the University of Kansas, was an amazing third baseman. He used to hurt my hand from third base throwing people out at first. Tim Smith is another great player, because he was an athlete in college. Kevin McCaul is a well-known social psychologist and he played left field.

Miller:

How did you come up with the idea of Psych Follies and how did that process work?

Handelsman:

When I was a kid, one of the biggest things that happened was a neighbor of mine got a reel-to-reel tape recorder. I remember that when the adults were upstairs and we were downstairs, we started doing interviews. And I remember I did one as if I was Moses. Remember the Carl Reiner, Mel Brooks, 2000 year-old man? I think that influenced us. We did these interviews and then we did a show. It never got particularly sophisticated, but it was just telling jokes. I wound up doing that with psychology, so the personal origin was that tape recorder. But then Joe came along and had the mechanism to not take himself quite as seriously as other psychologists may take themselves, and he was

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a good role model.

Widvey:

Tell us more about your musical career? Was the trumpet always your instrument of choice, and where do you play now?

Handelsman:

My parents offered me music lessons when I was a kid, so that was the best thing because I started in third grade and was just good enough at each level to be in the band and orchestra. My best moment was in college when I played the trumpet solo in Handel's "Messiah." I had just enough talent to make it through that performance. In graduate school a group of people got together and started to play the blues, including some big name psychologists. Tom Pyszczynski was our bassist. Tim Smith played saxophone. Randy Jorgensen, who teaches at the University of Syracuse, is an amazing guitar player, so we played every month or so.

Miller:

What was the name of your band?

Handelsman:

It was called the Sunset Blues Band, because there was this house that a few students rented on Sunset Street in Lawrence, Kansas. We just had a reunion this past summer, which is on YouTube. I don't know if you've seen the YouTube video...

Miller:

I've been referred to the YouTube video, yes...

Handelsman:

So if you say something I don't like I'll make you watch it! I started playing jazz, blues, and everything shortly after I got here. I had a colleague who played the piano and we started to play. Since then I've practiced a lot and now I play professionally. I just played last night, and play at various restaurants in town. I've played with some really good people in some really good venues. I've played

at Red Rocks. I've played at Boettcher Concert Hall...once!! I've played with various groups that have been really good. I've opened for some good people. I opened for Al Jearrau. Or, more accurately, I was in a band that played before he did. That's the amateur status; it's not like who I've played with, but who I've opened for.

Miller:

What are some of your favorite tunes?

Handelsman:

I'm a product of the late bebop era. Miles Davis, Duke Ellington, those compositions are wonderful. And of course, I tend to lean a lot toward trumpet players, because even though it doesn't sound like they play the same instrument that I do, it's really fun to listen to them.

Miller:

Can you put the words "Stormy Monday" and "Moondance" together in a sentence?

Handelsman:

Moondance was a tune that we would play earlier in the evening, because it was mellow and took more technical expertise to play, but when things got a little raunchier late in the evening and people were dancing, then you had to get down and dirty and play Stormy Monday.

Foster:

What is the most important element regarding your work you wish society to remember?

Handelsman:

We do this exercise where we ask, "What's going to be on your epitaph professionally?" And, of course, I want "Published but perished anyway." Not my joke, but I saw it on a cartoon.

I will let my students' accomplishments speak for me. I had a student once who said, "Thank you, now I know if I become a pro-

fessor, I know how I want to treat my students." To have an impact on students so that they are actualizing some of my values and some of their own would be great. I really don't need my name attached to that. I've had my name attached to more stuff than I ever hoped for in my lifetime. The article that I published in *Psych Today*, we originally submitted to the *American Psychologist*. It took me 35 years to get published in the *American Psychologist*, so at this rate my second publication in *American Psychologist* will be when I'm 92 years old! Another thing is to have people tell me that they use my articles in their ethics classes, let alone my textbook. That is amazing to me. That this kid from Philly who didn't know what college was, is able to help in that way is fine with me. I'm close enough to the end of my career that I can start thinking about that, but I'm not so close that I think, "I have it all." There might be something coming up that I don't know about yet.

Dubbs:

What are your future plans for scholarship and teaching?

Handelsman:

To try to get good at it, to try to get better. In a lot of careers, there are choice points where you can go into training teachers, and I've thought about moving into a faculty development role. I do that kind of informally. I could try to become president of organizations and divisions. I think, "Boy, that would be really fun!" But then I think, "Why did I get into this business in the first place?" I got into this to teach, and so that's when I go back and accept new challenges. I volunteered two years ago to do the first-year seminar even though it was a new preparation and it's very challenging. I thought, "Let's go back into the classroom in a big way, and see what I can do."

I have some specific short-term plans. I think, there might be another textbook in the works on ethics. I got an internal grant

to work on student management teams within the first-year seminar, so I've been doing workshops for groups of faculty on campus. Working with my junior colleagues to help them do this academic balancing act, which is much tougher than mine for various reasons, is probably going to be a focus of the next number of years. And of course one goal is not to get burned out. That is a danger at this point when I've had way more success than I ever thought I could, and way more recognition for what counts as success. There's a tendency to think, "well, I've arrived." But I'm nowhere, I'm still on the way. A guy named Dick Gibson once said, "The blues is the easiest kind of music to play and the hardest kind of music to play well." And teaching is the easiest thing in the world to do. You go into a room where people have to pay to come in. You say things and then you leave. And that's teaching—traditionally that's teaching. It's the easiest thing in the world to do, but it's the hardest thing in the world to do well. You're dealing with variables that are very hard to measure and you're dealing with processes and systems that are not designed necessarily to produce what you want to produce.

Miller:

Thank you so much for giving very thoughtful answers.

Handelsman:

Thank all of you for asking amazingly thoughtful questions. It's a privilege to do this. I really appreciate it, and again I know I'll go into work on Monday saying, "What am I doing that deserves this recognition?" This is the kind of stuff that keeps me on my toes.

