ABOUT PSI CHI
Psi Chi is the International Honor Society in Psychology, founded in 1929. Its mission: “recognizing and promoting excellence in the science and application of psychology.” (Note: Our new mission statement is available at http://www.psichi.org/?page=purpose) Membership is open to undergraduates, graduate students, faculty, and alumni making the study of psychology one of their major interests and who meet Psi Chi’s minimum qualifications. Psi Chi is a member of the Association of College Honor Societies (ACHS), and is an affiliate of the American Psychological Association (APA) and the Association for Psychological Science (APS). Psi Chi’s sister honor society is Psi Beta, the national honor society in psychology for community and junior colleges.

Psi Chi functions as a federation of chapters located at over 1,100 senior colleges and universities around the world. The Psi Chi Central Office is located in Chattanooga, Tennessee. A Board of Directors, composed of psychology faculty who are Psi Chi members and who are elected by the chapters, guides the affairs of the Organization and sets policy with the approval of the chapters.

Psi Chi membership provides two major opportunities. The first of these is academic recognition to all inductees by the mere fact of membership. The second is the opportunity of each of the Society’s local chapters to nourish and stimulate the professional growth of all members through fellowship and activities designed to augment and enhance the regular curriculum. In addition, the Organization provides programs to help achieve these goals including conventions, research awards and grants competitions, and publication opportunities.

JOURNAL PURPOSE STATEMENT
The twofold purpose of the Psi Chi Journal of Psychological Research is to foster and reward the scholarly efforts of psychology students as well as to provide them with a valuable learning experience. The articles published in the Journal represent the work of undergraduates, graduate students, and faculty. To further support authors and enhance Journal visibility, articles are now available in the PsycINFO® and EBSCO Academic Search Complete® databases. In 2016, the Journal also became open access (i.e., free online to all readers and authors) to broaden the dissemination of research across the psychological science community.

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Psi Chi Journal Editorial Transition

Melanie M. Domenech Rodríguez
Utah State University

Debi Brannan
Western Oregon University

Where We Have Been
Melanie M. Domenech Rodríguez

As I write these lines, Psi Chi Journal of Psychological Research has fully transitioned to the editorial stewardship of Dr. Debi Brannan. It is a bittersweet time; I treasured deeply the tasks of editing the Psi Chi Journal. For nearly 5 years, I benefitted from reading cutting-edge research in broad topics across psychology. I was inspired by the knowledge that most of the authors were up-and-coming researchers whose sense of efficacy could be nurtured through a positive publication experience. I reveled in the beauty of watching undergraduate and graduate researchers shine, faculty mentors nurture our next generation of researchers, and colleagues support Psi Chi Journal authors in putting forth the best possible work. I retain a sense of awe at watching a community of scholars seamlessly collaborate for the greater good of science and psychology. I step down with a sense of having gained much more than I contributed. This editorial summarizes the road we—the editorial team—traveled during my years as editor of this fine Journal. The Journal editorial team accomplishments since November of 2011 and until July of 2016 included advances in both structure and function of the Journal.

Psi Chi Journal's notable changes in the 2011–16 period include a name change, expansion of author submissions, a shift from paper to online submissions, and indexing in EBSCO Academic Search Complete and PsycINFO. We also created a Google Scholar profile. These changes were intended to increase the visibility, and thus impact, of Psi Chi Journal in the field. Increasing author submissions would allow us to increase the selectivity of published works. Increased visibility through indexing increases the probability of citation. Google Scholar allowed us to track the impact of specific articles and to calculate an $h$ index for the Journal. At the time of this printing, the $h$ index for the Journal was 10, indicating that 10 manuscripts have been cited at least 10 times. In September 2014 when we first began to track our impact, the $h$ index was 7. In the process of tracking our articles, we learned about the Psi Chi Journal publications that are most often cited, and from that information, we devised future editorials that would likely be of interest to our readers. Not surprisingly, our workload increased.

We welcomed the increased workload and worried about maintaining and improving the quality of our publication. To that end, we expanded our editorial team. The first, and critical addition, was the APA Style editor. Where the editor had previously been tasked with evaluating content and style, now a dedicated staff member reviewed every article, providing an important educational experience for all authors. We continued building a robust editorial team. When I took the reins of the Journal, the editorial team was formed by the communications director and the editor. By the end of my term, our team was comprised of the editor, a managing editor and an APA style editor at the Psi Chi Central Office, an assistant editor at my institution, five associate editors across the nation, and 12 advisory editorial board members. We also instituted plagiarism checks on every manuscript consistent with practices across journals in psychology.

Our expanded Journal editorial team provided many opportunities for growth and development of the Journal. We maximized the potential contributions of the team by establishing clear expectations for roles through the development of a Journal Operating Manual (created by me) and an Associate Editor’s Manual (created by Staci Taylor, Managing Editor). The APA Style editor, Bradley Cannon, developed a comprehensive APA Style Checklist to streamline our feedback. Staci, Bradley, and I had bimonthly calls to ensure the healthy daily functioning of the Journal. The larger editorial team (minus the advisory editorial board
members) held quarterly calls to check in on the content of the journal including troubleshooting issues, developing new ideas, and strategizing for outreach activities.

These deep structural changes led to some exciting outcomes. Chief among them were increased submissions, on-time publication of our quarterly issues, and increase in published manuscripts per issue from five to seven empirical articles. The online submission system ensured more timely assignment of manuscripts to reviewers, systematic reminders of deadlines for authors, reviewers, and quicker turnaround times for final editorial letters. Time to publication was reduced dramatically. Our author and reviewer surveys showed satisfaction with the submission and review process. They also provided vital feedback for needed changes. Our acceptance rate by the end of my term was 9%. Although this number may horrify some, it represents the number of articles that were conditionally accepted at first submission. Most submissions were returned with much feedback, sometimes to the chagrin of authors, and an invitation to resubmit. An overwhelming majority of resubmissions (88%) were accepted after substantial changes were made. To me, this represented success in achieving a balance of high expectations and strong support for authors’ success. Most of our first authors continue to be undergraduate students (~84% at my last report).

Overall, I am proud of our accomplishments during my time as editor. Conventional academic structures dictate that I author this editorial, however I write for the collective. The accomplishments during this time period were the result of deliberate, committed action by a team of talented professionals. Staci Taylor was an outstanding Managing Editor. Staci ensured that the online submissions system functioned properly, that author queries were attended to in a timely manner, and lent her talents to each issue by setting the journal into layout. Bradley Cannon, our APA Style Editor extraordinaire, developed such an eagle-eye for APA style issues that even I was not immune to his notes on my editorials. His positive, supportive, specific feedback provided many authors, faculty mentors, and editorial team members with individualized tutorials on APA style. The team of Associate Editors gave generously of their time and talents by taking the lead on manuscript reviews and providing skillfully crafted editorial decision letters; Debi Brannan (1/13–6/16), Carlos Escoto (3/12–6/16), Jennifer Hughes (9/15–present), Shelia Kennison (2012–3/16), Eric Landrum (11/11–12/12), and Steve Rouse (8/14–present) served as Associate Editors at various points. Our Advisory Editorial Board members also gave generously of their time by agreeing to take on a heavy load of reviews. Jeissiane Rosario-Colón at Utah State University ensured that our Google Scholar account stayed up-to-date, our author and reviewer surveys went out and their reports prepared, occasionally checked layouts, and generally ensured that I was set up for success. At the end of my term, we had 150 reviewers providing key support for the journal’s core activity. They are acknowledged in our journal, please take a moment to look up their names and affiliations. Finally, the journal could not have flourished without the support of the Psi Chi Board of Directors who entertained multiple requests for resources.

Our accomplishments belong to the editorial team. The journal belongs to Psi Chi. I do believe that the journal represents a significant membership benefit. All members have free access to the articles and can garner a sense of pride from being associated with an organization that engages in the highest levels of scientific activity. In Spring 2016, all articles became free to nonmembers as well to further extend the accessibility of our journal across the psychological community. Authors receive guidance and mentorship in the process of publication, a friendly and supportive process which for many is an entrée into scientific publishing. For faculty, reviewing and editing provides an opportunity to engage service activities in the field in science and at the international level in a collaborative context. I look forward to continuing to see the journal thrive, and I could not be more thrilled that the journal passes on to the capable hands of Dr. Debi Brannan who is infinitely more timely and affable than I, and brings broader strengths across methodologies. I return to the ranks of reviewers with gratitude for the opportunity to have served and with the joy of knowing that I am finally able to submit my scholarly work to the journal. After many years of wishing I could have my work published in Psi Chi Journal, a graduate student and I finally have a manuscript under review. There is no better way for me to leave you with the sense of my belief in the high quality of the review process and the journal itself than to let you know that I anxiously await the editorial decision and feel giddy at the possibility of having my scholarship published here.
Where We Are Headed

Debi Brannan

It is an honor to take on the position of editor of the Psi Chi Journal of Psychological Research. For the past 3 years, I have had the privilege of working as an associate editor for the journal and, to say the least, it has been an exciting journey. Watching the journal evolve into what it is today has been amazing. With that said, I knew that, once I became the editor, one of the first questions that I would be asked would likely be “where do you see the journal going in the next 3 years under your leadership?” What a great question! The exciting part of answering that question is that I believe that my vision for the future of the journal is not only mine but also that of my entire editorial team. We all agree that we wish to continue on the successful path that Dr. Domenech Rodríguez, Editor Emeritus, has laid out. Additionally, I see the journal continuing to grow in new and exciting ways. More specifically, implementing new opportunities for authors to submit replications studies and making Open Practices Badges available. I also want to continue the high-quality experience that many reviewers and authors have come to respect and appreciate.

Promoting PCJPR

By being a member of Psi Chi, individuals are able to publish in a peer-reviewed, scientifically based journal. One of my first goals as editor is promoting the journal so that all our members know about the journal and understand that this is an avenue whereby anyone who is a Psi Chi member can submit manuscripts (do not forget—once you become a member, you are one for life). The journal is a way to foster and reward the scholarly efforts of all Psi Chi members. This is a message that I want to make sure that all Psi Chi members and prospective members understand.

Psi Chi’s mission statement is “recognizing and promoting excellence in the science and application of psychology.” Part of supporting this mission is the journal. It exists in order to cultivate, support, and promote professional development for our members and their collaborators. Moreover, the journal is a way for our members to disseminate their work to the greater field.

To further promote the journal, I will continue to look for databases where it is appropriate for the journal to be indexed. In 2014, we were indexed in PsycINFO. This is exciting for our Honor Society, our journal, and authors because being indexed in these databases will allow the high-quality work being published in our journal to be available to other researchers.

Implementation of Open Practices Badges

Transparency in research is critical, and as a result, many in the field have argued for open practices. With many researchers and granting agencies arguing for a method by which data and materials could be shared and examined by others in the field, the Open Science Badges were created to address these issues. More specifically, in 2014, Psychological Science offered authors the chance to post their data and materials in an open access forum in order to be transparent in their methods and with their data within the Open Science Framework. Since this time, many authors have participated in offering their data, materials or preregistering (Authors Leading the Way in Open Science, 2016). This is a completely volunteer process that allows researchers to demonstrate the quality and integrity of their projects. The journal supports this mission and will be implementing this program soon. As editor, I would like to offer all authors—undergraduates, graduate students, or faculty—the opportunity to participate and obtain Open Practices Badges. This will not be a requirement for publication but rather another benefit that the journal will offer interested authors.

Maintaining the High Level of Reviewer Feedback

One clear advantage to submitting a manuscript into the journal is that each paper is reviewed by one associate editor, three reviewers, and an APA style reviewer. Five people work together to support authors and make the publication experience one of growth, learning, and support. This member benefit is one that is unique to our journal. We understand that many of our authors have never had the experience of going through the publication process; consequently, we want the entire experience to be one that is both rigorous and supportive. For our authors who have gone through the publication process before, we still offer constructive, beneficial feedback. In sum, we want all our authors to have a positive, educational experience.

Replication Studies Are Welcome

Psychological studies have traditionally focused on examining various issues in new and novel ways, but that is changing. In an article in Science...
Domenech Rodríguez and Brannon | *Psi Chi Journal* Editorial Transition

(2015), Nosek and the Open Science Collaboration conducted a series of replications of 100 various studies. The results were not positive with only 36% of the replications being consistent with the initial work. This has prompted many researchers to reexamine their work and the work of others. We know that many undergraduates are replicating studies in their research methods classes, and we expect more graduate students and faculty to replicate work as well. The *Journal* is a great place to submit these manuscripts. We support replication students and eventually hope to devote an entire issue to these types of studies; but for now, we welcome them and hope to see more replication studies.

**Conclusion**

I have been part of the *Journal's* editorial team for a number of years, and I am excited to lead this *Journal* into the future. I am committed to seeing the *Journal* continue to expand and evolve in ways that support our Psi Chi members. This position affords me the opportunity to work with authors, faculty advisors, and an amazing editorial team. My position is made even better because of the amazing associate editors: Mary Beth Ahlum, Jennifer Hughes, Steven Kohn, and Steven Rouse. Without them, my job would be much more difficult and a lot less fun. I am also grateful to work closely with my hardworking student assistants Rebecca Stempel and Emily Denning. I also must thank our Managing Editor, Bradley Cannon and our Director of Communications, Susan Iles, for all their support and assistance during this transition. Additionally, I would like to thank Dr. Melanie Domenech Rodriguez, Editor Emeritus, for all the hard work that she has put into the *Journal*. The entire team is grateful for her support and guidance over the past 5 years; thank you Melanie. In sum, these people make working for the *Journal* an amazing place to be, and with their assistance, I know that the future is bright.

**References**


Preschool Attendance as a Predictor of Self-Regulation in Kindergarteners

Jedd P. Alejandro, Andrew M. Leslie, Brooke C. Manley, Amy F. Rivas, Dominic M. Wiltermood, and Charlene K. Bainum
Pacific Union College

ABSTRACT. Research has found that early childhood education positively impacts the academic success and educational achievement of children all the way through early adulthood (Barnett & Frede, 2010; Campbell & Ramey, 1994; Lamy, 2013). Tough (2012) suggested that preschools help children develop self-regulation skills that are necessary for educational success. It was hypothesized that preschool attendance would predict higher self-regulation than nonattendance, and that girls would have higher self-regulation than boys, as measured by behavioral scores and teacher ratings of self-regulation. Participants included 37 kindergartners. Preschool attendees and nonattendees were tested by condition-blind researchers on 2 subtests of the Preschool Self-Regulation Assessment. Additionally, teachers used items from the Children’s Self-Control Scale to rate participants. A 2 x 2 (Condition x Sex) Analysis of Variance was performed on the Balance Beam, the Gift Wrap Scores, and the teacher ratings of behavioral and cognitive self-control. The Balance Beam Scores were higher in the preschool condition than in the nonpreschool condition, $F(1, 33) = 6.18, p = .02, \eta^2 = .15$. Also, the Gift Wrap Scores were higher in the preschool condition than in the nonpreschool condition, $F(1, 33) = 10.69, p = .003, \eta^2 = .24$. Teacher’s ratings of behavioral self-control for girls was higher than for boys, $F(1, 33) = 6.94, p = .01, \eta^2 = .17$. Also teacher’s ratings of cognitive self-control for girls was higher than for boys, $F(1, 33) = 7.73, p < .001, \eta^2 = .19$. The benefit of preschool education for the acquisition of self-regulation is addressed.
and noted that young children who manifested only some degree of self-control, a precursor to self-regulation, continued to have problems in delaying gratification and were not able to make use of diversionary strategies, behaviors necessary in self-regulation. Because the terms self-regulation and self-discipline are similar, the main distinction between these definitions is the presence of an alternative goal to be accomplished. This is found in self-discipline, though is not necessarily required for the operational definition of self-regulation. Because Duckworth, Grant, Loew, Oettingen, and Gollwitzer (2011) found that one probable mechanism by which students acquired self-discipline was through self-regulation strategies, the current study examined both self-discipline and self-regulation, and specifically measured self-regulation as a means of achieving self-discipline.

Researchers Duckworth and Seligman (2005) substantiated the vital connection between self-discipline and academic performance. Their study measured students’ academic performance and self-discipline through standardized tests, student surveys, and teacher questionnaires. Self-disciplined students had better attendance and performed better in academics compared with students who were not self-disciplined. More importantly, self-disciplined students were more successful than students with a higher IQ. This finding had implications for what increases academic performance and challenged the generally accepted idea that a smarter student is a more successful student. Similarly, Kuhnle et al. (2012) suggested that self-control was important to success both inside and outside of the classroom. In the classroom, self-control helps students curb their social impulses that distracted them from learning, and outside of the classroom, it helped them schedule their free time for studies. The study used eighth graders and took measurements of self-control, life balance, and flow at the beginning and end of the school year. Similar to Duckworth and Seligman, they found that self-control predicted school grades and was also related to life balance and satisfaction of life.