Psychologically Speaking

Differing Perspectives on Engaging Undergraduates in Research

Moderator:

Richard L. Miller, *University of Nebraska at Kearney*

Discussants:

Barney Beins, *Ithaca College*

Sue Frantz, *Highline Community College*

Kenneth D. Keith, *University of San Diego*

R. Eric Landrum, *Boise State University*

Scott O. Lilienfeld, *Emory University*

Robert McEntarffer, *Lincoln, Nebraska Public Schools*

BACKGROUND—On October 14, 2011, a group of faculty from several different types of educational institutions got together at the Best Practices Conference in Atlanta, Georgia to talk about undergraduate research. The panelists addressed several questions, including: Why engage undergraduates in research, how to structure the curriculum to promote undergraduate research, what departmental resources are needed to support undergraduate research, what are some ways to excite students about conducting research, how can faculty who promote undergraduate research be rewarded, and what are the benefits of undergraduate research? In order to explore different perspectives regarding undergraduate research, the panel included individuals from a Research 1 University, Comprehensive University, Liberal Arts College, Community College, and High School.

Miller:

Why, from your perspective, and perhaps your institution's perspective, is undergraduate research important?

Frantz:

Undergraduate research gives students opportunities to experience research, to experience the science of psychology, first-hand. Everything is neat and clean by the time it shows up in a textbook and conducting research is actually a very messy process. So, I think it's important for students to have that experience.

Lilienfeld:

I agree. I think there is a real difference between procedural and declarative knowledge, and I think there is a procedural element to doing psychological research that you just don't get by reading about it. I also think that it really gives the better students a tremendous sense of excitement. I think there is an excitement to discovery that you get from doing good psychological research that you don't get from reading about it in a textbook. I know that for myself, when I was an undergraduate, I actually liked reading research, but I was not sure I wanted to do research until I started doing it. And I came

to realize how much I loved doing it because I liked the idea of cracking mysteries and finding things out and discovering things. I think that's really important. And conversely, there is another side to this, which is that it's important for students to know if they don't like to do research. There are some students who think they might like it, but then realize, "You know what? This doesn't turn me on. It doesn't excite me that much to discover things." And that's also important for them to know.

Beins:

One of the things that I think is important is that, as Frantz said, it gives students a chance to experience the science of psychology, but it also gives them the chance to develop skills that they can carry with them. And the way we do it at Ithaca is to give them the chance to demonstrate their mastery, that they are really competent at this, that they can ask questions and answer them, and that they know how the process works.

Landrum:

The ultimate idea is to have them think like a psychologist, to act like a psychologist, to behave and do psychological research and collect data, to work on an IRB, and go to a conference and do a poster and all of the things you have to do, that are certainly learning skills. While we can give multiple-choice quizzes, it is better that we help them develop skills. The other piece I would add is engagement; we're talking about student engagement. If you want to get our students engaged outside the classroom, is there any better way to connect them to the science of psychology than by being a scientist outside of the classroom? It's total engagement. Whether it pays off or not, even if they learn that they don't want to do it, that's okay.

McEntarffer:

I agree with everything that's been said so far, and this might fall under the category of a nice side-effect, but I think it's a really nice

one. I think there is a bleed-over-effect into other topics that students study in the course, specifically, the methodology, and the research methods unit. When students know that they are going to conduct research, their interest in the research methods unit is heightened.

Keith:

I think students often think of research as something that's terribly daunting and doing it helps them, as other people have already said, understand that this is a set of complex skills that reasonable people can learn and being reasonable people, they can learn them and there is the satisfaction that Scott mentioned, of doing something with their own data. There's nothing quite like sitting down with a student at the computer and watching their face while they watch their results come up.

Landrum:

It is very rewarding to take students to a regional convention and having them do their poster, having other people walk up and ask them questions. The satisfaction for me is watching my students answer questions in a poster session like scientists do at APA and APS.

Keith:

I remember a time at APA when one of my students had done a study on optimism and quality of life and Marty Seligman came by and he looked at it and said, "I wanted to see this because it's what I would have predicted, but I wanted to see if it's what you found." The only other thing I'll say is that, if students are involved in a study from the ground up, I think it really helps them to go through the process of what it's like to formulate hypotheses, to rule out rival hypotheses. I think it's a great model for scientific reasoning because, when it's their own data, their own baby, and there's a lot more at stake, I think they realize how important it is to rule out confounding variables and rival explanations because they don't want to

come to false conclusions on their own projects.

McEntarffer:

There's kind of a change in role, a change in identity. You can see it when you see students presenting their own stuff where they transition from their student self, this is just stuff that I've studied, that other people told me and I can develop mastery of to "No, this is mine. This is my thing. I'm taking ownership of it and I'm explaining it to you."

Landrum:

They become research colleagues.

Miller:

The other thing that I've noticed over the years is that in the performing arts, like music, there is an amazing esprit de corps after a performance. What we have found, also, is that after we have taken the students to a conference, there is an amazing esprit de corps that helps our psychology club, our Psi Chi chapter, and everything that's going on at the university.

Landrum:

It's what we do at conferences. We sit around and tell stories that we told at other conferences. We get the same esprit de corps.

Miller:

And the other thing, just to build on what you were saying about skills, is that to assess critical thinking, most of the standardized tests, are context-free. They are "apply this trick" and you are a critical thinker. I do not believe that you can really think critically out of context. I think without knowledge of content, you can't make critical decisions; you can only play the game. There is no better way to truly understand content than to actually do the research yourself from the ground up and see how that process works.

Keith:

And it fits with most of the data on critical

thinking, a lot of which is very domain specific.

Miller:

Let me go to our second question. At your institution, how do you structure the curriculum to promote undergraduate research?

Beins:

At Ithaca College our majors take six empirical, quantitative courses as part of the major. And it starts from the first semester, so they learn from day one, this is what psychologists do. So for them, when they are seniors, it's not a shock when they go off to graduate school. They become defacto TAs in statistics. So from day one they learn that psychologists collect data and analyze it.

Miller:

Give us a little bit of detail on how your companion course works with your introductory psychology course.