Not only does the presence of self-discipline have positive effects on academic performance, but the lack of it may have negative effects as well. Cleary, Platten, and Nelson (2008) found that students who were referred for academic problems were more likely to have a deficit in self-regulation and motivation skills. Similarly, Lee, Cheng, and Lin (2013) collected academic information from adolescents, as well as surveys of self-control, an indicator of self-regulation. According to the results, self-control was necessary to sustain a satisfactory quality of life. This further underlined the importance of self-regulation in academic performance and to a general positive quality of life.

Research has pointed out the importance of both self-discipline and self-regulation in academic success. However, of more relevance is how and whether self-regulation can be taught. Based on his work in humanistic-experiential psychology, Combs (1985) provided self-regulatory principles as a means of achieving self-discipline that teachers can use in the classroom. These included setting the context for experiences of success and feelings of belonging. Bear (2010) surveyed the current research and presented strategies to encourage self-discipline in the classroom. His comprehensive guide promoting self-discipline emphasizes student-centered strategies and techniques in which students learn to guide and regulate themselves. Duckworth et al. (2011) tested a method of teaching self-regulation called mental contrasting. This exercise includes thinking about dreams, leaving goals that are wasteful, and planning for the future. As a result, the mental contrasting group completed significantly more practice questions than the control group, suggesting that behaviors that encourage planning can have an impact on an individual’s self-regulation.

Further research has suggested that the earlier years in life are crucial in learning self-regulation. For example, Rimm-Kaufman et al. (2009) found that the quality of the classroom, more specifically the teacher’s effectiveness in classroom management, was linked to children’s behavioral and cognitive self-control, indicating that the nature and quality of the classroom environment may encourage students to be more self-regulated. In addition, Lee et al. (2013) found that self-control may be strengthened by increasing self-esteem in earlier years. Fuhs, Farran, and Nesbitt (2013) examined preschool teacher’s interactions and behavior in the classroom, and found that more approving behavior and positive emotional tone were related to children’s subsequent gains in cognitive self-regulation skills. Denham et al. (2012) tested a large sample of 3- and 4-year-olds on measures of emotion knowledge and preschool self-regulation assessments in late fall and again in early spring. Developmental changes in emotion knowledge as well as self-regulation were seen, with higher levels associated with later academic success.
Preschool as a Predictor of Self-Regulation | Alejandro, Leslie, Manley, Rivas, Wiltermood, and Bainum

Preschool, which is intended as a foundational introduction to the workings of school life, is an ideal launching pad from which self-regulation can develop. The early acquisition of self-regulation sets students on a positive trajectory, potentially enabling them to reach greater achievements than otherwise possible.

Further, Bassett, Denham, Wyatt, and Warren-Khot (2012) found a positive relationship between teachers’ reports of children’s school readiness and executive control, measured by an assessment battery of preschooler’s self-regulation. More recently, it was found that, although girls seem to consistently earn better grades than boys in early primary school, the mechanism to explain this appears to be involved in teachers’ reports of self-discipline (Duckworth et al., 2015). Using teachers’ reports of kindergarten girls’ more positive learning approaches such as task persistence and self-discipline, Ready, LoGerfo, Burkam, and Lee (2005) also noted a strong connection between high academic performance and self-discipline. This combined research has suggested that, from the start, girls seem to have the upper hand with self-discipline and academic performance. However, this pattern does not necessarily take into account whether children were exposed to a prekindergarten environment.

Raver (2012) determined that self-regulation is modifiable (e.g., increasing executive functioning skills) by earlier educational intervention, which points to the necessity for accessible preschool education for every child. Although Love, Chazan-Cohen, Raikes, and Brooks-Gunn (2013) did not find differences in the early academic achievement between Early Head Start (EHS) and non-EHS students, they did find that EHS students had better attention spans, more effective approaches to learning, and fewer behavioral problems than non-EHS students.

Currently, 30 states are attempting to draft legislation that would make prekindergarten education accessible to all. In the 2014 State of the Union address, President Obama called on Congress to invest in high-quality early education for all (Kristof, 2014). The rationale behind this movement is the research that has shown that early childhood education will positively impact the academic success and educational achievements of children all the way up through early adulthood (Barnett & Frede, 2010; Campbell & Ramey, 1994; Lamy, 2013). Tough (2012) suggested that preschools help children develop critical skills such as self-regulation that are necessary for life success rather than simply providing academic enrichment. But before a national preschool education referendum should be set into law, more studies need to be conducted to determine whether preschools are in fact teaching critical skills like self-regulation.

To that end, the current study sought to examine whether preschool attendance affected self-regulation, and would thereby increase the likelihood of acquiring self-discipline at an earlier age. Based on previous research, we hypothesized that preschool attendance would predict higher self-regulation scores, measured by behavioral tests and teacher ratings of kindergarten children. We also hypothesized that self-regulation would be higher for girls than for boys.

Method

Participants
Participants consisted of 37 children (17 girls, 20 boys) ranging in age from 4 to 6 years old ($M = 5.08, SD = 0.43$) attending a small public elementary school in northern California. The ethnic breakdown of the sample included 26 Hispanic (70%) and 11 European American participants (30%). Several of the Hispanic kindergarteners were not proficient in English comprehension and were tested by the Spanish speaking researcher. With respect to preschool attendance, 28 children (13 girls, 15 boys) had attended preschool and nine (4 girls, 5 boys) had not. The 28 children who had attended preschool consisted of seven (25%) European American and 21 (75%) Hispanic participants. The nine children who had not attended preschool consisted of four (44%) European American and five (56%) Hispanic participants. Although participants were selected on the basis of signed parental consent forms, children signaled their assent when they agreed to leave the classroom with the experimenter and be tested in a nearby area.

Materials
Two subtests from the Preschool Self-Regulation Assessment (Smith-Donald, Raver, Hayes, & Richardson, 2007) were used to assess self-regulation in the kindergarten children: Balance Beam and Gift Wrap. These subtests were selected because Smith-Donald et al. (2007) found high reliabilities (intraclass correlation); the Balance Beam task had a reliability of .98 and the Gift Wrap had a reliability of .90 (peek) and .81 (touch). They were also selected for their ease of administration and
because extensive experimenter training was not required, thus minimizing potential error.

For the Balance Beam task, a simulated balance beam was made from a 6-foot piece of masking tape. The piece of tape was placed on the floor for subjects to walk on like a balance beam. Participants were asked to walk across the beam as slowly as they could (measured in seconds) on three different trials. In Trial 1, they were simply instructed to walk the balance beam. In Trial 2, they were asked to walk as slowly as possible. For Trial 3, participants were asked to walk even more slowly. Larger differences between Trial 3 and Trial 1 related to higher levels of behavioral self-control.

The Gift Wrap portion of the experiment used scissors, wrapping paper, and 37 prewrapped pencil gifts. The scissors and wrapping paper were used to simulate the wrapping of a gift; the gifts were already wrapped to save time during data collection. Self-regulation was measured by timing how long (up to 60 s) participants would wait without peeking at the gift while the researcher was wrapping the gift and how long participants would wait without touching the gift (up to 60 s). The time without peeking and the time without touching the gift were summed, and higher scores related to higher levels of cognitive self-regulation. The cognitive self-regulation score from the Gift Wrap and behavioral self-regulation score from the Balance Beam were summed to obtain a combined behavioral score of self-regulation. Higher scores related to higher levels of self-regulation. Children’s times from the Balance Beam and the Gift Wrap sections were scored on a data sheet (see Appendix A).

Teachers were given a rating sheet comprised of a modified Teacher’s Self-Control Rating Scale (Humphrey, 1982). The original scale rated participants’ cognitive and behavioral levels of self-regulation with test-retest reliabilities of .93 and .88, respectively. This scale rates the frequency of several behaviors on a 7-point Likert-type scale from 1 (hardly ever) to 7 (frequently). Although Humphrey used a 5-point scale, to allow for higher order analyses the scale was expanded to a 7-point scale. Only three items from each subsection were used in order to help make the rating scale shorter, quicker, and less onerous for the teachers to fill out. The three items of cognitive self-control were “talks out of turn,” “gets into fights with other children,” and “disrupts others when they are doing things,” with reliabilities of .79, .78, and .76, respectively. These behavioral self-control items were reverse-scored so that higher ratings related to higher levels of self-control.

Procedure
Prior to conducting the study, the researchers received institutional review board approval from Pacific Union College in a letter dated October 22, 2013. Researchers were blind to which students had attended preschool and which had not during data collection. Five researchers (3 men and 2 women) individually introduced themselves to participants. There were no sex difference detected for the researchers on the children’s self-regulation scores.

Each participant was taken outside the classroom where masking tape simulating a balance beam was on the ground. The researcher instructed participants to walk the balance beam from one end to the other. Trial 1 was timed and recorded. Next, participants were told to rewalk the balance beam as slowly as they could for Trial 2. Finally, participants were told to walk the balance beam for Trial 3 even more slowly if possible. The third trial was also timed and recorded, and the difference between Trial 3 and Trial 1 was used to determine the child’s level of self-regulation.

For the Gift Wrap test, participants were told that they would receive a gift for their participation but that it first needed to be wrapped. Participants were instructed to turn around in their seat and told that they should not peek while the gift was being wrapped. The researcher pretended to wrap the present by creating noise with wrapping paper and a scissors. When the participant peeked or at 60 s, the participant was allowed to turn around and the time was recorded. Next, the gift was placed in front of the participant, who was instructed not to touch the present, while the experimenter finished cleaning up the wrapping paper. During these 60 s, or until the participant touched the present, the researcher would clean up the surrounding area, and the time was recorded. The sum of the two intervals determined a second measure of self-regulation. The Gift Wrap and the Balance Beam measures were added to make a behavioral score of self-regulation. At the end, participants were thanked and praised for their participation. They were also told to put their gift in their backpack so that their classmates would not be able to see the gift.
In addition to these two subtests, the kindergarten teachers filled out selected items from the Children’s Self-Control Scale, which rated participants’ cognitive and behavioral levels of self-regulation (Humphrey, 1982).

Results

Descriptive Statistics

Measured in seconds, the Balance Beam Scores ($M = 4.41, SD = 9.73$) and Gift Wrap Scores ($M = 95.01, SD = 33.90$) were used as two behavioral measures of self-regulation. The Children’s Self-Control Scale, which measured each kindergartner’s cognitive ($M = 14.68, SD = 6.85$) and behavioral ($M = 13.89, SD = 5.31$) levels of self-regulation, provided a teacher rating of self-regulation for each kindergartener ($M = 28.57, SD = 10.82$). Tables 1 through 4 summarize the means, standard error of the means, and confidence intervals for the Balance Beam and Gift Wrap Scores and the teacher ratings of cognitive and behavioral self-control.

### TABLE 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>$M$</th>
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<th>95% CI LL</th>
<th>95% CI UL</th>
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<td>Sex</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>1.50</td>
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<td></td>
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<tr>
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<td>13.01</td>
</tr>
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Note. CI = confidence interval; LL = lower limit; UL = upper limit.

### TABLE 2

<table>
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<td>7.92</td>
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</table>

Note. CI = confidence interval; LL = lower limit; UL = upper limit.

### TABLE 3

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<th>95% CI UL</th>
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<td></td>
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Note. CI = confidence interval; LL = lower limit; UL = upper limit.

### TABLE 4

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<th>95% CI LL</th>
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<tbody>
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<td>Sex</td>
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<tr>
<td>Men</td>
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<td>Women</td>
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</table>

Note. CI = confidence interval; LL = lower limit; UL = upper limit.
ratings on cognitive and behavioral items of the Children’s Self-Control Scale.

**Primary Analysis**

To test the hypotheses that preschool attendance and child sex would predict higher self-regulation in kindergarteners, a 2 x 2 (Condition [preschool, no preschool] x Sex) between-subjects Analysis of Variance was performed on the Balance Beam and the Gift Wrap Scores. The Balance Beam Scores were significantly higher in the preschool attendance condition ($M = 6.62, SD = 8.68$) than in the no preschool attendance condition ($M = -2.47, SD = 10.06$), $F(1, 33) = 6.18, p = .02, \eta^2 = .19$. Also, the Gift Wrap Scores were significantly higher for those in the preschool attendance condition ($M = 104.34, SD = 22.99$) than in the no preschool attendance condition ($M = 65.96, SD = 46.18$), $F(1, 33) = 10.69, p = .003, \eta^2 = .24$. There were no significant main effects for sex or condition by sex interactions for the Balance Beam and Gift Wrap Scores. To further test the hypothesis that preschool attendance and child sex would predict higher self-regulation in kindergarten children, a 2 x 2 (Condition [preschool, no preschool] x Sex) between-subjects Analysis of Variance was performed on the teacher ratings of behavioral self-control and the teacher ratings of cognitive self-control. The main effect for sex was significant with teacher’s ratings of behavioral self-control for girls ($M = 18.12, SD = 5.22$) higher than for boys ($M = 11.75, SD = 6.81$), $F(1, 33) = 6.94, p = .01, \eta^2 = .17$. In addition, the main effect for sex was significant with teacher’s ratings of cognitive self-control for girls ($M = 16.47, SD = 3.67$) higher than for boys ($M = 11.70, SD = 5.58$), $F(1, 33) = 7.73, p < .001, \eta^2 = .19$. There were no significant main effects for condition or condition by sex interactions for the teacher ratings of behavioral or cognitive self-control.

**Discussion**

The results of the current study were mixed in support of the hypothesis that preschool attendance would be an important predictor of self-regulation in kindergarten children. Preschool attendees were better able to regulate their speed during the Balance Beam test and manage their urge to touch or peak at the present during the Gift Wrap test. However, the teacher ratings of self-regulation did not corroborate the behavioral measures and failed to differentiate between those who had been to preschool and those who had not. Additionally, the correlations between teacher ratings and behavioral measures of self-regulation were not significant. This was contrary to the findings of Rimm-Kaufman et al. (2009) who found teacher ratings and behavioral measures of self-regulation to be highly correlated. One explanation may lie in the difference between teacher ratings for boys and girls.

It is possible that the sex differences found in teacher ratings of self-regulation were due to the subjective nature of self-report surveys. The hypothesis that girls would have higher levels of self-regulation than boys, though not supported in the behavioral scores of self-regulation, was found in the teacher ratings of self-regulation. This sex bias in teacher ratings found in the current study supported the research of Miller, Koplewicz, and Klein (1997) who found evidence that preschool boys were rated much higher than girls in hyperactivity, inattention, and conduct problems in the classroom. Given that this sex difference in the current study was only present in the subjective views of the teachers, it is possible that this difference is due to a sex bias in primary school instructors. Pollack (1998) believed that many teachers suffer from the myth of boys’ toxicity, which states that part of being a boy is misbehaving and getting into trouble. This might explain why teacher ratings of self-regulation for boys were lower despite the fact that boys were no different from girls on their ability to self-regulate on the Balance Beam and Gift Wrap tasks.

A unique aspect of the current study was having both dual language learners (DLL) and English-only (EO) children in the sample. Although research (Yazejian, Bryant, Freels, & Burchinal, 2015) has shown that age of entry and duration in preschool yielded higher language outcomes for both populations, there was a bigger difference for those who were DLL. This suggests that the DLL who attended preschool may not have had any discernible difficulty understanding the simple task directions, and having a Spanish translator available may have eliminated most instances of misunderstanding due to language comprehension.

One limitation of the study might have been that some participants realized that they were being timed during the Balance Beam trials, and this might have affected their performance. The possibility of demand characteristics could have influenced the data in the opposite direction of the hypothesis. Future studies should find a way for researchers to record the time in a less conspicuous way.
Preschool as a Predictor of Self-Regulation | Alejandro, Leslie, Manley, Rivas, Wiltermood, and Bainum

Similarly, the gift items used in the Gift Wrap test were pencils, which were easily identifiable as pencils when wrapped. This could have dissuaded the children from wanting to peek or touch the gift, which would confound the essential detail of the subtest. Future research could control for this by wrapping the item in a more concealed manner. The current study also did not provide the specific practices that were implemented or quality of the preschools that the participants attended. In addition, there was no access to socioeconomic information or parenting styles of either preschool or nonpreschool attendees. Further, there was no way to evaluate whether these factors influenced the self-regulation of students going through these preschool programs.