Beins:

The students take introductory psychology, a traditional three-credit lecture course, and then introduction to research, which has a lab component where they meet for 1 hour a week in an all-lecture section taught by the professor. Then they break down into smaller lab groups that meet for 2 hours a week. In this semester we have 10 labs and they learn the methodology of various techniques, experimental, correlational survey research, and begin the process of learning SPSS, and start writing papers.

Miller:

How does this work at a community college?

Frantz:

Well, most community colleges don't have psychology majors. There are a handful of community colleges that offer an associate's degree in psychology with a mini-major, but that's not true for most community colleges. And so most of our students that transfer to a 4-year institution, only have introductory.

Some places, like ours, have an application to the major, so they require biopsychology, and research methods, in addition. So students get some experience in research methods, but my concern is mostly for introductory psychology, and how we can give introductory psychology students that experience? A lot of institutions with Psi Beta programs have some kind of research experience for students. At my institution, we don't. My plan is eventually to have an optional one-credit research experience lab that accompanies the introductory psychology course. But, I'm not that far yet.

Lilienfeld:

At Emory, we do some things well, but we do some things better. We have a course called Directed Research, so students can sign-up for credits. A large number of psychology majors enroll in that course at some point, especially the ones that want to go to graduate school or medical school. I think it is often a good experience for them, but there are two things we can do better, one is curricular, and the other involves the research experience itself. In terms of curriculum, I think Emory, unfortunately, has continued in the hallowed tradition of many institutions of allowing people to take psychology courses in pretty much any order they want. I don't think that is a very good idea. If I were to reform our undergraduate curriculum, I would make our major much more cumulative, and I think that would be much better for the research experiences as well. I would require not just introductory psychology, but statistics and research methods before they could even get involved with research, or even before they declare the major because some of them are math and statistics phobic. Many of them put it off until they are far too late into the process, and I don't think they get as much out of the research experience. That's number one. Number two, in terms of the research experience itself, I think it varies across labs, which is inevitable, and not necessarily undesirable, but I think it would be better to have a little more

top-down control over the nature of the experience. I think in some labs, and I like to think in terms of my lab, that they really get to see the whole process. I have regular lab meetings, where the students see us discussing and arguing over designs and sort of haggling over things and the findings, looking at data. I think that's helpful. They do grunt work, as they should, I did grunt work too. Entering data is part of the process, and they should do some of that, as well as running participants, and stapling questionnaires. They should do all of that stuff, but they should see the whole process, I think ideally, they should be involved from beginning to end, or at least enough to give them a sense of the whole arc of research. I think in some labs they just do one small piece, like data entry, and they don't see how some things fit into other things. I think it's really important for students to, and I feel very strongly about this, to get a sense of what the whole research experience is like. If they are doing one little small part of it, they should at least see why what they are doing is so important and how it fits into the bigger picture.

Miller:

What's the relationship between the undergraduate students and the graduate students in your labs?

Lilienfeld:

Generally, very good. That does depend on the lab, but the undergraduates sit there in the lab with the graduate students. Sometimes they work under a graduate student or help a graduate student with the graduate student's thesis. I have a lot of undergraduates helping graduate students with theses, so they see graduate students talking to me about what the designs are and working those through and they, in turn, help out the graduate student, and oftentimes, friendships develop from that. They get to be buddies with the graduate students and socialize outside of the lab, which is sort of fun. Also I think they end up learning a lot from

that experience and graduate students can provide a student with more guidance and mentoring than I have time for. So I think it can be really valuable.

Miller:

How does it work at Boise State?

Landrum:

There is a four credit research methods class that's required for every psychology major and then there is an upper-division course that provides the opportunity for research in psychology, that students can take up to three times and then after that, people have to play games with their credits, which we are actually kind of good at. The problem with research at our institution is that we have 850 majors, and 11 full-time faculty, so let's say that I take on 10 students, and I can't do 10 well. I have five research assistants this semester, and I think I have them for a year. I won't take them for less than a year. Even if we each took 10, that would be 110 folks out of 850, which means that the vast majority do not have access to that opportunity, which breaks my heart, but you have to balance that. I can give a whole bunch of students a limited opportunity, or I can give a handful of students a really nice opportunity, where they each go to a conference, each a first author on a poster. We don't have graduate students, so there is no graduate student model. I do know my colleagues will sometimes have a hierarchical lab where they have higher-level students who train the newbies. I don't do that; I have individual students or pairs of students on individual projects.

Frantz:

How are the students chosen?

Landrum:

It's interesting; some of my colleagues have applications and interviews. I don't. It's mostly a personality fit for me. They usually will have had the research methods course with me. Some of my colleagues who don't

teach statistics and research methods will come talk to me. I like for them to have statistics and research methods or at least a class with me so I know their work history and work ethic.

Miller:

At UNK, we use the traditional system that requires students to take a course in statistics and a course in experimental psychology in their sophomore year. However, our approach to experimental psychology is a little different. Bill Wozniak, for example, often sets up several research projects, that are group projects, but not canned projects. In fact, the projects tend to be cutting edge. It's very risky because he has no idea what the data is going to look like and if the study is going to work. Students get very frustrated when they put in lots of effort and "O gosh, why didn't we find what we thought we were going to find. I thought that was the point. You hypothesize and you have findings that support the hypothesis?" They learn early on about an important aspect of research, that it is not just confirmation of your ideas. In the junior and senior year, all of our mainstream courses, whether it's memory and cognition, biopsychology, social psychology, or physiological psychology, have an optional lab connected to the course. Students need to take two of these prior to graduation but they are allowed to choose the area depending on their interests. So if they are interested in biopsychology and physiological psychology, those are the two labs they take. In those labs, they will do either an independent or a team research project. Teams usually are limited to two or maybe three people. The actual project and team composition is selected based on interest. So they've gotten the group experience in experimental, and two independent studies in their areas of interest. After that, if they are still interested, and we still have some that are, they'll do an independent study or a lab apprenticeship. In our lab courses, we will often start out just talking about possibilities without actually design-

ing a study. I try to guide the students to topics in which there are a lot of unanswered questions. It becomes a little more manageable if you start out with the topics that you know have unanswerable questions and there is available methodology.

Keith:

A lot of schools, of course have different models. The Ithaca model is obviously one anybody would like to have. I think the most important thing a program can do is convey the attitude and have the expectation that research is a required part of the program. That it's not something a few interested people do, but it's something that psychology students do. We have 10 different labs that either co-requisite with or require as prerequisite the accompanying content area, social learning, cognitive, cross-cultural, and health, clinical. And every student must do at least one of those and then a variety of other independent studies in directed research opportunities. I have a fair catalogue of papers previous students have published in the *Journal of Psychological Inquiry* or the *Psi Chi Journal*. I use those as critique material for the lab and of course the implicit message is you too could do this because students did these. Your predecessors in this lab have done the research. This gives them a benchmark for what's expected in the lab. But I think the main thing is just conveying, implicitly, the notion that this is what psychologists do and because this is what you want to be, this is what you will do.

Beins:

One of the things that's kind of interesting, thinking about what Scott said about students being research-phobic is that on more than one occasion, the kids on my research team, when they talk to their friends majoring in psychology at other schools, they use the phrase, "they don't get to do research."

Lilienfeld:

The opportunities are not there.

Beins:

In some schools, students say, "I have to do research." My students say, "Those other people don't get to do research."

Lilienfeld:

And as you suggested earlier, and it is probably true for most of us around the table, our students are the ones who come back and say, "I had such an advantage getting started in graduate school because I had research experience." And not every person that comes from other places gets that opportunity.

Frantz:

Right now we are seeing that push in community colleges and it is one of the reasons why more community college faculty want to have that research experience for their students, because they know that when they transfer, they only have two years left. They could, effectively, be two years behind in undergraduate research.

McEntarffer:

In high school, whether or not students have a research experience is much less driven by an institutional system and much more driven by the motivation of the individual teacher. With a high school teacher, if it happens, it's because a high school teacher took it on. It's not driven by national standards. You wouldn't even have to do it, and definitely wouldn't have to do it in the AP psychology class. It's because a teacher wants to do it, wants to provide that first student's experience. So in my class, I chose to do it because I thought it was important, and the students knew about it on the first day of class so they knew what they were getting into. My AP psychology class was a year-long course and students knew it was going to be a year-long thing with deadlines for the different sections.

Miller:

In terms of the curriculum, how did you structure the research project?

McEntarffer:

My AP psychology class was a year-long course, while my non-AP psychology class was a semester long. In the non-AP psychology class, they learned on the first day that they were going to get a good start on the project. So, the students get to choose a project, to do a version of a literature review, and to do a version of a methodology section, and that's pretty much where we stopped for the semester. In the year-long experience they also did that, but since they were there for a year, we did data collection, data analysis, and the write-up. I provided a schedule with deadlines for each of the sections and after completing a section, for example the literature review; the students would proceed to the next, for example the method section. At the end of the year, after the advanced placement exam, in a classroom research symposium, every student got to present their project to the rest of the class and that's how we spent the rest of our year.

Miller:

The next question has to do with the resources you need to actually do undergraduate research at your different kinds of institutions. So at the high school, what kinds of resources does a high school teacher need to conduct research?

McEntarffer:

The dispositional resources are available and the process enhances the classroom experience. However, in general high school teachers take this on, on top of everything else. I think it helps everything else, but it's going to take a while for teachers to come to that realization. As far as more practical stuff, I think there is a real need for an IRB process, and that's not something that I was very aware of when I first started doing this. Now it scares me that I didn't have any IRB support. I didn't have anybody looking over my shoulder as I was looking over student's shoulders, and some of the stuff that we did I

could have used some advice on. I think it was a good experience for my students, but it lived entirely within our classroom and I think it would be a different experience having it go outside. There are not many outlets for high school psychology researchers. There's the Whitman Journal of Psychology that's been around for a long time and they can publish there. I don't know of many other outlets. There's no Psi Alpha, although that's been talked about for a long time. However, Teachers of Psychology in Secondary Schools (TOPSS), the high school part of APA, has also put out some resources for teachers who do want to take on doing research. So TOPSS has some nice resource support.

Frantz:

Dispositional, number one, absolutely. As community college faculty we're not required by our institutions to engage in psychological research. Our teaching loads often preclude that. So those who want to do it are pretty much doing it as this extra thing that they really believe in, exactly what you talked about. We do have Psi Beta, and there is some Psi Beta support there. Because there is this push among community college faculty to have more opportunities for undergraduates, a couple of years ago, PTACC published an IRB guide. If you are at a community college and you want to set up an IRB, there are some guidelines on how to do that. Right now we are working on a document for setting up a psychology lab. So if you want to set up a psychology lab at your institution, here are some things to think about. I think we would also like some psychology lab space. We have a room that we co-opted and we have a sign that says "Psychology Lab." It's keyed differently than everything else in the building, so we're pretty confident that we will get to keep it, but we do need to make better use of it.

Keith:

In our context, the biggest resource is faculty, because we offer 10 different upper-

division research labs limited to 10 people each per semester and they're three credits per lab, so it's essentially a full-time course preparation to do one lab, which means we invest a lot of faculty resources in teaching those labs. And the other thing we are negotiating now with the administration is getting a more secure and substantial level of compensation for people who do independent study projects. Some institutions, if you do three of those or five of those, it counts as a course equivalent. We don't currently have that. We are currently negotiating with the dean to get that as a way of encouraging faculty to do more independent and directed readings with students. So for us, faculty resources are the big investment.

Miller:

We borrowed a system we saw at Wisconsin-Eau Claire and also at Utah State. We charge a student fee now and out of that student fee, students can apply for an undergraduate research fellowship at the beginning of their freshman year. They are then working with a mentor. They get \$1000 a year to just conduct research and the mentor gets \$500 to mentor them in that research. They also have money for travel to conferences and for supplies. We have about 45 or 50 students, college wide, each year who participate in that program. So that's a nice support system.