Despite these limitations, there are some important outcomes, which could offer additional perspectives into the effectiveness of preschool. Because the students who attended preschool had the ability to better control themselves in each task, their high self-regulation level predicted that they will be more ready to enter a kindergarten learning environment. Children with higher levels of self-regulation were found to have higher levels of future academic success (Barnett & Frede, 2010; Campbell & Ramey, 1994; Lamy, 2013). The current study offered additional evidence that self-regulation is present in primary school children who have attended preschool. Preschool is a valid avenue of learning self-regulation. Therefore, because of this connection between early childhood self-regulation and later academic success, it is important that states work to improve and provide access to preschool programs.

However, these findings and practical significance do not stop here. The current study may also serve as an agent to inspire future research into how self-regulation is formed. Although we found that primary school children who had gone to preschool were significantly more self-regulated than those who had not, the current study did not find a correlation between behavioral measures and teacher ratings unlike the work by Matthews, Ponitz, and Morrison (2009). Gestsdottir et al. (2014) in their examination of both teacher ratings and behavioral measures of self-regulation in three culturally distinct child samples noted that teacher ratings of self-regulation for girls were culturally dependent and were not always correlated with behavioral self-regulation measures. Although this discrepancy may be due to the subjective nature of teacher ratings, it may also be that there is a potential difference in the cultural environment between the actual kindergarten setting and the testing setting, and that measurements do not reflect classroom behavior, but may reflect a more general internalization of self-regulatory principles. This discrepancy points to the need for multiple measures to be utilized in future research of this nature. Exactly why this discrepancy may exist should be assessed by observing students in the first week of classes as well as collecting parent and teacher measurements.

It is apparent that there are still many questions left unanswered. Kopp (1982) suggested that children in preschool are better able to recognize a set of behaviors that consist of self-regulatory constructs. Studies that focus on how children learn self-control and transition to self-regulation would be beneficial to educators. Future studies that address how self-regulation is taught and developed in both the home and school will enable young children to acquire the tools they need for lifelong success. In the meantime, the evidence is clear. Children who attended preschool scored higher on behavioral measures of self-regulation. Because self-regulation has been identified as an important factor in school success, these results underline the urgency of making preschool education accessible for all, regardless of income.

References


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Andrew M. Leslie is now at Clinical Psychology Department, Palo Alto University.

The authors acknowledge the assistance of Selina L. Breshers and Edwin O. Torres who assisted in conducting the study and critiquing the manuscript.

Correspondence concerning this article should be addressed to Charlene K. Bainum, Department of Psychology & Social Work, Pacific Union College, 1 Angwin Avenue, Angwin, CA 94508. E-mail: cbainum@puc.edu

## APPENDIX A

### Self-Regulation Data Sheet

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<th>Researcher</th>
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</tr>
</thead>
<tbody>
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<td>Child’s Name</td>
<td></td>
</tr>
<tr>
<td>Child’s Sex</td>
<td>Boy</td>
</tr>
<tr>
<td>Teacher’s Name</td>
<td></td>
</tr>
</tbody>
</table>

*Hello! My name is [name] and I want to see if you can walk on this tape and pretend it’s a balance beam, like this.* Demonstrate: make sure they start at one end and try to get to the other end. "Now let’s see if you can do it. Very nice! Now, I want you to walk on the tape as slowly as you can. Can you do that? I’m going to give you a little gift when you’re all done. Can you try walking one more time, just as slowly as you can, okay? That was great! Now, I have a present for you but I need to wrap it first. I don’t want you to look. So turn around and don’t look.” Turn child’s seat around or, if on picnic table, have child sit facing opposite direction. Wrap the present noisily to walk on the tape as slowly as you can. Can you do that? I’m going to give you a little gift when you’re all done. Can you try walking one more time, just as slowly as you can, okay? That was great! Now, I have a present for you but I need to wrap it first. I don’t want you to look. So turn around and don’t look.” Turn child’s seat around or, if on picnic table, have child sit facing opposite direction. Wrap the present noisily to walk on the tape as slowly as you can. Can you do that? I’m going to give you a little gift when you’re all done. Can you try walking one more time, just as slowly as you can, okay? That was great! Now, I have a present for you but I need to wrap it first. I don’t want you to look. So turn around and don’t look.” Turn child’s seat around or, if on picnic table, have child sit facing opposite direction. Wrap the present noisily.

**Balance Beam**

<table>
<thead>
<tr>
<th>Balance Beam</th>
<th>Gift Wrap</th>
</tr>
</thead>
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<tr>
<td>Trial 1</td>
<td>Phase 1 (until peaks)</td>
</tr>
<tr>
<td>Trial 2</td>
<td>Phase 2 (waiting to touch)</td>
</tr>
<tr>
<td>Trial 3</td>
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</tr>
</tbody>
</table>

**TOTAL BEHAVIORAL SELF-CONTROL**

**TOTAL COGNITIVE SELF-CONTROL**

According to Affective Events Theory (AET; Weiss & Cropanzano, 1996), stressful workplace events such as incivility are theorized to impact employees’ job attitudes, which can subsequently influence job performance. Previous research has supported this theoretical model, finding that incivility was linked with emotional reactions and subsequent changes in job satisfaction and withdrawal behaviors (Bunk & Magley, 2013). Additionally, Lim and Tai (2014) found that incivility exposure to incivility has been linked with decreased physical and psychological health, lower job satisfaction, and increased work withdrawal, as well as increased absenteeism, greater intentions to quit, and actual turnover (Cortina et al., 2001; Johnson & Indvik, 2001; Porath & Pearson, 2012).

According to Affective Events Theory (AET; Weiss & Cropanzano, 1996), stressful workplace events such as incivility are theorized to impact employees’ job attitudes, which can subsequently influence job performance. Previous research has supported this theoretical model, finding that incivility was linked with emotional reactions and subsequent changes in job satisfaction and withdrawal behaviors (Bunk & Magley, 2013). Additionally, Lim and Tai (2014) found that incivility
led to increased psychological distress, which was subsequently linked with lower job performance. However, although much of the existing research has looked at incivility in a face-to-face context, the 21st century working world is one characterized by frequent online communications (Madden & Jones, 2008; Purcell & Rainie, 2014). The experience of cyber incivility, or rude and discourteous treatment that occurs via information and communication technologies (Giumetti, McKibben, Hatfield, Schroeder, & Kowalski, 2012) is also widespread. A study of financial employees from Singapore found that 91% of the sample experienced cyber incivility in the last year (Lim & Teo, 2009). Preliminary evidence has also suggested that cyber incivility is linked with negative outcomes for employees, as a study of U.S. workers found that daily cyber incivility was associated with greater levels of distress at the end of the workday as well as the next morning (Park, Fritz, & Jex, 2015).

Beyond this initial research, however, less is known about the mechanisms through which cyber incivility may be linked to decreased performance and for whom cyber incivility may be more impactful. Therefore, the purpose of the current study was first to examine the main effect of cyber incivility on job satisfaction and job performance, and then to examine the mediating role of job satisfaction in the relation between cyber incivility and job performance. Additionally, the current study examined the moderating role of positive affect (PA) to understand the role of individual differences in this relationship (see proposed model in Figure 1).

Technology Use at Work
Internet use in the workplace is nearly ubiquitous. A 2014 survey of employed adults in the United States found that nearly all workers (96%) use a laptop, desktop, tablet, or smartphone (Harter, Agrawal, & Sorenson, 2014). In addition, another 2014 survey of U.S. workers found that 61% say that e-mail is very important to doing their job (Purcell & Rainie, 2014), and a recent study found that as many as 83% of workers in the sample used the Internet to communicate with coworkers, and 70% used it to communicate with supervisors once or twice per day (Giumetti et al., 2012). Communication via online media such as e-mail, text messaging, or chat has several unique qualities compared to face-to-face communication, which may make both the perception of mistreatment as well as the likelihood of engaging in mistreatment greater than communication in a face-to-face context.

First, individuals may be more likely to perceive communications sent via the Internet as uncivil because of the lack of instant feedback and reduced nonverbal cues (Byron, 2008). When individuals send an e-mail, they may not receive a response for hours, days, or in some cases, ever. The individuals may be left wondering if the message was delivered or if they are being ignored. Also, messages sent via online means lack the rich nonverbal cues that face-to-face communication includes. For example, if an individual is having a face-to-face conversation and something being said is upsetting, the message sender may perceive changes in the recipient's body language such as arms crossing, a frown, or eyebrows raising, and may decide to change the direction of the conversation. Additionally, face-to-face conversations have the benefit of other important nonverbal cues including emotional expressions, tone of voice, and gaze direction. In an online message, these cues are missing, which may heighten the possibility of miscommunication.

Additionally, a phenomenon known as the online disinhibition effect may make uncivil behaviors more likely (Suler, 2004). This effect occurs because normal constraints on individual behavior are less salient in an online context, making people feel less restrained and more likely to express themselves freely. For example, individuals may feel that they can more easily express their disapproval over a new company policy via e-mail by clicking “reply all” to share derogatory remarks about the policy makers, something that they would be less likely to do in a face-to-face meeting with the entire company. As technology use becomes more prevalent in the workplace, interpersonal mistreatment may also become more likely (Weatherbee & Kelloway,...
2006). More concerning is that interpersonal mistreatment communicated through information and communication technologies such as email may be likely to have the same damaging effects as interpersonal mistreatment communicated face-to-face (Weatherbee & Kelloway, 2006).

Theoretical Background
The current study utilized AET to understand how cyber incivility (a stressful workplace event) can impact employee attitudes and performance (Weiss & Cropanzano, 1996). According to AET, negative workplace encounters such as cyber incivility can lead to negative job attitudes. These negative attitudes may impact work performance because they signal that something at work is wrong, and they lead individuals to spend copious amounts of resources thinking about the situation, thus distracting their efforts from work (Porath & Erez, 2007).

Previous research has used AET as a theoretical model to understand how incivility in the workplace impacts individuals. For example, the study by Porath and Erez (2007) found that rudeness was associated with higher levels of negative affect (NA), which in turn was linked to reduced task performance. Additionally, Bunk and Magley (2013) found a mediating role for job satisfaction in the relation between incivility and work withdrawal. Therefore, in the current study, we predicted that cyber incivility would be associated with decreases in job satisfaction and job performance, and that job satisfaction would serve as a mediator of the relation between cyber incivility and performance. We develop these hypotheses further below.

Incivility and Job Attitudes
Incivility has been linked with decreases in several different job attitudes including organizational commitment, job satisfaction (Smith, Andrusyszyn, & Laschinger, 2010), and perceived organizational support (Miner, Settles, Pratt-Hyatt, & Brady, 2012). Further, when incivility is removed from a working environment, employees tend to show more positive work attitudes. For example, researchers found that a workplace civility intervention was able to both decrease instances of incivility and increase employee job attitudes including trust, organizational commitment, job satisfaction, and professional efficacy (Leiter, Laschinger, Day, & Oore, 2011), and these improvements were sustained 1 year later (Leiter, Day, Oore, & Laschinger, 2012).

Clearly, much research has demonstrated a link between face-to-face incivility and job attitudes. However, considerably less research has focused on the relation between cyber incivility and job attitudes. One exception to this is a study by Lim and Teo (2009) that examined cyber incivility among a sample of financial services employees in Singapore. The researchers found that cyber incivility was negatively related to both organizational commitment and job satisfaction. However, no studies to date have examined the link between cyber incivility and job attitudes in a U.S.-based sample. Therefore, we proposed for our first hypothesis that cyber incivility would be negatively related to job satisfaction.

Incivility and Job Performance
Previous research has found a link between incivility and job performance. Sliter, Jex, Wolford, and McInerney (2010) examined predictors of customer service performance and found that customer incivility was linked with decreased performance. In other words, when employees were faced with an uncivil customer and they faked a positive emotional state, their sales performance decreased. Cortina et al. (2001) also linked experiences of incivility with increased levels of work withdrawal, suggesting that those employees who experience rude or discourteous behavior may be more likely to disregard specific tasks that are part of their role, and therefore suffer a decrease in their job performance. Recent research has also linked cyber incivility with task performance. According to a study by Giumetti et al. (2013), participants who experienced cyber incivility from a supervisor performed more poorly on a series of math tasks as compared to experiencing supervisor support. Based on this existing research, we proposed our second hypothesis, that cyber incivility would be negatively related to job performance.

Job Satisfaction as a Mediator
With AET, one possible mechanism for the reduced job performance that victims of cyber incivility may experience may be through a reduction in job satisfaction (Weiss & Cropanzano, 1996). That is, individuals who experience cyber incivility may become dissatisfied with their jobs, causing them to withdraw effort, and therefore their performance decreases. Previous research has supported this mediational model linking uncivil workplace behaviors with decreases in job satisfaction and subsequent decreases in job performance. For example, Porath and Erez (2007) examined...
rudeness and task performance among college students and found that individuals who experienced rudeness during the experiment performed worse on the anagram tasks, and this was mediated by disruptions to cognitive processing. Additionally, in a study by Lim, Cortina, and Magley (2008), the researchers found that, among a sample of U.S. federal circuit court employees, participants who experienced personal incivility tended to report lower levels of satisfaction with their work, which in turn was related to turnover intentions. Therefore, we proposed our third hypothesis, that job satisfaction would mediate the relationship between cyber incivility and performance.

The Role of Positive Affect
Previous research has identified several variables that may buffer the negative impact of stress on strain outcomes. One such moderator is PA, or the tendency to experience positive mood states (Watson, Clark, & Tellegen, 1988). A study by Vander Elst, Bosman, De Cuyper, Stouten, and De Witte (2013) found that PA buffered the relationship between job insecurity and psychological distress. Other studies have also found a buffering role for positive emotions in stressor-strain relationships at work (Grote, Bledsoe, Larkin, Lemay, & Brown, 2007; Riolli & Savicki, 2003; Thomas, Britt, Odle-Dusseau, & Bliese, 2011). In each of these studies, those individuals who experienced higher levels of PA tended to be less susceptible to the negative outcomes of the stressor. In the current study, we predicted that PA would protect employees from the deleterious impact of cyber incivility on job satisfaction and job performance (see Figure 1). Therefore, our fourth hypothesis was that the indirect effect of cyber incivility on both (a) job satisfaction and (b) job performance would be moderated by PA such that the negative cyber incivility-outcomes relationship would be stronger for those individuals low in PA as compared to those individuals high in PA.

Method
Participants and Procedure
The Clemson University institutional review board reviewed and approved the current study. Participants were recruited via an e-mail invitation that provided a link to the online survey, and they completed it electronically through SurveyMonkey®, an online survey platform. All participants first completed an informed consent form to acknowledge their agreement to participate. Partial course credit was offered to the undergraduate student sample, whereas no incentives were offered to the other samples. Participants were under no time limit while taking the survey, and the mean time to complete the survey was 11 min (SD = 8.2 min). We set the survey data collection options so that only one submission would be accepted per computer to control for potential double submission of surveys. Two-hundred twenty participants completed the survey.

The mean age of the sample was 31.05 years (SD = 12.40 years), and there were 80 men (37%) and 127 women (58%). In terms of racial/ethnic background, most participants were White (n = 171, 82.93%), and the next most common racial groups were Black (n = 17, 8.29%), Asian or Pacific Islander (n = 10, 4.88%), or “other” (n = 7, 3.41%). Participants were gathered from four different samples: business professionals contacted through an alumni database (n = 39, 17.7% of the sample), professional psychologists contacted through an association listserv (n = 84, 38.2% of the sample), current MBA students in an executive MBA program (n = 6, 3% of the sample), and undergraduate students from a large southeastern university (n = 91, 41.4% of the sample). All participants were at least working part-time in the United States at the time of the survey. Participants worked an average of 33.87 hours per week (SD = 18.78) and had an average of 4.29 years of experience (SD = 5.75). Participants were employed in numerous industries including education (28.29%), health care (12.68%), professional services (8.90%), retail trade (6.80%), food service (6.30%), and manufacturing (4.90%). In terms of Internet use at work, 60% of the sample (n = 151) communicated at least once or twice per week with their coworkers via the Internet. Fifty-three percent of the sample reported using the Internet at least once or twice per week to communicate with supervisors (n = 147), and 50% of the sample reported using it this often to communicate with customers (n = 130).