Keith:

I guess I should have mentioned, one of the things that is not unique, but distinctive about our program is the summer undergraduate research experience college-wide. The College of Arts and Sciences-wide competitive grant program provides substantial summer money for students and their mentors and it can also fund supplies, apparatus, travel, that sort of thing. Not just psychology, but across disciplines.

Miller:

We have that too, the SSRP, we call it and that's like \$3000 and something for the stu-

dent for the summer and about \$1800 for the mentor, so a similar kind of thing.

Beins:

At Ithaca, we have a great set-up. We have 12 faculty in the department and as of next year, 10 people will have research teams where students come onto a team and stay for three semesters. Each research team has its own lab. The faculty member gets course credit, that's one course credit for teaching a research team and then there are internal grants and that sort of thing so students can present at conferences. If there are costs for materials and apparatus that go beyond what the department can afford there are other mechanisms there and we have sent probably 25 students to make presentations at conferences of one kind or another last year, which is sort of typical.

Landrum:

The dispositional is exceptional. We're not publish-or-perish, we're publish and/or perish. We have no graduate students, which means we write the checks on the backs of the undergraduate research assistants. I could not be where I am today without them. So it's an incredibly important resource for us. We tend to design our research around the available resources because we are not expected to do external grant funding. I tend to design my research around the resources I have, so I'm not going to do an MRI study on declaring psychology as a major, because I don't have access to a hospital that would let me do that without substantial grant money. We don't have a lot of grant support for students, but there are a couple of pockets of money on campus and so we try not to be resource intensive.

Lilienfeld:

One of the advantages of being at an R1 institution is that we have very good resources and I'm very grateful to Emory about that. We've moved into a magnificent new building. We each have about 1100 square feet per lab, and so it's almost like a little apart-

ment for each of us with suites with offices. It's very nice. Some of us have more. So there are a lot of resources. We have a whole computer lab and most labs have independent computers and lots of lab space and equipment. We are a publish-or-perish institution, so the demands on faculty are very high. I would say, by and large, with one or two exceptions, even the post-tenured faculty are still pretty research active. So we're a very research-active group and expectations for publishing are high. In my view, the expectations are a little too high, especially for beginning faculty. So there are a lot of resources. The only disadvantage of that is increasingly, over the last decade or so, we are becoming much more grant driven and the disadvantage of that, I think, is that if an undergraduate is working in a lab that has a grant, then going to conferences, for example, is really easy, because it's really easy for faculty to fund student travel. If, however, the faculty does not have a grant, the undergraduates are at a marked disadvantage. I'm not saying they can't do stuff, and there are some awards for undergraduate travel they can sometimes apply for, but the grants are competitive, and a lot of them don't get the funding, so a lot of those students are not able to go to conferences. Some faculty don't have grants, or even those that do may not have an active grant, so differences of distribution and opportunities of funding across labs exist. By and large, I think it works pretty well, and most of them do quite well in terms of resources for research. I think another nice thing about an R1 institution is that there are a lot of graduate students around, so especially in the lab, when the undergraduates get stuck on analysis, or they don't know how to do something, they can often go to a graduate student who can help them with that, and provide them with informal mentoring. I think that often works quite well for them. And I think our students, by and large, really like it. I know there is some variability across labs, but most of them find the research experience really valuable and we get a lot of really good feed-

back from it. We've done some end of the year, informal assessments and some of them have a few negative experiences here and there, depending on some mentors, but I'd say probably 90% report that the experience was really worthwhile for them.

Miller:

The next question is about how we might reward faculty that do promote undergraduate research at the various institutions?

Landrum:

Let me start there, because that segues into something I forgot to say. We do have a system to reward faculty in that if I generate 30 student credit hours of research experience, a year, I get a one course-load reduction. This is roughly equivalent to 10 students in a three-credit class, which is the lowest thing we'll do at Boise State, so we are generating 30 student credit hours, which is why I have five research assistants, if you do the math. So there's a reason for that in that I get course load release. So there is some reward structure and some support in that way.

Miller:

Are there other ideas around the table as to how at your various institutions faculty are rewarded for this activity?

Beins:

At Ithaca, the research team is a course the faculty teach and it's not a vehicle for doing faculty research, it's for teaching students. It's costly for the department in terms of faculty resource time because it is part of their load.

Keith:

Same at our place. The labs are part of the regular teaching load, which means a big investment in faculty resources, but it is not faculty research, it's each person who does one of the labs does it for the benefit of the 8 or 10 students who do that lab.

Lilienfeld:

For us, there are no specific rewards.

Miller:

Well there's tenure perhaps?

Lilienfeld:

Exactly. Because it is a publish-or-perish environment, it's sort of its own reward because it's built into the system. The undergraduate students really play a big role in helping get data collected for grants, for publishing papers in top journals and so on. So in some ways I don't think there's really that much of a need to have that extra reward for faculty because students provide their own reward. You really need them to staff your labs in a lot of ways. The only thing we could do a bit better, which we started doing a couple of years ago, but stopped, is having students in labs evaluate the faculty mentors, because as a chair I would want to know how good faculty are doing. Again, most faculty are doing a good job, but occasionally, we do have some faculty who are just using their students to do the grunt work and don't have lab meetings, and just have their students enter data and never meet with the student. I think it's good to have some kind of evaluation mechanism. So I would not probably worry about rewarding the faculty for doing the research, but I would want to reward faculty who are doing a good job of mentoring students in research and I think we can do a bit better on that.

McEntarffer:

In high school, that would be tough just because of the way that the structure is set up. I do know that at one high school, a friend, as part of her load, teaches a class in which it is just students working on their Intel science projects, but that might be rare to the point of an $n = 1$ in the country.

Landrum:

The other reward, which is intuitively obvious, is that I get to work with undergraduate students. I get to work with bright, energetic

students of all ages because we are a non-traditional campus, and they come into my lab and we get to work with fun stuff. We get to design a project together, we go to conferences and that obviously is the reward. It's the ultimate reward.

McEntarffer:

If there were high school research conferences and the teacher got to go with the students, that would be inherently rewarding.

Frantz:

If it were a lab experience, in association with introductory psychology course or was a separate lab experience, then I think release time to design it would be a reward, because it needs to be designed well. And then it could be offered as an additional one, two, three, four, five course load, we're on quarter system. Then it could be part of the course load, or it could be a "moonlight" course.

Keith:

Overload?

Frantz:

Well, they are officially called moonlights because you can only do a moonlight after 5:00 PM. A normal load is three courses, you can't teach four courses before 5:00 PM.

Miller:

At UNK, most of our students do research within those advanced labs and that's just part of the load, but since we've started this whole URF program that means a faculty member can take on a student for independent study and do that for up to four years. Which means, particularly in the physiological psychology lab, for which you really need a lot of background to know what you are doing, by the time they are finished with that, they are probably co-authors on publications. With my advanced labs it's most likely they do a presentation since I only have them for a semester. In addition, to encourage faculty, we have a research-

mentoring award. We have a student research day and at that time, a faculty member from each undergraduate college is recognized with the mentor award, which includes money, a certificate, and a handshake from our Vice Chancellor for Academic Affairs.

Landrum:

As an aside, my undergraduate school, Monmouth College in Monmouth, Illinois, had a physiological psychology lab. I did rat surgery, inter-cranial cell stimulation. It was amazing. We don't even get "Sniffy the rat" at Boise State, we have the electronic version, and I wish I could replicate the undergraduate research experience I had. It was amazing.

Miller:

The next question is: What are some techniques that you might use to get students excited about research?

Landrum:

I think you just connect to their future. If they want to go onto graduate school, it should be intuitively obvious. However, I think the undergraduate research experience is more important for the students who are not going to graduate school, because that may be their only formalized exposure to real research methods. Most students that are going off to graduate school are going to get a boat full of it. For the others it's going to be workforce readiness, it's going to be career readiness. I think that is the way you attract and motivate.

Miller:

One of the things that I've always believed is that if you can design a study to answer a question that they come up with, that's inherently exciting. If you really are open enough, to say, "Alright, give me a topic," and I will turn it into a researchable question and if they are the first to know the answer to that question, that's pretty cool stuff.

Landrum:

I had a student come in years ago who said, "I want to go to graduate school. Should I retake a class? I got a 'W,' is that 'W' going to hurt me?" I didn't know the answer, so we did an actual study of graduate admissions directors in psychology and we asked them the effects of "W"s. How many "W"s would hurt? She was thrilled with that. She went to the Rocky Mountain Psychological Association convention and presented it. She got an answer to a practical question that she shared publicly and eventually got published in a journal. She found that "W"s hurt, but in certain courses more than others. So a "W" in English Composition is not a big deal. A "W" in research methods or statistics is not a good deal, and "W"s need to be distributed. If they are massed together in a semester or even a year, that kind of raises a red flag.

Keith:

I want to agree with you about student choice. The power of student choice was sometimes the biggest obstacle in my classroom. Some students with the paralyzing effect of total freedom that they could choose anything locked up at that point, but once they got over that hurdle of actually choosing something on their own, then sometimes it just rolled under its own power.

Lilienfeld:

I think modeling excitement for students is really important. Sometimes I'm surprised at how some faculty who are pursuing fascinating questions have an uncanny ability to make it boring. I don't know how they do this, but psychological research is fun, it's exciting, and I try to show them how excited I get about these things. I think showing students how everything they are doing is part of the big puzzle; how they are helping to solve problems, yeah it's not Nobel Prize-winning research, but it still contributes to the scientific corpus of knowledge in some area. And showing how what they are doing is important, why this answers a potentially

important question makes a big difference. When I get excited about stuff, the better students will also get excited.

Beins:

I tell my students that when they finish a project, when we do a study, we know something else nobody else in the university knows. We are in possession of special knowledge.

Keith:

I would just reiterate what people have already said. There are two things that I think about when I start a new lab or a new semester in a lab. I want them to see that I'm excited and I have fun doing this and that I take them seriously, not just in terms of their ideas, but as people. Scott said, "There is no area so interesting that a clever academic can't make it boring."

Miller:

One additional point is how to provide ongoing motivation beyond the initial stage. I find that students are usually very excited at the beginning of a project, the idea stage. There are a couple of little points at which faculty need to intervene. One may need to intervene as data collection drags on, and students become frustrated that a number of subjects don't show up for their appointments. You are going to need to be there to sort of re-motivate at that point. The other point is when you complete the project, and you didn't find anything, students react with much more disappointment at that than most faculty members do. Most faculty members are used to that in their research. The trick is to make the null results as exciting as the question was when they started out.

Miller:

Some of you have already alluded to this, in terms of showcasing, but maybe there are some things that haven't been said. We've talked a little bit about going to conferences of course, and there are undergraduate stu-

dent conferences as well as regional conferences. What are some other places that you've had students actually go and present or publish?

Keith:

One thing that we do that might also be of interest to high schools is our spring, day-long event called "Creative Collaboration" and it's campus wide. It's posters and oral presentations of all kinds of research and internship projects that students in all other departments on the campus do. Students put their posters up in shifts so they can have the opportunity to have the time to walk around and see others in addition to having other people see theirs.

Miller:

One of the nice things that we've started doing in our student research day is to have a former student come back as the keynote speaker. So we have posters in the morning, oral presentations in the afternoon, and lunch. Then we have the speaker come in to talk about what it meant to them to do undergraduate research.

Landrum:

There is a local university in Boise where they have kind of a city-wide, regional psychology conference. They invite keynote speakers, they invite undergraduates from the three colleges in the area and they invite local high school AP students. It has actually become a great recruiting tool for that college to have those high school students on their campus participating in an event, so it's really quite sharp and bright.