Measures
Job performance. Perceived job performance was measured with one question pertaining to overall job performance. The specific question was, “In the past six months, do you think that your job performance has been . . .?” and response options were on a 5-point Likert-type scale ranging from 1 (significantly below normal) to 5 (significantly above normal). This question was answered based on a self-assessment from the past 6 months.
Job satisfaction. Job satisfaction was measured with three questions that were similar to the general satisfaction measure from the Job Diagnostic Survey (Hackman & Oldham, 1974). Participants were asked to indicate the extent to which they agreed with three statements using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The items are “Overall, I feel satisfied with my job,” “I feel happy with my job for the most part,” and “I think that my job generally pleases me.” Together, the three items demonstrated good internal reliability (α = .96), so a composite was created by taking the mean of the three items.

Cyber incivility. For the measure of cyber incivility, participants were first given a list of possible behaviors that define the experience of incivility such as being condescending, making demeaning remarks, ignoring someone, doubting someone’s judgment, or spreading rumors (Cortina et al., 2001). Then, participants read a definition, “The following questions are about being the victim of cyber incivility at work. When we say cyber incivility, we mean incivility that takes place through e-mail, instant messaging, in a chat room, on a website, or through a text message sent to a cell phone.” After reading the definition, participants indicated how often they experienced cyber incivility through seven different media in the last 6 months by using a 6-point Likert-type scale ranging from 1 (never) to 6 (several times per day). The seven media through which participants might have experienced cyber incivility were through instant messaging, in a chat room, on a social networking site, on another type of website, through an e-mail message, through a text message sent to a cell phone, or in another way. This measure is similar to existing measures of cyberbullying (Kowalski & Limber, 2007). Internal consistency reliability was acceptable for the current study (α = .82), so the sum of the seven items was taken to represent the frequency of cyber incivility in this study.

PA. Trait PA was measured using the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988). There were 10 items for PA measured with a 5-point Likert-type response scale ranging from 1 (very slightly or not at all) to 5 (extremely). Participants indicated to what extent they experienced each of these behaviors. The items for PA included enthusiastic, excited, and proud. Previous research has utilized the PANAS to measure PA in studies focusing on job-related stress and strain (Zellars, Perrewé, Hochwarter, & Anderson, 2006), and found acceptable reliability (α = .88). In the current study, internal consistency reliability was good for the measure of PA (α = .91).

Control variables.

Job tenure. We included job tenure as a potential control variable because previous meta-analytic research has found a small positive relationship between self-ratings of job performance and job tenure (Ng & Feldman, 2013). We asked participants to indicate how many years of experience they have in their current job at their current place of employment. Participants chose options from a dropdown list ranging from less than 6 months to 50 years, in 1-year increments from 1 to 50.

Workload. Previous research has also linked job stress with incivility and outcomes (Cortina et al., 2001; Pearson, Andersson, & Porath, 2000), so we included workload as a potential control variable. The Quantitative Workload Inventory (QWI; Spector & Jex, 1998) was used to gauge general job stress resulting from work pace and workload. This measure included five items with a 6-point Likert-type response scale ranging from 1 (never) to 6 (several times per day). Sample questions included “How often do you have to do more work than you can do well?” Acceptable internal consistency reliability for the QWI has been demonstrated in previous research (Spector & Jex, 1998: α = .82) and was also found in the current study (α = .87). Thus, we created a scale composite by taking the mean of the five workload items.

NA. The final potential control variable that we included was trait NA. Previous research has suggested that NA may inflate the relationships between job stress and job strain (Brief, Burke, George, Robinson, & Webster, 1988) and therefore NA should be statistically controlled. In the current study, trait NA was also measured using 10 items from the PANAS (Watson et al., 1988), using the same response scale as noted above for PA. These items included irritable, distressed, and upset. The PANAS has been used in previous research to assess NA in relation to job stress (Spector, Fox, & Van Katwyk, 1999) and has demonstrated good reliability (α = .91). In the current study, internal reliability was good for our measure of NA (α = .87), so a scale composite was created by taking the mean of the 10 NA items.

Analysis

Before testing the hypotheses for the current study, we followed guidelines offered by Carlson and Wu (2012) for identifying which variables to utilize as control variables in the current study. Specifically, we examined the zero-order correlations for
workload, NA, and job tenure with the key variables of the current study (cyber incivility, job satisfaction, and job performance). As noted in Table 1, only NA had a significant relationship with cyber incivility, job satisfaction, and job performance. Both job tenure and workload were unrelated to these variables. Therefore, we included NA as a control variable when testing the hypotheses for the current study. Additionally, we conducted a series of one-way ANOVAs to examine whether there were differences across the four samples (undergraduate students, MBA students, business alumni, and professional psychologists) in the primary variables for the current study (cyber incivility, NA, PA, job satisfaction, and job performance). Results indicated that there were no significant differences across samples in cyber incivility, NA, PA, and job satisfaction (all β’s > .05). However, there were significant differences in job performance among the four samples, F(3, 209) = 7.42, p < .001, η² = .10. Therefore, we included a variable representing the sample from which data originated (referred to as data source below) as an additional control variable in the analyses.

To test the first two hypotheses that cyber incivility would be related to job satisfaction and job performance, respectively, we conducted a series of hierarchical linear regression analyses (sometimes called sequential regression; see Tabachnick & Fidell, 2013), with NA and data source entered in Model 1 as control variables, and cyber incivility entered in Model 2. The third hypothesis involved examination of a mediator, job satisfaction. Mediation hypotheses involve examination of an intervening mechanism that occurs between some stimulus and some response (Baron & Kenny, 1986). In this case, we predicted that the intervening mechanism would be job satisfaction that comes between the experience of cyber incivility and job performance. In other words, our analysis tried to answer the question of how cyber incivility would be related to job performance, in this case, for individuals low in PA (MacKinnon & Luecken, 2008). To test this hypothesis, we again used hierarchical regression analyses and entered NA and data source in Model 1, cyber incivility and PA in Model 2. We then entered the interaction term in Model 3 and examined the change in R² from Model 2 to Model 3 as an indication of a significant interaction (Aiken & West, 1991).

### Results

Descriptive statistics, intercorrelations, and scale reliabilities can be found in Table 1. Prior to testing the hypotheses of the current study, we first examined the prevalence rate of cyber incivility in the current sample and found that 61.40% reported never experiencing cyber incivility at work, and 38.60% of the sample reported experiencing cyber incivility through at least one medium less than once per month or more. Whereas this prevalence rate may seem low, it aligns with previous research on cyber incivility (e.g., Giumetti et al., 2012; Park, Fritz, & Jex, 2015).

The first hypothesis was supported because cyber incivility was significantly related to job satisfaction while controlling for NA and data source (β = -.19, p = .006; see Table 2). The second hypothesis was also supported because cyber incivility involves examination of a third variable that impacts the strength of the relationship between a predictor variable and a criterion variable (Baron & Kenny, 1986). In this case, we identified PA as a variable that will impact the strength of the relationships between cyber incivility and (a) job satisfaction and (b) job performance. In other words, our analysis tried to answer the question of for whom cyber incivility would be related to decreased job performance, in this case, for individuals low in PA (MacKinnon & Luecken, 2008). To test this hypothesis, we again used hierarchical regression analyses and entered NA and data source in Model 1, cyber incivility and PA in Model 2. We then entered the interaction term in Model 3 and examined the change in R² from Model 2 to Model 3 as an indication of a significant interaction (Aiken & West, 1991).

### Table 1: Descriptive Statistics, Intercorrelations, and Internal Consistency Reliability Values for All Study Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyber Incivility</td>
<td>8.21</td>
<td>2.78</td>
<td>5</td>
<td>31</td>
<td>.82</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job Tenure</td>
<td>4.31</td>
<td>5.76</td>
<td>0</td>
<td>29</td>
<td>-.06</td>
<td>.23*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workload</td>
<td>3.95</td>
<td>1.22</td>
<td>6</td>
<td>.07</td>
<td>.21*</td>
<td>.87</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative Affect</td>
<td>1.80</td>
<td>0.62</td>
<td>4</td>
<td>.24*</td>
<td>.06</td>
<td>.20*</td>
<td>.87</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Affect</td>
<td>3.51</td>
<td>0.76</td>
<td>5</td>
<td>-.04</td>
<td>.17*</td>
<td>.16*</td>
<td>-.16*</td>
<td>.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job Satisfaction</td>
<td>3.73</td>
<td>1.08</td>
<td>5</td>
<td>-.25*</td>
<td>.02</td>
<td>-.07</td>
<td>-.30*</td>
<td>.31*</td>
<td>.96</td>
<td></td>
</tr>
<tr>
<td>Job Performance</td>
<td>3.62</td>
<td>0.96</td>
<td>5</td>
<td>-.19*</td>
<td>.00</td>
<td>.08</td>
<td>-.25*</td>
<td>.22*</td>
<td>.36*</td>
<td></td>
</tr>
</tbody>
</table>

Note. Cronbach’s alpha values are presented along the diagonal in italics. *Correlation is significant at p < 0.05.
was significantly related to job performance while controlling for NA and data source ($\beta = -0.14$, $p = 0.037$; see Table 3).

The third hypothesis examined the mediating role of job satisfaction in the relationship between cyber incivility and job performance. Results indicated that the indirect effect of job satisfaction was significant ($ab = -0.020$, BC 95% CIs = -0.041, -0.009; Sobel $z = -2.36$, $p = 0.02$) while controlling for NA and data source. These results indicated that the third hypothesis was supported.

To test our moderated mediation models, the fourth hypothesis, we began by examining the interactive effect of cyber incivility and PA on job satisfaction. Results indicated that the model did not add significant incremental variance ($p = 0.59$). The second moderated mediation model involved examining the interactive effect of cyber incivility and PA on job performance. Results indicated that the model explained significant incremental variance ($AR^2 = 0.020$, $p = 0.026$) over the main effects, NA, and data source, and the interaction term was significant ($\beta = 0.145$, $p = 0.026$). A simple slopes analysis revealed that the results were in the expected direction (Aiken & West, 1991). When employees were low in PA (one SD below the $M$), cyber incivility was significantly related to job performance ($t = -2.85$, $p = 0.005$). However, when employees were high in PA (one SD above the $M$), cyber incivility was not significantly related to performance ($t = 0.56$, $p = 0.577$). We plotted the interaction to help with interpretation (see Figure 2). Finally, we followed recommendations of Hayes (2013) to examine the conditional indirect effects at 1 standard deviation above and below the mean of PA. When employees were low in PA, the mediated model was significant (indirect effect = -0.03, SE = 0.01, CIs = -0.07, -0.01). However, when employees were high in PA, the mediated model was not significant (indirect effect = -0.01, SE = 0.01, CIs = -0.05, -0.01). Together, these results suggested that individuals who are high in PA are less likely to be affected by cyber incivility and less likely to report lower levels of job satisfaction or job performance. Thus, partial support was found for the fourth hypothesis because the first part was not supported (i.e., PA did not moderate the relationship between cyber incivility and job satisfaction), but the second part was supported (i.e., PA moderated the relationship between cyber incivility and job performance).

**Discussion**

Incivility has the ability to negatively impact individuals in the workplace. Whereas much of the previous research on incivility has focused on its face-to-face form, the current study extended this research by focusing on so called cyber incivility, which is incivility experienced through electronic means such as e-mail, text messages, or instant messaging. By utilizing the AET model, the current study examined
how cyber incivility can be identified as a stressful event in the workplace and subsequently impact a person’s job satisfaction and performance level. The results indicated that, when experiencing cyber incivility in the workplace, individuals tend to report lower levels of job satisfaction and also report lower job performance levels. These findings supported previous research linking face-to-face incivility to job attitudes (Miner-Rubino & Reed, 2010) and job performance (Sliter et al., 2010).

Additionally, the findings from the current study indicated that job satisfaction served as a mediator of the relationship between cyber incivility and job performance. This suggests that employees who are treated poorly at work through such acts as cyber incivility may report lower levels of job satisfaction, which in turn may be related to lower levels of job performance. However, PA served as a buffer to the negative effects of cyber incivility on job performance. Specifically, individuals who were high in PA did not report reduced job performance following cyber incivility as compared to those individuals who were low in PA. These results help to show how (through job satisfaction) and for whom (those low in PA) that cyber incivility may be linked with reduced job performance. Lastly, we did not find support for PA as a moderator of the link between cyber incivility and job satisfaction. This suggests that the relationship between cyber incivility and job satisfaction does not depend on a person’s typical levels of positive emotions.

**Practical Implications**
The results of the current study have important implications for the 21st century world of work. To try to reduce the incidence of cyber incivility, supervisors and managers might consider implementing online communication training sessions or interventions to guide individuals to act in appropriate ways online. Such training sessions have been effective for reducing the incidence of face-to-face incivility (Leiter et al., 2012), and also reducing the negative outcomes associated with incivility, so there may be a high likelihood of success in an online context as well. It is important to note, however, that the current study examined perceived experiences of incivility, rather than objective instances of incivility experienced from others, so it may be the case that supervisors or coworkers are not purposely trying to treat them poorly. Along these lines, then, other forms of training may also be helpful such as training employees to be more forgiving, understanding, or giving others the benefit of the doubt. Additionally, organizations may consider carefully monitoring employee job attitudes. If employees begin to report lower levels of job satisfaction, managers may want to intervene to learn about the root of the dissatisfaction to help ward off a decline in job performance.

The results of the current study also suggested that personality plays a role in the stressor-strain process. More specifically, given that we found relationships between NA and cyber incivility, job satisfaction, and job performance, future researchers are encouraged to measure NA in their studies. The experience of cyber incivility may partially be a function of the personality of the e-mail recipient because individuals high in NA may be more sensitive to stressors in their environment or more likely to experience increased strain reactions as a result of stress in the workplace (Spector, Zapf, Chen, & Frese, 2000). More research is needed on the mechanisms associated with NA and job stressor-strain relationships.

From a practical standpoint, the results of the current study also suggested that individuals high in trait NA may be more likely to report lower levels of self-rated performance. Thus, managers may wish to take personality traits into consideration when reviewing self-rated employee performance, and be prepared to provide additional coaching to these individuals, helping them to see their strengths and areas for improvement. In addition, our findings indicated that individuals high in PA were less likely to report decreased job satisfaction and decreased performance. Therefore, organizations may wish to encourage positive emotional experiences at work (Fritz & Sonnentag, 2009).

**Limitations and Future Research Directions**
There are several limitations that should be considered when interpreting the results of the current study. First, due to all variables being gathered via self-reported surveys, response bias may be a concern (McGrath, Mitchell, Kim, & Hough, 2010). In particular, participants might not have reported accurately on their current performance levels. Whereas much previous research has relied on self-report for measuring a person’s own performance (Kim & Glomb, 2014), supervisors or others in the workplace may be in a better position to observe and report on an employee’s levels of job performance. Therefore, future research should not focus entirely on self-reported measures and should instead include measures from coworkers, supervisors, and subordinates. Additionally, researchers...
should attempt to gather objective measures of performance. For example, test scores could be used with a student sample or sales numbers for salespersons. An additional limitation with the performance measure used in the current study was that participants were asked to judge their performance in comparison to normal. However, we did not define normal, and what is normal for one individual may not be the standard for the organization. Another limitation of the current study was that all data were gathered at a single time point and no variables were manipulated. Therefore, we cannot establish that cyber incivility caused changes in job satisfaction or performance, nor can we establish the temporal order of these variables. For example, it could be the case that poor performers are more likely to be victims of cyber incivility. Additionally, the design for the current study only provided weak evidence of true buffering. Future researchers should examine the cyber incivility phenomenon as well as a PA buffering hypothesis using longitudinal study designs or experimental manipulations.

Another possible limitation was that we were unable to control for certain personality traits that may be related to being targeted more often with cyber incivility. For example, previous research has indicated that individuals who are low in agreeableness report more occurrences of face-to-face incivility in the workplace than individuals who are high in agreeableness (Milam, Spitzmueller, & Penney, 2009). Therefore, future research should take into consideration the personality of the target employee and obtain other reports of cyber incivility. Additionally, the current study only examined one possible correlate of job performance and job satisfaction (cyber incivility), but these outcome variables may be influenced by additional workplace factors other than cyber incivility. For example, pay (Judge, Piccolo, Podsakoff, Shaw, & Rich, 2010), relationships with supervisors (Harris, Harris, & Brouer, 2009), job characteristics (Cheung & Tang, 2010), individual differences (Wu & Griffin, 2012), and growth opportunities (Ford & Wooldridge, 2012) may influence job satisfaction. In addition, the level of work-family conflict that an individuals experience may impact the amount of stress individuals might be under and their reported levels of satisfaction and performance (Odle-Dusseau, Britt, & Greene-Shortridge, 2012; Spector et al., 2007). Thus, future research is needed to look at other external factors that may influence a person’s job performance and job satisfaction at the same time as cyber incivility. One final limitation was that the working adults samples were not offered incentives for participation in this study. This might have reduced the number of responses, and previous research has indicated that even small incentives can improve survey response rates (Rose, Sidle, & Griffith, 2007). Therefore, future research should employ a small incentive with surveys sent to employee-based samples.