Lilienfeld:

I have had my students present posters at APS. They liked that a lot. It's a little overwhelming for them, but I think they think it's really cool because they see these names, like "Oh wow, that's like Phil Zimbardo!" It's a real thrill for them and helps them feel like a part of history.

Miller:

One of the differences between that kind of a conference and a student conference is that at some student conferences, the presentations are judged. For example, at the Great Plains Psychology Students' Conference that Steve Davis set up, there will be at least two faculty members in the back filling out a sheet that provides the presenter with feedback about what was good and what could be improved. There are also awards given in each session. The best paper and the second best paper from that session will get a certificate. So there is immediate recognition. Students have that, and the feedback, which is very valuable. Thus, someone other than the faculty advisor will have read or listened to the students' presentation and provided useful suggestions. Also, at UNK we send a contingent of about 30-40 students to the National Conference of Undergraduate Research (NCUR). It crosses all fields. There is something like 3000 students that come to this National conference. They have now merged with CUR, the Council for Undergraduate Research. I found it a really good experience when I went to Ithaca last year with the group.

Beins:

One thing that I do, that I started doing that I like is when we finish our study students have to write up a results section without using any numbers. They have to put in the ideas, then I say after you do that, you can stick the numbers in because the numbers are only a tool to help you make your case, but you need to make your case. The students complain that it's hard, but after they do it, it's okay.

Miller:

That's a good idea. The last question on the list, which we've kind of addressed, is what are the benefits of doing this? I don't know, maybe we've said some of this already, but take a shot at it.

McEntarffer:

For one thing, it provides an opportunity to learn math in context, especially for high school students. Math has been math class forever and it is very de-contextualized, I think. This is the student's opportunity to use math in something they care deeply about.

Frantz:

What I wonder about is when students get involved in the research process; does it start to shape their idea about psychology as common sense? Do they begin to see that the textbook, with all of those references, suddenly becomes this huge body of research knowledge?

Miller:

One of the things that I think really leads to that is that they come in with a hypothesis that they are pretty sure is going to happen. Then it doesn't, and at the point that I'm trying to explain to them that that's not a failure that their hypothesis wasn't confirmed, it helps to build this notion that this is more complicated than they thought because they were sure it was going to turn out this way.

Lilienfeld:

Unfortunately not all of our colleagues have that attitude. Since he's retired, I can say I had one colleague who actually argued at a faculty meeting that a student master's should not pass if the findings were negative; the student should have to do the project over again. And I went, as I often do, being a bit verbally impulsive, "WHAT! You are out of your mind. That's completely anti-scientific." First of all, at a practical level, one doesn't have to be a rocket scientist to realize what that's going to result in. Students are going to over-analyze the data 100 different ways until they find something. But second of all, it teaches students such a terrible lesson. I mean if the results are negative, if the study is well conducted and well done, and the results are negative, well...but he said, "No, but that's not publishable."...First

of all, that's not always true, but even if that is true, and it's not publishable, well, that's too bad.

Landrum:

With all due respect to this august group, do you have any data to support that claim- that students are actually having this aha moment about the role of science? I'm not saying it doesn't happen, I'm just saying, I would like to know the best practices. How can I design that experience? Do they have to write a poster? Do they have to write the results section without the numbers?

Beins:

I have evidence for one aha experience, well documented, in terms of research. And that is me. On my research team last year, humor research and terror management theory and predictions about sex being in high neurotic people...

Landrum:

You found negative findings on the humor side of things, right? In your lab?

Beins:

In my lab. So I said to my students, "There's no way we are going to get a significant effect here. I don't believe the original article. I think it must have been a Type I error." And so we did the study, and we got a significant effect.

Landrum:

What was it?

Beins:

The stuff about if you prime high neurotic people with physical aspects of sex and you give them word fragments to complete like "C-O-F-_-_", they'll do "coffin" as opposed to low neuroticism people do "coffee" they complete the word fragments with death-related words.

Lilienfeld: I

'm getting the sex part in there, but OK.

Beins:

Well, because among neurotics, because of their mortality salience, and sex and death are linked, you prime them with sex and they come up with death.

Landrum:

Sex and death are linked?! Thanks a lot!

Beins:

We gave sex jokes and we got a significant effect.

Lilienfeld:

I also think the research experience is valuable in that it gives students a sense of responsibility. I think that's also very important. I think a lot of students are bright, but they go through college three or four years where if they screw up, the only responsibility and the only person who ends up suffering as a result of that is them. It's important for them to learn they have other responsibilities and if they screw up, graduate students and faculty will suffer or a subject will suffer and I think some of them take a little while to learn that lesson, but I think that it's very valuable. Also, I think more broadly about the most valuable thing I could learn, and did learn as a student, was seeing how a really smart person thinks, and I think that's a really valuable process. There is a lot to be said about doing the research, but there is also a lot to be said about witnessing the research, being there at lab meetings, sitting there when you see faculty reasoning through problems and reasoning through how to design, and interpreting what the results mean.

Miller:

And redesigning the experiment. Very frustrating to undergraduates, but that's part of that process.

Lilienfeld:

Absolutely, and I think that is a really valuable thing that you can only really get from

doing, but also watching the research.

Landrum:

Most of our ideas are born in the hallway. I kid you not. There are faculty members hanging out in the hallway, "We need to know 'X'," and oftentimes, we have had studies come out of those conversations, but you have got to be there. The students who are good are going to be there. They are going to be hanging around.

Miller:

To go back to your question about the aha moment, the thing that works in my lab to prompt that aha moment, is the last week of the lecture class, when the lab students come back and present to the class. Getting everybody ready for the presentation, we have to think through how are they going to explain the fact that this didn't happen the way they thought it was going to happen? So I don't leave that to chance. We actually sit down and think through that process to make that connection.

Landrum:

And everyone in this room would clearly pull it off well, but we all have colleagues that would be under pressure because they don't have tenure and might self-report that all of their students have an aha moment and they become wonderful colleagues so we need some sort of non-self-reporting method for our students if we are serious about it.