In conclusion, the current study provided additional support for AET as a theoretical model linking negative workplace events with job attitudes and job performance. Specifically, we found that cyber incivility was linked with lower levels of job satisfaction along with lower levels of self-rated job performance. In addition, we found evidence for a possible mechanism (job satisfaction) through which cyber incivility may be linked with job performance as well as an individual difference variable that helped us to understand for whom cyber incivility may be more impactful (individuals low in PA). Our study also provided additional information about the prevalence of cyber incivility among working adults because 38.60% of the sample indicated that they had experienced at least one form of cyber incivility at work in the past 6 months. Given the rapidly increasing use of communications technologies in today’s workplaces ( Purcell & Rainie, 2014), we feel that additional research is warranted on this form of interpersonal mistreatment. Additionally, we encourage employees to be mindful of their electronic communications.

References


Cyber Incivility, Job Satisfaction, and Performance

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Does Fitness Priming Influence Self- and Other-Judgments of Personal and Physical Characteristics?
Kathleen M. Burris, Sheila Brownlow, and Katherine C. Lins
Catawba College

ABSTRACT. We examined how priming the potential benefits of moderate or extreme fitness in advice articles influenced self- and other-judgments of internal and external qualities. After reading articles to activate primes of hyperfitness, moderation in fitness, or pet ownership as a control, men and women participants (N = 84) provided personality ratings of self-esteem and perfectionism, provided their attitudes toward health, fitness, dieting, and the ideal appearance of men and women, and also indicated degree of preference for musculature and slimness in men and women. Men’s and women’s preferences for slimness in women decreased after reading articles on moderation, both ps < .046, both η² > .14. Self-esteem increased as a function of article primes for hyperfitness, p = .027, η² = .09. Muscularity attractiveness and perfectionism were not influenced by article primes. Results suggested that certain types of media can be a constructive influence on self- and other-ideal appearance and personal qualities.

Is there danger to reading a simple fitness magazine article or surfing the latest Internet news on dieting? Engagement with media containing idealized content influences the way people view themselves and others by, for example, contributing to negative views of our bodies (Grabe, Ward, & Hyde, 2008; Tiggemann & Slater, 2004). Ideal body types for men and women are conveyed through the media and often provide unattainable body standards for comparison, which may ultimately lead people to maladaptive and potentially dangerous behavior in attempt to match unrealistic body-shape goals.

Media sources convey to the public what the perfect man’s and woman’s body should look like. The Western idealized man’s body is lean, large, and strong with a V-shape from broad shoulders (Burlew & Shurtle, 2013; Chia & Wen, 2010), defined chest, arm, and abdominal muscles (Bartlett, Vowels, & Saucier, 2008), and a lean waist (Ryan & Morrison, 2009). For women, body ideals prescribe they be exceptionally thin (Grabe et al., 2008; Nemeroff, Stein, Diehl, & Smilack, 1994; Stice, Maxfield, & Wells, 2002) and toned (Nemeroff et al., 1994; Pritchard & Cramblitt, 2014). Although people may not believe that media sources affect how they view themselves, research has been clear that media influence is strong.

The mass media, parents, and peers together create body dissatisfaction by providing models for comparison (Galli, Reel, Petrie, Greenleaf, & Carter, 2011; Grabe et al., 2008; Hefner et al., 2014). For example, images in mass media and the opinions of girlfriends and peers negatively influence men’s body images (Ryan & Morrison, 2009), and after watching television with thin woman actors or engaging in “thin talk” with friends, women often feel pressured to match thin body standards and are less happy with their own appearance (Hefner et al., 2014; Stice et al., 2002). Thus, self-approval is shaped by the opinions of what significant others consider an “ideal” physique, although the influence of mass media is also important (Souliere & Blair, 2006).

Ideal bodies are portrayed via television, men’s and women’s magazines, print advertisements (Souliere & Blair, 2006; Spitzer, Henderson, & Zivian, 1999), cartoon characters (Silverstein, Perdue, Peterson, & Kelly, 1986), and action figures (Souliere & Blair, 2006). In turn, people respond
to the emphases the media place on body shape. For example, Chia and Wen (2010) showed that men who perused ads with idealized models had greater levels of body dissatisfaction and negative body image, and expressed more intention to diet, exercise routinely, and have cosmetic surgery. Similar research results have been seen for women. Tiggemann and Slater (2004) found that women reported feeling more overweight and less self-assured, physically appealing, and pleased with their appearances after viewing music videos with highly attractive, slim models. Moreover, women had stringent standards for beauty and were less content with their own physical appearance and attractiveness after viewing ads with attractive models (Richins, 1991). Women also were more self-critical of their bodies after watching their favorite women-centered television shows (Hefner et al., 2014).

Given that people are exposed regularly to idealized body shapes in the media, such shapes may come to be seen as reasonable (Grabe et al., 2008), although these ideals are unrealistic for most people (Nemeroff et al., 1994). Moreover, such emphasis might lead to valuing appearance at the cost of health (Ryan & Morrison, 2009), and on some occasions, dangerous and potentially life-threatening behaviors (Galli et al., 2011). These assertions are supported by two meta-analyses involving direct exposure to ideals through the media.

A meta-analysis by Bartlett et al. (2008) showed that men who viewed idealized images had lower body esteem and body satisfaction, and higher rates of dysfunctional thoughts and behaviors (e.g., abuse of anabolic substances or steroids, increased muscle-enhancing supplement and diet pill use, excessive exercise, cosmetic surgery, cleansing, and extreme dieting). Such exposure also leads to greater self-consciousness, comparison, and negative self-images (Vigorito & Curry, 1998). In their meta-analysis of 77 articles including 15,047 participants reporting 141 effect sizes, Grabe et al. (2008) found that women participants who viewed thin ideals had more bulimic, purging, and anorexic tendencies, and women who viewed greater amounts of media had greater dislike of their bodies, more greatly valued the thin woman’s body type, and presented higher levels of eating pathology than women who viewed less media. Additionally, women’s endorsements of the thin-ideal woman’s body became more pronounced as rates of viewing media with idealized female models increased. Given that ideal body shapes are perceived as the norm and remain universal, messages about ideals may implicitly influence related behavior.

Although body image concerns, regardless of their origins, influence diet and exercise behavior (Vohs, Bardone, Joiner, Abramson, & Heatherton, 1999), they are also related to several aspects of psychological functioning, particularly self-esteem and perfectionism. For example, women who tried to make their bodies match the “perfect” woman’s body as depicted in most Western media experienced not only anxiety and depression, but also showed lower self-esteem (Schrick, Sharp, Zvonkovic, & Reifman, 2012), despite awareness that Western media presents a standard that may not be attainable (Abou-Rizk & Rail, 2014). Even women who were merely aware of ideal physiques presented in media showed more neuroticism and were less extraverted (Swami, Taylor, & Carvalho, 2011). Being overly concerned with masculinity was seen in girls with low self-esteem (Saling, Ricciardelli, & McCabe, 2005), and undue attention to physical appearance in men was associated with both reduced self-esteem (Bartlett et al., 2008) and greater negative affect (Ryan & Morrison, 2009; Soulierre & Blair, 2006). High levels of perfectionism have been seen in preadolescents who were overly concerned with food, dieting, and muscle-tone (Saling et al., 2005), among women who had body-image concerns (Schrick et al., 2012; Sheldon, 2010), and in women who demonstrated excessive dietary restraint and bulimic tendencies (Brannan & Petrie, 2008; Ferrand, Magnan, Rougeux, & Filaire, 2007). Thus, an unhealthy concern with dieting, exercise, and media images of ideal bodies is common among both men and women who display certain psychological qualities (e.g., neuroticism, self-esteem, anxiety, perfectionism). However, it is not clear whether media itself can influence these qualities, or whether the unhealthy body-related concerns are found among those persons who already exhibit higher levels of perfectionism and lower levels of esteem.

In sum, messages about ideal body types conveyed through various sources, primarily the media, become the target of comparison and may lead people to develop maladaptive and potentially dangerous lifestyles in attempts to match unrealistic body-shape goals. At the same time, the media can also present images of healthy people who are fit but who have realistic, and more attainable, body presentation (Daniels, 2012).
our research question focused on how media may serve as a prime for more healthful thought. Priming is the recent contact with stimuli or cues that activate trait concepts and stereotypes, and lead to fresh activation of a schema to make relevant traits and stereotypes highly accessible (Bargh, Chen, & Burroughs, 1996). Priming exerts an unconscious, passive influence to lead people to behave in accordance to the schema (Chambon, 2009). So, for example, people actually saw hill slopes as steeper and walked more slowly after being primed to think about older adults. Thus, we believed that people primed by healthful, moderate fitness-related beliefs would judge ideal body shapes and their own behaviors in accordance. Because health and exercise can be performed in moderation or in excess, we examined the influence of each on perceptions of others, perfectionism, and self-esteem. We hypothesized that men and women primed for moderate fitness beliefs would show less perfectionism, greater self-esteem, report less extreme diet and exercise beliefs and behaviors, and show preference for larger silhouettes on The Body Image Assessment Scale-Body Dimensions (Gardner, Jappe, & Gardner, 2009) compared to those primed for extreme (or “hyperfit”) health beliefs and people primed for the health benefits of pet ownership as a control.

Method

Participants and Design

Participants were 44 men and 40 women who volunteered or received extra course credit in traditional day psychology and sociology classes. Their ages ranged from 17 to 22 (M = 19.32, SD = 1.51).1 All read a blog-style article titled “How to Stay Healthy After College” that took the form of a magazine advice article about ways to boost health to improve job performance. Participants were assigned randomly to read an article about moderate health beliefs, hyperfitness, or health benefits of pet ownership (control). The manipulations resulted in a 2 x 3 (Participant Sex x Priming Condition: Moderate vs. Hyperfit vs. Control) between-participants design.

Stimulus Materials

There were three versions of an article for men and three for women. One group read an article to prime for concepts of hyperfitness (for men prompts for hypermuscularity and for women intense calorie burn spikes, lean muscle, flat abs). The moderate fitness group read an article prompting moderate exercise, positive body image, and improved wellness. The control group read an article about the psychological and physiological benefits of pet ownership on health. Each article was adapted from information given on magazine websites and blogs online, the sources from which are given in Appendix A. Three example articles, one advocating hyperfitness designed for women, one moderate fitness targeted toward men, and an article about pets can be found in Appendix B. Each article was approximately 500 words long, excluding the control, included 20 primes for the emotional benefits of exercise and 23 primes for the physical benefits of exercise. Such primes include “250 minutes of cardio,” “lifting is the secret sauce to weight loss,” and “getting an image that commands attention” for hyperfitness and “success and satisfaction,” “lower risk of diseases,” and “regular physical activity in small amounts helps you live longer” for moderate fitness. The control article included primes such as “pets lower cortisol levels” and “help you keep routine and learn to take responsibility.”

Dependent Measures

Rosenberg Self-Esteem Scale. Because self-esteem is affected by the media (Bartlett et al., 2008; Ryan & Morrison, 2009), and because media depictions of idealized bodies influence self-views (Schrick et al., 2012), we included the short version of the Rosenberg Self-Esteem Scale (Rosenberg, 1965) to measure activated features of the prime. Each question was measured on a 7-point Likert-type scale, with scale endpoints anchored from 1 (disagree) to 7 (agree). Sample questions from the 10-item scale include “At times I think I am no good at all” and “I am able to do things as well as most other people.” Cronbach’s alpha for this scale was .89. Responses were summed, and scores ranged from 10 to 70.

Hewitt and Flett Perfectionism Scale. Because perfectionism might have been increased by the content of our primes, we used the Hewitt and Flett (1990) Perfectionism Scale to measure responses to the blog-style articles. Each question was measured on a 7-point Likert-type scale, with scale endpoints ranging from 1 (disagree) to 7 (agree). Sample questions from the 45-item scale include “I am not likely to criticize someone for giving up too easily” and

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1We did not ask participants to self-identify their ethnicity, but the sample was drawn from a college population that is 18% African-American, 1% Asian or Hawaiian/Pacific Islander, 5% Hispanic of any classification, 6% other (more than one ethnicity, unclassified, declined to answer), and 69% White.
“I find it difficult to meet others’ expectations of me.” Cronbach’s alpha for this scale was .79. We obtained a total after appropriate reverse scoring.

**Personal behaviors and attitudes.** We also assessed relevant self-reports related to diet, exercise, and fitness, using 7-point scales ranging from 1 (disagree) to 7 (agree). For men participants, these included judgments of the perfect man’s body as slim, toned, and also whether voluptuousness and curves is appealing, if it is possible for women to be too thin, and if muscle-enhancing supplement use is an acceptable means to attain the ideal body for themselves. For women participants, these included judgments of the perfect woman’s body as slim, toned, and also whether voluptuousness and curves is appealing, if it is possible for women to be too thin, and if strict diets are acceptable means to attain the ideal body for themselves.

For all participants, we adapted measures of hyperfitness from Schulerr’s (2008) description of the exercise behaviors that accompany eating disorders and signal unhealthy adherence to fitness ideals. These included reports of doing exercise for enjoyment rather than improved physical appearance, if feeling wrung out post workout signals overexertion, if it is okay to ignore body signals while exercising, and the importance of body shape when evaluating potential dates.

**Ideal body shape image.** We used the Body Image Assessment Scale-Body Dimensions (Gardner et al., 2009) to assess participants’ views of the “ideal” body shape for women and men. The scale includes 17 body silhouettes for each sex, with each corresponding to a particular weight ranging from 60 percent below the average weight to 140 percent above the average weight, and scores (for both a target man and woman) were the percent of the “ideal” body shape for women and men.

**Personal fitness-related behaviors and attitudes.** Participants completed several diet, fitness, and exercise self-report questions, measured on 7-point Likert-type scales with scale endpoints anchored from 1 (disagree) to 7 (agree). These focused on whether participants considered themselves in good health, physically fit, as nourishing eaters, and as satisfied with their physical appearance compared to others of their age.

**Procedure**

Before we conducted our study, approval was sought and received by the Catawba College Institutional Review Board. After we explained the experiment to participants and obtained consent, we provided them with an article to activate the prime according to condition. We removed the article and then presented scales of perfectionism and self-esteem, personal behaviors and attitudes, body silhouettes, and lastly personal background self-report. Scales of personal behaviors and attitudes were presented in two counterbalanced orders within sex. We debriefed participants at the conclusion of the experiment.

**Results**

**Data Reduction**

Self-report dependent measures were subjected to Principal Components Analysis (PCA) with varimax rotation, which we used to examine whether multiple dependent measures were measuring the same constructs and to combine those that did (see Briggs & Cheek, 1986, for rationale for factor analysis as a means to eliminate redundancy in measurement and for guidance on interpreting alpha indices from factor analyses). Because men and women provided similar, but not identical, measures regarding preferences for various body builds in others, separate PCAs were conducted by sex for those measures. Full tables of the factor loadings for all three PCAs are available to the reader upon request from the corresponding author. The PCA for men produced two factors (from an original set of seven variables, Cronbach’s α = .72) that accounted for 63% of the variance. Factor loadings are given with the measures. First, *muscularity attractiveness* (Cronbach’s α = .80), which included measures of the perfect woman’s body as toned (.75) and the perfect man’s body as V-shaped (.90) and buff (.77); and second *attractiveness of slimness in women* (Cronbach’s α = .51), which included measures of the perfect woman’s body as a slim size 2 (.77), whether “extra padding” is not appealing (.60), and that it is not possible for women to be too slim (.69). The second PCA on women’s measures yielded two factors (from an original set of six variables, Cronbach’s α = .76) and accounted for 71% of the variance. Factor loadings are given with our measures. First, *muscularity attractiveness* (Cronbach’s α = .75), which included measures of the perfect man’s body as buff (.66), “bigger is better” for muscles (.81), and how large muscles are attractive (.90). The second factor

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*Briggs and Cheek (1996) noted that interitem correlations for scales with a small number of items (under 10) can be as low as .2 to .4, and that overall scale alphas can be as low as .5 in such cases because Cronbach’s alpha is sensitive to the number of measured items.*
was attractiveness of slimness in women (Cronbach’s $\alpha = .62$), which included measures of the perfect woman’s body as slim (.81) and toned (.82). Thus, two factors tapping similar constructs emerged for men and women participants, and relevant dependent measures were summed and averaged.

A third PCA was calculated on self-reports of the participants’ own behavior, and included all participants because we included the 10 dependent measures (Cronbach’s $\alpha = .61$) that all completed. The PCA accounted for 64% of the variance. Three factors emerged: healthfulness (Cronbach’s $\alpha = .81$), which included self-reports of being in good health (.89), being physically fit (.86), satisfaction with appearance (.69), and eating nutritiously (.70); moderate fitness adherence (Cronbach’s $\alpha = .42$), which included having annual checkups (.61), enjoying exercise (.61), and understanding that feeling wrung out after exercise is bad (.57); and extreme fitness adherence (Cronbach’s $\alpha = .18$), which included agreement that it is okay to diet and use supplements (.78) and to ignore body signals when exercising (.55). Because this last reliability index was too low and the interitem correlations did not all reach an acceptable standard (2. to 4.; see Briggs & Cheek, 1986), we did not include the measure.

The Influence of Priming on Judgments of Self and Others

The factors that emerged from the PCAs were analyzed via Analysis of Variance (ANOVA); dfs varied because one or two data points were missing for some analyses. For men participants, we used a one-way ANOVA with three levels (conditions) with beliefs that attractiveness in women is a function of slimness; means and standard deviations are seen in Table 1. As seen in Figure 1, there was a significant effect of condition, $F(2, 41) = 3.35, MSE = 1.32, p = .045, \eta^2 = .140$, and pairwise LSD comparisons showed that men primed for moderate health beliefs had less preference for slim women than men primed for hyperfitness ($p = .016$, Cohen’s $d = .97$), and those primed for the health benefits of pet ownership also had somewhat less preference for slimness ($p = .079$, Cohen’s $d = .65$). However, men primed for moderate health beliefs and those primed for the health benefits of pet ownership were equal in their beliefs that women’s attractiveness is a function of slimness ($p = .429$).

Means and standard deviations for a parallel analysis for women’s belief that attractiveness in women is a function of slimness are located in Table 1. As seen in Figure 1, there was a significant effect of condition, $F(2, 37) = 3.97, MSE = 1.91, p = .027, \eta^2 = .177$, and our post-hoc LSD comparisons showed that women primed for moderate health beliefs were less likely to see that slimness was a prime determinant of women’s attractiveness compared to those primed for hyperfitness ($p = .019$, Cohen’s $d = .92$) and for the health benefits of pet ownership ($p = .022$, Cohen’s $d = .95$). No significant difference emerged in judgments of the attractiveness of slimness for women primed for hyperfitness and pet ownership ($p = .944$).

Two other separate ANOVAs (one for men, and preferences for slimness in women as function of priming condition

<table>
<thead>
<tr>
<th>Priming Condition</th>
<th>Moderate</th>
<th>Hyperfit</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preference for Slim Women</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women (n = 40)</td>
<td>2.54</td>
<td>3.85</td>
<td>3.81b</td>
</tr>
<tr>
<td></td>
<td>(1.41)</td>
<td>(1.46)</td>
<td>(1.21)</td>
</tr>
<tr>
<td>Men (n = 44)</td>
<td>3.14</td>
<td>4.24</td>
<td>3.48</td>
</tr>
<tr>
<td></td>
<td>(1.12)</td>
<td>(1.13)</td>
<td>(1.19)</td>
</tr>
<tr>
<td>Muscularity is Attractive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women (n = 40)</td>
<td>3.36</td>
<td>3.12</td>
<td>3.77</td>
</tr>
<tr>
<td></td>
<td>(1.71)</td>
<td>(1.03)</td>
<td>(1.05)</td>
</tr>
<tr>
<td>Men (n = 44)</td>
<td>3.55</td>
<td>3.90</td>
<td>4.06</td>
</tr>
<tr>
<td></td>
<td>(1.87)</td>
<td>(1.53)</td>
<td>(1.31)</td>
</tr>
</tbody>
</table>

Note. Means with different subscripts within sex are significantly different, $p < .05$. Higher numbers indicate more agreement for each measure.
one for women) addressed the attractiveness of muscularity. Means and standard deviations can be found in Table 1. Priming condition did not affect opinions that muscularity is attractive for women participants, $F(2, 40) = 0.80, p = .459$, or men participants, $F(2, 41) = 0.41, p = .665$.

We then examined how priming of fitness beliefs influenced self-reports of health and exercise. Recall that the PCA provided two reliable factors across all participants. These factors (i.e., moderate fitness adherence and healthfulness) were analyzed in separate $2 \times 3$ (Sex x Priming Condition) ANOVAs. Means and standard deviations are located in Table 2. Priming condition did not influence self-reports of moderate fitness adherence, $F(1, 78) = 0.67, MSE = 1.74, p = .513$, nor healthfulness, $F(1, 78) = 1.86, MSE = 1.63, p = .163$.

Sex was not significant for either moderate fitness adherence $F(1, 78) = 0.01, p = .954$, or healthfulness $F(1, 78) = 0.285, p = .595$. The interaction did not approach significance for either variable, $F(1, 78) = 0.701, p = .499$ for moderate fitness adherence and $F(1, 78) = 0.09, p = .513$, for healthfulness.

Silhouettes reflecting the “ideal” look of men and women were selected by both men and women participants, and these selections were entered separately as dependent measures in two $2 \times 3$ (Sex x Priming Condition) ANOVAs; means and standard deviations can be found in Table 2. Sex was significant in judgments of the male silhouette, $F(1, 73) = 4.13, MSE = 177.15, p = .046, \eta^2 = .05$, because men judged the most appealing man’s body as slimmer than did women. Neither priming condition, $F(2, 73) = 0.18, p = .888$, nor the interaction, $F(2, 73) = 0.503, p = .601$, were significant. A similar analysis of the female silhouette also revealed no significant main effect of sex, $F(1, 72) = 1.06, MSE = 171.67, p = .307$, or condition, $F(1, 72) = 0.31, p = .513$. The interaction did not produce a significant effect, $F(2, 72) = 0.04, p = .963$.

We then examined how perfectionism and self-esteem were influenced by our manipulations via $2 \times 3$ (Sex x Priming Condition) ANOVAs. Means and standard deviations can be found in Table 3. There were no main effects of priming, $F(2, 78) = 0.01, MSE = 640.99, p = .989$, participant sex, $F(1, 78) = 0.363, p = .548$, nor an interaction of priming condition and participant sex, $F(2, 78) = 0.01, p = .986$. There was a main effect of priming condition on self-esteem, $F(2, 77) = 3.78, MSE = 114.01, p = .027, \eta^2 = .09$. Post-hoc LSD pairwise comparisons tests showed that people primed for hyperfitness had somewhat ($p = .08$, Cohen’s $d = .43$) higher levels of self-esteem than those primed for moderate health benefits, but far more self-esteem than people primed for the health benefits of pet ownership ($p = .008$, Cohen’s $d = .77$). There was no significant effect of sex, $F(1, 77) = 1.72, p = .399$, nor an interaction, $F(2, 77) = 0.16, p = .852$.

**Discussion**

The results of this study revealed that articles advocating moderate diet and exercise behaviors led men and women to view super-slim body shapes in women as less appealing than a larger one, and also contributed to higher levels of self-esteem. On the other hand, individuals who read articles endorsing extreme exercise habits had even higher self-esteem. Men found slimmer men’s bodies appealing compared to women. However,
all preferences fell below the average weight man and woman. Desire for masculinity in opposite-sex others was not influenced by priming.

Men preferred slimmer male figures compared to women, and men who read about over-exercising preferred leaner men’s bodies compared to those who read about moderation or pet ownership. Furthermore, all men, no matter the article they read, felt the most attractive man’s body was slimmer than average. This pattern may support recent suggestions that the media are more greatly emphasizing being slim, in addition to toned, for men (Nemeroff et al., 1994; Pritchard & Cramblitt, 2014). The finding may also be a function of the types of silhouettes we used because the Gardner et al. (2009) silhouette scales display a spectrum of underweight to overweight, whereas we were interested in body shape on a spectrum of slim to muscular. Indeed, Lynch and Zellner (1999) noted that masculinity, rather than weight per se, is a more important factor in both men’s and women’s judgments of attractiveness in men’s bodies.

Surprisingly, neither type of article nor sex influenced judgments of the female silhouette. Note, however, that the preferred silhouettes for women ranged from about 88% to 94% of the average weight woman regardless of priming, showing that our participants really found slimness in women to be attractive, and confirming research demonstrating that men and women have similar views of what constitutes an attractive woman’s figure (Tovée & Cornelissen, 2001). However, preferences for slimness in women were a function of article content because men who read how moderation or pet ownership improve health viewed slim women as less desirable than men who read about hyperfitness. The latter finding is not surprising given research that has shown how men’s focus on masculinity and fitness is associated with a preference for thin women (Hatoum & Belle, 2004). Moreover, women who read about moderate exercise also reported less liking for ultraslim women’s figures. We also found that men and women who read articles condoning extreme exercise did not see masculinity as attractive compared to those who read about moderation or pet ownership.

The foregoing findings are supported by other research in several ways. Reading health and fitness magazines has been associated with drives for thinness (for women) or a more masculine physique (for men; Botta, 2003; Morry & Staska, 2001), but this relationship can be mediated by how much people use media as an information source on ways to change the body (Pritchard & Cramblitt, 2014). Moreover, both men and women find a slim woman’s figure as most attractive (Grabe et al., 2008; Pritchard & Cramblitt, 2014). However, this preference for slimness is more likely with consumption of general media than athletic media (Pritchard & Cramblitt, 2014), a finding that dovetails with our finding that women who read about the health benefits of moderation and pet ownership (i.e., general media) favored slimness more than those who read about excessive exercise (i.e., athletic media). Furthermore, our finding that preferences for masculinity were not influenced by the article has support in research that has shown that men’s and women’s drives for masculinity are not associated with their magazine reading habits (Cramblitt & Pritchard, 2013; Pritchard & Cramblitt, 2014). No priming of content affected people’s judgments about their moderate fitness adherence or healthfulness, which we attribute to the measures themselves because they tapped moderation in fitness, and it is typically exposure to unrealistic ideal bodies that contributes to elevated body dissatisfaction (Bartlett et al., 2008; Chia & Wen, 2010; Richins, 1991).

Articles supporting the health benefits of pet ownership, hyperfitness, and moderation did not affect perfectionism, nor did perfectionism vary by participant sex. Although perfectionism is generally stable across sex (Flett, Blankstein, Hewitt, & Koledin, 1992), research has suggested that men may have higher levels of other-oriented perfectionism, or having high standards for others (Hewitt & Flett, 1991). One reason that the primes did not increase or decrease perfectionism may be that the measures in the scale did not relate to fitness and health. A second explanation may be connected to the scale length (45 questions) and its placement at the end of a long experiment. Our participants might have been motivated to finish their scales rather than take time to adequately consider all questions. One final explanation, and perhaps the most likely, is that most research on the relationship between perfectionism and body-image concerns (Schrick et al., 2012; Sheldon, 2010) have examined body image issues as a function of variations in perfectionism. In future research, measuring a baseline of perfectionism

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3We also scored perfectionism according to three distinct subtypes: self-oriented, other-oriented, and socially prescribed, and calculated separate ANOVAs for each. Results were very much like the overall ANOVA, and no main or interactive effects emerged for any analysis, all ps > .16.
Does Fitness Priming Influence Self- and Other-Judgements

The most unexpected finding concerned measures of self-esteem. People who read about overexertion had higher self-esteem than people who read how pets can improve health, and although readers of moderation and hyperfitness articles had nearly equal self-esteem, the measure was slightly higher among those who read extreme views (i.e., hyperfitness). After reading articles that made clear that wellness was a function of work in some form, people might have fended off negative affect and self-view by briefly boosting their self-esteem, particularly because few people could manage the degree of fitness noted in the articles. There are two types of self-esteem, and these are not related to each other. Implicit self-esteem is an unconscious, involuntary self-judgment (Hetts, Sakuma, & Pelham, 1999) that remains fairly stable across time, and explicit self-esteem is calculated and mindful (Bosson, Swann, & Pennebaker, 2000). Threats to explicit self-esteem lead people to interpret situations in a manner that allows them to uphold a positive self-image (Bosson et al., 2000). However, research by Shorek and Dunham (2012) has shown that explicit self-esteem in men was not affected by idealized media images (although implicit esteem was), which stands in contrast to our findings. Self-esteem levels were statistically equal for the participants who read about exercise (those both fairly reasonable and those unreasonable) in contrast to those who read about pets. Therefore, any priming about the need to diet and exercise might have led to negative views of students’ own lifestyle and body, and they might in turn have temporarily elevated their explicit self-esteem to deflect negative self-views.

Some changes to our method could better address some of the research questions. One concern was our measurement of body image via silhouette scales because silhouette measures body shape as a discrete variable rather than as the continuous variable that it truly is (Gardner, Friedman, & Jackson, 1998). Future research in this area should use a silhouette scale that more accurately measures muscular body types, and should also measure the continuum of under to overweight, as well as slim to muscular, in combination to investigate how priming influences judgments of both aspects of physical appearance. A second concern is the generalizability of our research results beyond our sample, which was drawn from a student population that predominantly (69%) self-identifies as White. A more diverse sample might have yielded a different pattern of results and one that was reflective of differing body-image views.

Although our results countered some researchers’ findings, they harmonized with the results of many other researchers, and they also reflected the mixed results on the topic of media influences on drives for muscularity and thinness. Future research should address the needs for greater understanding of if, and how, varied forms of media change men’s and women’s desires to build muscle or slim down. Furthermore, most research in this area focuses on women, but it is clear that men are also affected by media portrayals of the perfect body. Thus, research should also include investigation of how men’s body ideals may be changing to incorporate slimness with muscle tone, and what factors are the most influential on men’s desires for muscularity.

There are some positive implications of our findings. The higher levels of self-esteem seen in people who read articles endorsing extreme exercise counters notions that idealized media always erodes positive self-regard, and also displays how people may thwart negative self-views. Moreover, reading articles that promoted moderate exercise made both men and women—but especially women—more accepting of women who were not very thin. In turn, readers may become more forgiving of themselves because viewing fit, healthy athletic people can increase body self-acceptance (Daniels, 2012; Homan, McHugh, Wells, Watson, & King, 2012). The positive influence of the moderation article and the positive result on esteem for the article touting unrealistic views of fitness speak to the constructive potential of media campaigns for healthy body images. Media campaigns such as “The Dove Self-Esteem Project” (Dove, 2004) and Special K “Fight Fat Talk” (Special K, 2014) have been established to improve self-respect and acceptance of all body types, and such efforts to use models of all shapes and sizes may help people realize that beautiful comes in many sizes.

References


Swami, V., Taylor, R., & Carvalho, C. (2011). Body dissatisfaction assessed by the Photographic Figure Rating Scale is associated with...
Does Fitness Priming Influence Self- and Other-Judgements


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APPENDIX A

References Used to Create Blog-Style Articles


Women's Health: How to Stay Healthy After College

While pursuing higher education, it is easy for students to stay in good physical condition. A large number of students perform in intramural athletics or do physical recreational activities with friends for fun. Many higher level institutions are also located in urban or suburban areas that include sidewalks, city parks, greenways, bike trails, and so forth. Furthermore, many campuses have gyms specifically for student use. However, upon leaving college and gaining adult responsibilities, finding time to keep active is quite challenging. As a newcomer to the workplace, you will want your colleagues to take you seriously. But before you step foot into business, you will need to be hired, which means you will want an image that commands attention. Having a lean, streamlined physique shows you are dedicated to a workout routine and commitment to exercise is just another part of your day, done without second thought. Having a tight, trim, strong body signals you work it hard consistently, psych yourself up to get the job done, that you’re proud of your body, and you have killer motivation. Being sexy and fit shows you’re not afraid to challenge your flexibility and strength and you bring your maximum effort to the table. Your sizzling shape demands workouts that are innovative and make you move fast. So what does all that tell the employer? If a woman has that kind of willpower in the gym, it would be assumed that quality carries over into other aspects of her life, including work. It’s a guarantee that a prospective employer will snag a lady who displays she’s got the stuff to make the business it’s absolute best.