Keith:

One thing I keep posting on my office door, thinking about negative results, is Huxley's famous injunction, "The great tragedy of science - the slaying of a beautiful hypothesis by an ugly fact."

Miller:

And sometimes they bring those ideas from their religious, or other deeply held beliefs and because they are committed to that idea, it is really tough to put that idea to an empir-

ical test.

Beins:

Well there was an article from 1910 that said that student misconceptions about psychology arise because of their nannies and their preachers and they arise because of the dense ignorance from the Nordics and from the wheat fields of Kansas.

Miller:

It seems that our job hasn't changed much since 1910 when Hugo Munsterberg wrote that the difference between high school and the University is that in high school, the role of the instructor is to provide the student with a good understanding of a knowledge base while at the University, the professor must teach the student to critically evaluate the knowledge base and master the skills to extend it. To me, that is the essence of what we aim to accomplish in mentoring undergraduate research.

Invitation to Contribute to the Special Features Section—I

Undergraduate students are invited to work in pairs and contribute to the Special Features section of the next issues of the Journal of Psychological Inquiry. The topic is:

Evaluating Controversial Issues

This topic gives two students an opportunity to work together on different facets of the same issue. Select a controversial issue relevant to an area of psychology (e.g., Does violence on television have harmful effects on children?—developmental psychology; Is homosexuality incompatible with the military?—human sexuality; Are repressed memories real?—cognitive psychology). Each student should take one side of the issue and address current empirical research. Each manuscript should make a persuasive case for one side of the argument.

Submit 3-5 page manuscripts. If accepted, the manuscripts will be published in tandem in the Journal.

Note to Faculty:

This task would work especially well in courses that instructors have students debate controversial issues. Faculty are in an ideal position to identify quality manuscripts on each side of the issue and to encourage students to submit their manuscripts.

Procedures:

1. All manuscripts should be formatted in accordance with the APA manual (latest edition).
2. Include a sponsoring statement from a faculty supervisor. (Supervisor: Read and critique papers on content, method, APA style, grammar, and overall presentation). The sponsoring statement should indicate that the supervisor has read and critiqued the manuscript and that writing of the essay represents primarily the work of the undergraduate student.
3. Submit your manuscripts online (<http://www.edmgr.com/jpi>) as a Special Features: Controversial Issues submission.

Invitation to Contribute to the Special Features Section—II

Undergraduate students are invited to contribute to the Special Features section of the next issue of the Journal of Psychological Inquiry. The topic is:

Conducting Psychological Analyses – Dramatic

Submit a 3-5 page manuscript that contains a psychological analysis of a television program or movie.

Option 1—Television Program:

Select an episode from a popular, 30-60 min television program, describe the salient behaviors, activities, and/ or interactions, and interpret that scene using psychological concepts and principles. The presentation should identify the title of the program and the name of the television network. Describe the episode and paraphrase the dialogue. Finally, interpret behavior using appropriate concepts and/or principles that refer to the research literature. Citing references is optional.

Option 2—Movie Analysis:

Analyze a feature film, available at a local video store, for its psychological content. Discuss the major themes but try to concentrate on applying some of the more obscure psychological terms, theories, or concepts. For example, the film *Guess Who's Coming to Dinner?* deals with prejudice and stereotypes, but less obviously, there is material related to attribution theory, person perception, attitude change, impression formation, and nonverbal communication. Briefly describe the plot and then select key scenes that illustrate one or more psychological principles. Describe how the principle is illustrated in the movie and provide a critical analysis of the illustration that refers to the research literature. Citing references is optional.

Procedures:

1. All manuscripts should be formatted in accordance with the APA manual (latest edition).
2. Include a sponsoring statement from a faculty supervisor. (Supervisor: Read and critique papers on content, method, APA style, grammar, and overall presentation). The sponsoring statement should indicate that the supervisor has read and critiqued the manuscript and that writing of the essay represents primarily the work of the undergraduate student.
3. Submit your manuscripts online (<http://www.edmgr.com/jpi>) as a Special Features: Conducting Psychological Analyses – Dramatic submission.

Invitation to Contribute to the Special Features Section—III

Undergraduate students are invited to contribute to the Special Features section of the next issue of the Journal of Psychological Inquiry. The topic is:

Conducting Psychological Analyses – Current Events

Submit a 3-5 page manuscript that contains a psychological analysis of a current event. News stories may be analyzed from the perspective of any content area in psychology. The manuscript should describe the particular event and use psychological principles to explain people's reactions to that event.

Example 1: Several psychological theories could be used to describe people's reactions to the destruction of the World Trade Center on September 11, 2001. Terror management research has often shown that after reminders of mortality people show greater investment in and support for groups to which they belong and tend to derogate groups that threaten their worldview (Harmon-Hones, Greenberg, Solomon, & Simon, 1996). Several studies have shown the link between mortality salience and nationalistic bias (see Greenberg, Simon, Pyszczynski, & Solomon, 1992). Consistent with these findings, the news reported that prejudice towards African Americans decreased noticeably after 9/11 as citizens began to see all Americans as more similar than different.

Example 2: A psychological concept that could be applied to the events of September 11 would be that of bounded rationality, which is the tendency to think unclearly about environmental hazards prior to their occurrence (Slovic, Kunreuther, & White, 1974). Work in environmental psychology would help explain why we were so surprised by his terrorist act.

The analysis of a news event should include citations of specific studies and be linked to aspects of the news story. Authors could choose to apply several psychological concepts to a single event or to use one psychological theory or concept to explain different aspects associated with the event.

Procedures:

1. All manuscripts should be formatted in accordance with the APA manual (latest edition).
2. Include a sponsoring statement from a faculty supervisor. (Supervisor: Read and critique papers on content, method, APA style, grammar, and overall presentation). The sponsoring statement should indicate that the supervisor has read and critiqued the manuscript and that writing of the essay represents primarily the work of the undergraduate student.
3. Submit your manuscripts online (<http://www.edmgr.com/jpi>) as a Special Features: Conducting Psychological Analyses – Current Events submission.