So how do you achieve this goal? Professional fitness trainer Michelle Bridges advises you combine cardio, strength training, and flexibility. In using this get-fit trifecta, you’ll raise your heart rate, muscle cells will break down sugar and fat, and the fat burn will increase, scoring you calorie-burn spikes. Lifting, the secret sauce to definition, will define muscle and boost your metabolism. Bridges also recommends using moves that recruit the glutes and thighs, as these are big muscles that burn big calories. Also work the deep abdominal muscles and obliques for a trim waist and flat middle. But why stop with your belly and butt? Use head-to-toe effort to target multiple muscles simultaneously for crazy fast results. By using Bridges’ plan, you’ll dissolve fat like magic on a biological level. But how much do you need to workout in a week? According to Bridges, 150 minutes of cardio is the bare minimum for general health, so bump it to 250 because we know you want to look good in those jeans. Heads will turn when you walk in for the interview, and your rockin’ body will show you are the woman who has it all.

Men’s Health: How to Stay Healthy After You Leave College

While pursuing higher education, it is easy for students to stay in good physical condition. A large number of students perform in intramural athletics or do physical recreational activities with their friends just for fun. Many higher level institutions are also located in urban or suburban areas that include sidewalks, city parks, greenways, bike trails, and so forth. Furthermore, many campuses have gyms specifically for student use. However, upon leaving college and gaining adult responsibilities, finding time to keep active is quite challenging. Maintaining good health is critical if you want to begin your work life on the right foot and bring yourself the most success and satisfaction.

In order to make a good first impression, you’ll need to be in your best frame of mind. An employee that has extra get-up-and-go, more self-esteem, and can persevere on the job is the absolute best. Being sexy and fit shows you’re not afraid to challenge your flexibility and strength and you bring your maximum effort to the table. Your sizzling shape demands workouts that are innovative and make you move fast. So what does all that tell the employer? If a woman has that kind of willpower in the gym, it would be assumed that quality carries over into other aspects of her life, including work. It’s a guarantee that a prospective employer will snag a lady who displays she’s got the stuff to make the business it’s absolute best.

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Women's Health: How to Stay Healthy After College

While pursuing higher education, it is easy for students to keep themselves socially and psychologically healthy. A large number of students participate in clubs and organizations, or spend time with friends routinely. Many higher level institutions are also located in urban or suburban areas that include movie theatres, city parks, strip malls, restaurants, and so forth. Furthermore, many campuses have entertainment facilities specifically for the students. However, upon leaving college and gaining adult responsibilities, finding time to keep balance in life is quite challenging. Maintaining good health is critical if you want to begin your work life on the right foot and bring yourself the most success and satisfaction.

If you want to thrive in the workplace and impress your new employer, you’ll need to be in your best frame of mind. New research from Virginia Commonwealth University shows pet owners have lower cortisol levels (a hormone related to stress), higher job satisfaction, and better communication with coworkers compared to those without pets. Not only do pets help with stress, but a few minutes of cuddle-time can increase serotonin, a “feel good” chemical in the brain, improving overall mood. With less stress and greater happiness, the body is saved from wear and tear—literally! Recent research findings reveal pet owners have lower blood pressure, heart rate, levels of bad cholesterol and triglycerides, and are less likely to die from any cardiac disease than those sans-pets. Pets have also been shown to help prevent diabetes, as lower stress levels help to regulate blood sugar.

Pets are also wonderful for fighting depression. Animals provide unconditional love, they’re great listeners that don’t give unwanted advice, and give life a sense of meaning. Depression tends to isolate people as well, and research from Nebraska State University shows pet owners have more social interactions, as pets are a great conversation starter. Even more reason to brag about Fido and Fluffy! Additionally, pets can help you keep routine and learn to take responsibility, two qualities that will be very critical throughout life, especially upon entering the adult world. UCLA research on dog ownership demonstrated particular benefits, as dog owners have better sleep and fewer sick days than those without dogs. Cats offer their own host of unique benefits as well, as cat owners have lower levels of loneliness, higher morale, and higher levels of oxytocin, the body’s “love” hormone. Cat owners have also been shown to have fewer strokes and better circulation, possibly because owners pay more attention to their fluff-muffin than their worries.

Becoming a pet owner may just be the single best choice you can make for your health. Since adopting a cat, Jessica Miller has lowered her bad cholesterol, increased her good cholesterol, lowered her blood pressure, reduced her risk for stroke, heart attack and diabetes, and her immune system is healthier. “My life is so much better. I have someone who is depending on me, so I started making better decisions, and I feel so much better with life.”
Acculturative Family Distancing, Religious Support, and Psychological Well-Being Among Young Adult Eastern European Immigrants in Western Washington

Tatyana V. Lats, Paul Youngbin Kim, and David A. Diekema* Seattle Pacific University

ABSTRACT. Researchers have begun to explore how factors such as religious support and discrepancy in parents’ and children’s acculturation to their host country (acculturation gap or acculturative family distancing) affect various immigrant groups and generations. However, the body of research on these topics remains underdeveloped. This cross-sectional study investigated the relations between perceived acculturative family distancing, religious support, and well-being in a sample (N = 200) of Eastern European immigrant young adults. We predicted that lower levels of acculturative family distancing and higher levels of religious support would both be positively related to well-being. We also predicted that religious support would moderate the relation between acculturative family distancing and well-being, such that religious support would protect against the detrimental influence of acculturative family distancing on well-being. Participants completed an online survey containing demographic questions and measures assessing the 3 study variables. Both acculturative family distancing (B = .25, t = 3.50, p = .001) and religious support (B = .26, t = 2.81, p = .005) significantly predicted well-being. Additionally, religious support protected against the detrimental association of acculturative family distancing with well-being (B of Acculturative Family Distancing x Religious Support = .12, t = 2.18, p = .030), but only when the acculturation gap was small. Future research should focus on developing acculturation gap distress prevention and intervention methods.

The United States is a nation of immigrants. It is estimated that more than 40 million immigrants reside in the United States today, with 1.1 million more entering legally every year and almost as many entering illegally (Camarota, 2007). The immigration process is stressful in and of itself, but it is only the beginning of the difficult journey of learning to live in a new country and culture. The long-term stressors immigrants experience while adapting to their new lives can leave them with significant adverse psychological outcomes such as anxiety and depression (Pumariega & Rothe, 2010). These negative effects may be particularly salient in the lives of individuals who immigrated as children (one-and-a-half generation) and individuals who were born to immigrant parents in the host country (second generation immigrants). An increasing acculturation gap between them and their parent(s) can leave such individuals at an elevated risk for mental and behavioral health problems, as compared to their parents’ generation (Hwang & Wood, 2009; Pumariega & Rothe, 2010). Familial acculturation gaps generally occur when children adopt host-country languages, values, and practices more quickly than their parents. The present study examined this acculturation gap, or “the discrepancy in acculturative status between parents and youth” (Hwang, 2006a, p. 397), and how it predicts psychological well-being in a sample
of immigrants.

In addition to risk factors, research has suggested that there are also protective factors associated with the well-being of immigrants. The present study examined religious support, defined as support derived from God, religious leaders, and/or a religious congregation (Fiala, Bjorck, & Gorsuch, 2002), as a protective factor of psychological well-being. To date, studies examining these risk and protective factors among immigrants including acculturation gap and religious support have primarily considered Asian American and Latino/a experiences and may, therefore, not be generalizable to other immigrant groups. Thus, the focus of the present study was to examine how the association between acculturation gap and psychological distress is influenced by religious support in an Eastern European immigrant community in Western Washington.

Eastern European Immigrants From the Former Soviet Union (FSU)

Eastern European immigrants, refugees, and asylum seekers number more than 2.2 million individuals and constitute about 5% of the United States’ total foreign-born population (Migration Policy Institute, 2012). In King County of Washington State, Eastern European immigrants and refugees number more than 33,000 individuals and account for roughly 9% of the county’s foreign-born population (Felt, 2013). Most of these individuals speak Russian and/or Ukrainian and identify as Protestant Christians. Many fled to the United States in hopes of escaping religious persecution and repression in the former FSU and finding better economic opportunities in the United States.

Given their background of persecution, immigrants and refugees from the FSU are at a heightened risk for psychological distress. Even before immigration is taken into account, Eastern Europeans tend to score lower on life satisfaction surveys than people of other nationalities (Jurcik, Chentsova-Dutton, Solopieieva-Jurcikova, & Ryder, 2013). The stress of immigration and acculturation can exacerbate this vulnerability. Ginsburg (as cited in Hundley & Lambie, 2007) found that Russian speaking immigrants had higher levels of depression and demoralization than the general U.S. population. Furthermore, Chow, Jaffee, and Choi (2002) found that Russian refugees seeking mental health services were twice as likely (62.4%) to be diagnosed with an affective disorder as non-Russian refugees (31.3%). Men from the FSU are also at a high risk for alcoholism and women are four to five times more likely to experience domestic violence than women of Western countries (Jurcik et al., 2013). Given these risks, there is a great need for careful research and intervention with Eastern European immigrants from the FSU.

This immigrant group, however, poses a unique challenge to mental health service providers. For various cultural and historical reasons, many immigrants from this background are reluctant to seek professional mental health services, even if they are aware of their existence (Chow et al., 2002; Hundley & Lambie, 2007). Instead, most prefer to rely on family, friends, and religious institutions for emotional support (Hundley & Lambie, 2007; Leipzig, 2006). If these support systems remain intact, they can play an important protective role in the lives of new immigrants and refugees.

After immigration, however, these traditional support systems are vulnerable and can break down. Adjusting to a new culture and society can involve family and gender role restructuring as well as acculturation gaps and other stressors that strain family relationships and can lead to family dysfunction (Hundley & Lambie, 2007). Immigrants may grieve the loss of their old friends and have a hard time making new ones in an unfamiliar place. Support traditionally derived from religious leaders may also be strained as churches attempt to reorient to a new culture and social structure. Many leaders may be inadequately equipped to properly understand and handle the many challenges facing new immigrants and refugees, especially those confronting the one-and-a-half and second generations.

Acculturation Gap and Mental Health

One-and-a-half and second generation immigrants are at particular risk for experiencing the unfavorable mental health outcomes associated with the challenges of acculturation. Their parents and ethnic communities may expect them to retain their traditional culture while their host culture expects them to assimilate. A preference for immigrant assimilation remains a strong sentiment among the U.S. public. A Gallup poll conducted in 2007 found that 37% of U.S. respondents thought that immigrants were changing social and moral values in the United States for the worse. Additionally, 77% of respondents thought that immigrants should be required to become proficient in English in order to remain in the United States. A more recent poll
conducted by the Pew Research Center (2014) likewise found that 35% of U.S. respondents considered immigrants to be a threat to traditional U.S. customs and values. These attitudes are likely to create assimilation pressure and increase acculturative stress given that perceptions of prejudice and discrimination have been found to be related both to increased levels of acculturative stress and psychological distress among Latinos and South Asians (Alamilla, Kim, & Lam, 2010; Torres, Driscoll, & Voell, 2012; Tummala-Narra, Alegria, & Chen, 2012). In areas dominated by political conservatives, this pressure is especially strong because 81% of those who identify as Republican Steadfast Conservatives consider immigrants to be a threat to their customs and values (Pew Research Center, 2014).

According to the acculturation gap distress theory, dissonant acculturation strategies and rates within immigrant families can increase intergenerational conflict and lead to heightened distress for parents and children alike (Hwang 2006a; Lee, Choe, Kim, & Ngo, 2000; Lui, 2015). However, this conflict is often particularly detrimental to the mental health of one-and-a-half and second generation immigrants (Pumariega & Rothe, 2010; Zhou, 1997). Studies of different immigrant generations have found that one-and-half and second generation immigrants have higher levels of psychopathology including anxiety, mood, impulse control, and substance use disorders than first generation immigrants (Breslau & Chang, 2006; Breslau et al., 2007; Harker, 2001; Oquendo et al., 2001; Peña et al., 2008).

In families with large acculturation gaps, children may prefer the host country language (e.g., English), values (e.g., independence, egalitarianism), and practices (e.g., styles of dress, celebrations) while parents prefer their traditional ways and beliefs. Additionally, children may have life experiences very different from those of their parents as they more fully integrate into mainstream society. In such families, children are subject to added stress and decreased social support (Pumariega & Rothe, 2010). If they find it difficult to navigate acculturative pressures and other struggles outside the home, they may not readily go to their parents for help, believing that their parents do not understand their world and experiences well enough to properly assist them or that they are too overwhelmed with their own resettlement struggles to attend to their children’s needs (Birman & Taylor-Ritzler, 2007).

Furthermore, in households with significant acculturation gaps, parents often rely on their children to help them with financial and legal documents as well as doctors’ appointments, parent-teacher conferences, and other situations that require host culture language and cultural skills (Portes & Rumbaut as cited in Birman & Taylor-Ritzler, 2007; Jones & Trickett, 2005). These realities not only add additional stressor to immigrant children’s lives, but also disrupt typical family hierarchies and roles, and may lead to intergenerational conflict and family dysfunction.

Recognizing the importance of these issues, Hwang (2006a) developed a theory and construct termed acculturative family distancing to more carefully pinpoint the aspects of acculturation gaps that can become problematic. Hwang (2006a, p. 398) defined acculturative family distancing as the problematic distancing that occurs between immigrant parents and children that is a consequence of differences in acculturative processes and cultural changes that become more salient over time. Acculturative family distancing consists of two dimensions, a breakdown in communication and incongruent cultural values that develop as a consequence of different rates of acculturation and the formation of an acculturation gap.

Hwang and Wood (2009) have demonstrated that greater acculturative family distancing is strongly correlated with familial conflict which, in turn, is strongly correlated with depression and other symptoms of distress in Asian American and Latino/a college students. Acculturative family distancing seems to be linked to an increased risk for many behavioral and emotional problems in immigrant adolescents and young adults including anxiety, depression, problematic substance use, and various conduct problems (Carrera & Wei, 2014; Hwang & Wood, 2009; Pumariega & Rothe, 2010; Rasmi, Chuang, & Hennig, 2014; Ying & Han, 2007). The acculturative family distancing framework may reflect the experiences of Eastern European immigrants as well, but to date there is no research examining this. Based on the conceptual, theoretical, and empirical evidence, we hypothesized that acculturative family distancing would inversely predict psychological well-being in a group of Eastern European immigrant young adults.
Religious Support as a Protective Factor
Although immigrants certainly experience many challenges that put them at an increased risk for mental health issues, there are also protective factors that can lessen the detrimental impact of various stressors. Religious support is one such factor (Ai, Huang, Bjorck, & Appel, 2013; Hovey & Magana, 2000; Yi & Bjorck, 2014). There is strong evidence that religiosity is positively correlated with mental health in the general population. In a review of 100 studies, 80% “found religious beliefs and practices [to be] consistently related to greater life satisfaction, happiness, positive affect, and higher morale” (Koenig & Larson, 2001, p. 71). There is also some evidence that religious support is positively correlated with good mental health outcomes in immigrant populations. For example, Hovey and Magana (2000) found religiosity to be negatively correlated with anxiety in a population of migrant Mexican farm workers. They also found that church attendance was negatively correlated with depression. Similarly, in a study conducted with Korean Americans, Yi and Bjorck (2014) found that religious attendance, God support, and religious community support were all positively correlated with life satisfaction and negatively correlated with depression. Kim, Kendall, and Webb (2015) likewise found that positive religious coping was positively correlated with psychological well-being in Asian American college students of Christian backgrounds.

Despite these findings, the literature regarding this topic remains inconsistent because other studies have drawn contrary conclusions. For example, Dunn and O’Brien (2009) did not find religious coping to be related to mental health in Latino immigrants. Similarly, Ai et al. (2013) found no relationship between religious coping and depression. Additionally, they found that religious attendance significantly predicted reduced likelihood of depression in both Christian and non-Christian Asian Americans, but that this relationship was mediated by social support in the Christian sample (and not the non-Christian sample) and hence could not be attributed to religious coping directly. Given the discrepancy in these findings, more research needs to be conducted in this area before firm conclusions can be drawn. Based on the lack of empirical findings on the role of religiosity in the context of acculturating groups and their mental health, we decided to examine religious support as a predictor of well-being, as well as a moderator between acculturative family distancing and well-being.

Study Hypotheses
In the present study, we hypothesized that (a) acculturative family distancing would be inversely associated with well-being, (b) religious support would be positively associated with well-being, and (c) religious support would moderate the relation between acculturative family distancing and well-being by buffering the detrimental association between acculturative family distancing and well-being. More specifically, higher religious support would mean that the inverse relation between acculturative family distancing and well-being would be weaker; lower religious support would mean that the inverse relation between acculturative family distancing and well-being would be stronger.

Method
Participants
Using convenience sampling, we recruited participants from local Eastern European immigrant churches located in the Pacific Northwest via Facebook and through community leaders. Participants were asked to complete an online survey. Two hundred of the 261 individuals who started the survey completed it. One hundred eleven identified as women and 87 as men; their ages ranged from 18 to 32, with a mean of 22.36 (SD = 3.40). One hundred seventy-six participants selected Ukrainian as their ethnicity, 34 selected Russian, 17 selected Belarusian, Moldovan, or Romanian, and 3 selected other. Participants were able to select multiple ethnicities. One hundred sixty-four participants (82%) were one-and-a-half generation immigrants born overseas. The remainder were second generation immigrants born to immigrant parents in the United States. The mean number of years lived in the United States was 16.82 (SD = 4.36). One hundred sixteen participants (58%) identified as Christian Pentecostal; 71 (35.5%) as Christian Baptist, Charismatic, Nondenominational, or other; 11 (5.5%) claimed no religion; and 2 (1%) said they were unsure. Seventeen percent of participants had a high school education or below, 31.5 percent held an associate degree, and 18.5 percent held a bachelor’s degree. Most (70%) were living with their parents at the time of participation.

Procedure
After Seattle Pacific University’s institutional review board granted approval (IRB#: 141502007), the survey was administered online using Qualtrics® software. Participants received the link either
by e-mail or on social media. Participants were also offered the option to complete the survey in hard copy format, but none preferred this option. All participants were asked to sign an informed consent form before being directed to the demographic questions and then the three measures. The survey took 10 to 20 min to complete. Individuals were offered no incentive to participate.

Materials
In addition to a set of demographic questions regarding immigration background, religiosity, and level of education, we used three measurement instruments in this study.

Acculturation gap. The first was the Acculturative Family Distancing Measure (AFDM; Hwang, 2006a, 2006b; Hwang, Wood, & Fujimoto, 2010), a measure used to assess the size of the problematic acculturation gap between immigrant children (young adults) and their parents. This instrument consists of two scales: Communication Difficulties (CD) and Incongruent Cultural Values (ICV). We used only the English, Youth Report version, so all insight was from the young adult perspective. Participants were asked to indicate the degree to which they agree or disagree with a series of statements on a Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree) for both scales. There are 24 items on the CD, 12 of which are reverse coded. A sample reverse coded item is, “I feel like there is a communication barrier between me and my parent(s)” (Hwang, 2006a, 2006b; Hwang et al., 2010). The ICV consists of 22 items; seven items are reverse coded. A sample regularly coded item is, “My parent(s) and I share the same values,” (Hwang, 2006a, 2006b; Hwang et al., 2010). The CD and ICV in this study had excellent internal reliability, \( \alpha = .95 \) and \( \alpha = .95 \), respectively. The AFDM as a whole had excellent internal reliability, \( \alpha = .97 \). The mean score on the CD was 5.03 (SD = 1.26, range = 4.92). The mean score on the ICV was 5.42 (SD = 1.14, range = 5.77. With the CD and ICV scores combined, the mean score on the AFDM was 5.22 (SD = 1.10, range = 5.22; Higher AFDM scores indicated a smaller familial acculturation gap or less acculturative family distancing.

Religious support. The second measure we used was the Religious Support Scale (RSS; Fiala et al., 2002). This instrument consists of 21 items and measures the degree to which participants feel supported by God, their church leaders, and other members of their congregation on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). A sample item is, “My church leaders care about my life and situation” (Fiala et al., 2002). Three of the items are reverse coded. The mean scores for perceived support from God, church leaders, and others in the congregation were 4.35 (SD = 0.92, range = 4.00), 3.55 (SD = 1.07, range = 4.00), and 3.62 (SD = 1.00, range = 4.00), respectively. The overall perceived religious support score was 3.84 (SD = 0.87, range = 4.00). Higher scores indicate a perception of greater religious support. The RSS had excellent internal reliability, \( \alpha = .96 \).

Well-being. The third measure we used consisted of the psychological well-being items from the Mental Health Inventory (MHI; Veit & Ware, 1983). This measure assessed participants’ general psychological well-being over the past month. Participants were asked to respond to 11 of the 14 items on a 6-point Likert-type scale ranging from 1 (none of the time) to 6 (all of the time). Each of the remaining three items has six similar, but more specific, answer choices. A sample item from this instrument is, “During the past month, how much of the time have you felt that the future looks hopeful and promising” (Veit & Ware, 1983)? The mean score for well-being was 4.11 (SD = 0.99, range = 4.79). Higher scores indicated greater well-being. The MHI also had excellent internal reliability, \( \alpha = .95 \).

Results
Preliminary Analyses
We first examined the bivariate Pearson correlations between acculturative family distancing, religious support, and well-being. The two AFDM scales, CD and ICV, were highly correlated, \( r = .69 \), \( p < .001 \), and results were very similar when each scale was analyzed separately. Hence, we decided to include the overall AFDM scores (i.e., CD and ICV scores combined) in all of our analyses. Consistent with the first two hypotheses, lower levels of acculturative family distancing (higher AFDM scores) and higher levels of religious support were significantly correlated with well-being, \( r = .35 \), \( p < .001 \) and \( r = .32 \), \( p < .001 \), respectively. Lower levels of acculturative family distancing (higher AFDM scores) were also positively correlated with church attendance \( (r = .35, p < .001) \) and religious support \( (r = .54, p < .001) \). Fifty-seven percent of individuals who scored over one standard deviation below the mean on the AFDM (high acculturative distancing) also scored over one standard deviation below the mean on the RSS. See Table 1 for additional correlation results.
Main Analyses
To test the study hypotheses, we used hierarchical multiple regression (results displayed in Table 2). We entered AFDM and religious support scores as predictors of well-being in the first step and the interaction term (AFDM x religious support) in the second step. All predictors were mean centered. Step 1 accounted for 14.8% of variance in well-being, $R^2 = .15$, which was statistically significant, $F(2, 196) = 16.98$, $p < .001$. Step 2, with the interaction term added, accounted for 16.8% of variance in well-being, $R^2 = .168$, and was also statistically significant $F(3, 195) = 13.12$, $p < .001$. Both AFDM ($B = .25$, $t = 3.50$, $p = .001$) and religious support ($B = .26$, $t = 2.18$, $p = .030$) were significant predictors of well-being in the second step. The regression coefficient associated with the interaction term (AFDM x religious support) was also statistically significant, $B = .12$, $t = 2.18$, $p = .030$.

To probe the nature of the interaction, we examined the relation between AFDM and well-being at various levels (+1 SD, M, and -1 SD) of religious support. We found that, at greater levels of religious support (+1 SD), the positive association between AFDM and well-being (i.e., lower acculturative gap predicting higher well-being) was statistically significant ($B = .35$, $t = 3.92$, $p < .001$), and the same significant trend was observed at the mean of religious support ($B = .25$, $t = 3.50$, $p < .001$). At a lower level of religious support (-1 SD), however, the relation between AFDM and well-being was rendered nonsignificant ($B = .14$, $t = 1.77$, $p = .078$; see Table 2). Taken together, these results indicated that higher levels of religious support (at +1 SD and M) were associated with better well-being, compared to a lower level (at -1 SD) of religious support.

Moreover, examining the plot of the three levels (see Figure 1) suggested that the discrepancy between the levels of religious support was more pronounced at higher levels of AFDM scores (i.e., smaller acculturation gap). In other words, the benefit of religious support seems to be present only when there was small acculturation gap. When initially graphed (see Figure 1), the three lines representing the above findings intercepted so that, at low levels of AFDM (large acculturation gap), participants with lower religious support scores were more likely to have a higher level of well-being compared to participants with higher level of religious support. This trend was eliminated when the responses of participants who indicated that they were not religious ($n = 11$) or were “figuring it out” ($n = 2$) were taken out of the analysis. Once we excluded nonreligious responses, the lines representing the +1 SD, -1 SD, and M levels of religious support converged near the origin of the graph (see Figure 2), indicating that religious support had little impact on the relation between AFDM and well-being when the acculturation gap was larger. However, the regression coefficient associated with the interaction term in this model was nonsignificant, $B = .13$, $t = 1.94$, $p = .054$. Thus, the third hypothesis was only partially supported. Religious support buffered the detrimental association between acculturative family distancing and well-being, but its protective role got weaker as acculturation gap size increased.

### TABLE 1
**Means, Standard Deviations, Alphas, and Intercorrelations Among Key Study Variables**

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<td>3. Place of birth</td>
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<td>5. Education</td>
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<tr>
<td>6. Church attendance</td>
<td></td>
<td></td>
<td></td>
<td>.00</td>
<td>-.21</td>
<td>-.06</td>
<td>-.13</td>
<td>-.04</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>7. Acculturative family distancing</td>
<td>5.22</td>
<td>1.10</td>
<td>5.22</td>
<td>.97</td>
<td>.11</td>
<td>-.11</td>
<td>-.09</td>
<td>-.03</td>
<td>-.08</td>
<td>-.35</td>
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<tr>
<td>8. Religious support</td>
<td>3.84</td>
<td>0.87</td>
<td>4.00</td>
<td>.96</td>
<td>.06</td>
<td>-.13</td>
<td>-.03</td>
<td>-.10</td>
<td>-.04</td>
<td>.56</td>
<td>.54</td>
<td></td>
<td></td>
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<tr>
<td>9. Psychological well-being</td>
<td>4.11</td>
<td>0.99</td>
<td>4.79</td>
<td>.95</td>
<td>.06</td>
<td>-.03</td>
<td>.09</td>
<td>.07</td>
<td>-.06</td>
<td>.03</td>
<td>.35</td>
<td>.32</td>
<td></td>
</tr>
</tbody>
</table>

Note. *1 = men, 2 = women; *1 = United States, 2 = overseas; *1 = some high school, 10 = PhD; *1 = never, 2 = three or more times a week; *1 Acculturative Family Distancing Measure scores. $p < .05$, ***$p < .01$, ****$p < .001$.

### TABLE 2
**Results of the Moderating Effects of Religious Support on the Relation Between Acculturative Family Distancing and Psychological Well-Being**

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>SE</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>4.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acculturative family distancing</td>
<td>0.23</td>
<td>0.07</td>
<td>.001</td>
</tr>
<tr>
<td>Religious support</td>
<td>0.21</td>
<td>0.09</td>
<td>.022</td>
</tr>
<tr>
<td>$R^2 = .148$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>4.05</td>
<td></td>
<td></td>
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<tr>
<td>Acculturative family distancing</td>
<td>0.25</td>
<td>0.07</td>
<td>.001</td>
</tr>
<tr>
<td>Religious support</td>
<td>0.26</td>
<td>0.09</td>
<td>.005</td>
</tr>
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<td>Acculturative family distancing x Religious support</td>
<td>0.12</td>
<td>0.06</td>
<td>.030</td>
</tr>
<tr>
<td>$BP = .020$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Conditional Effects</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>-1 SD</td>
<td>0.142</td>
<td>0.080</td>
<td>.078</td>
</tr>
<tr>
<td>M</td>
<td>0.246</td>
<td>0.070</td>
<td>.001</td>
</tr>
<tr>
<td>+1 SD</td>
<td>0.349</td>
<td>0.089</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note. *1 = Acculturative Family Distancing Measure scores.
Discussion

We found that lower acculturative family distancing and religious support were significant positive predictors of well-being, supporting the first two hypotheses, respectively. We also found that the third hypothesis, regarding the moderating role of religious support on the relation between acculturative family distancing and well-being, was partially supported: Well-being was greatest when acculturative family distancing (actual acculturation gap) was small and religious support was strong. Our findings were consistent with extant acculturation gap and acculturative family distancing research, providing further evidence to suggest that one-and-a-half and second generation immigrants are more likely to have greater psychological well-being if they have smaller acculturation gaps within their families (Hwang & Wood, 2009; Pumariega & Rothe, 2010). Acculturation gaps may heighten the number of stressors that immigrant children experience, decrease the amount of social support available to them, and otherwise increase family conflict, thus resulting in negative psychological outcomes for the one-and-a-half or second generation immigrant children (Hwang & Wood, 2009; Jones & Trickett, 2005; Pumariega & Rothe, 2010; Taylor-Ritzler, 2007).

In addition to supporting the acculturation gap distress hypothesis, this study added to the literature on religious support as a protective factor for immigrants. We found that well-being was positively associated with religious support including perceived support from God. In contrast to the findings of Ai et al. (2013), our findings suggested that religious support may be important to the well-being of immigrants independent of potentially related or confounding factors such as social support. In other words, religious support may be a unique protective factor, separate from other factors that positively impact immigrant well-being. However, we present this statement cautiously because we did not assess social support.

Our findings also suggested that religious support may buffer against the adverse influence of familial acculturation gaps on immigrant children or young adults, but only when the gaps are not too big. One clue that might help explain why the protective role of religious support weakened as acculturation gap size increased may be the significant correlation we found between acculturative family distancing and religious support. One-and-a-half and second generation immigrants who have retained their traditional culture along with their parents may feel supported by their traditional churches. Conversely, immigrant children and young adults who have been largely assimilated along with their parents may feel supported by U.S. churches. This leaves one-and-a-half and second generation immigrants who are too assimilated to feel supported by traditional churches but whose parents are not assimilated enough to approve of them attending U.S. churches (families with

FIGURE 1
Relation Between Acculturative Family Distancing and Psychological Well-Being at Varying Levels of Religious Support

Note. The relation between Acculturative Family Distancing Measure (AFDM) and psychological well-being at +1 SD, M, and -1 SD levels of religious support (RSS). Note that higher AFDM scores indicate smaller acculturation gaps.

FIGURE 2
Relation Between Acculturative Family Distancing and Psychological Well-Being at Varying Levels of Religious Support Excluding Nonreligious Responses

Note. The relation between Acculturative Family Distancing Measure (AFDM) and psychological well-being at +1 SD, M, and -1 SD levels of religious support (RSS) after excluding nonreligious responses. Note that higher AFDM scores indicate smaller acculturation gaps.
large acculturation gaps) with little religious support. Thus, the individuals in greatest need for support may be the ones falling through the cracks. Religious communities concerned with the well-being of immigrant individuals may find this an important point to explore.

Another implication of our study may be a call for a culturally sensitive, community-based approach to working with this particular population group. Because this culture has a stigma against professional psychology and appears to benefit from close, intergenerational family relationships and religious support, mental health needs may be best addressed indirectly, through these avenues. In other words, it may be best to focus on strengthening and supporting families and religious organizations within this community instead of only relying on the method of encouraging individuals to utilize professional counseling.

Limitations and Directions for Future Research
Our study had several limitations. First, there was likely a self-report bias because the study was based on participants’ own perception of the acculturative family distance in their families, the religious support they were experiencing, and the state of their well-being. Self-report bias may be especially salient with this population because this culture places high value on respect for older adults and church leaders, and also has a stigma against mental health issues and discussing problems with outsiders. For these reasons, participants might not have been honest about their experiences, despite the confidential nature of our study. Alternatively, immigrants experiencing high familial acculturation gap might have inadequately judged the amount and/or quality of religious support they were experiencing. Second, a self-selection bias might have occurred because we used convenience rather than random sampling. Individuals with higher educational attainment and those better versed in English were probably more likely to take the survey and therefore be overrepresented in the sample. The survey might also have been too difficult for some individuals with less educational attainment or English proficiency to complete successfully. Third, individuals who were more religious might also have been overrepresented in the study because we recruited primarily from churches and through church leaders. The median amount of church attendance for this participant group was twice a week.

Given these limitations, the findings of the present study should not be generalized to FSU immigrants residing outside of Western Washington, those who are less religious, or those who differ from the present participant group in any other systemic way. This study should also be repeated with a random sample if possible before any strong conclusions about FSU immigrants within Western Washington are drawn.

There is still much room for research within this immigrant population. In addition to a repetition of the present study, a study exploring the experiences of a younger participant group may be of particular value. Adolescents might be uniquely sensitive to acculturative stress, intergenerational conflict, and religious support. Therefore, understanding how they are impacted by these factors can be crucial to their current and future success and well-being. It may also be interesting to explore the direct impact that different family and community acculturation strategies have on one-and-a-half and second generation immigrants as well as the strategies these adolescents and young adults employ to cope with acculturation gaps within their families. Finally, research focused on acculturation gap distress prevention and intervention methods could be especially beneficial to immigrant individuals, families, and communities.

Conclusion
The present study highlighted the moderating role of religious support in the association between acculturation gap and well-being in a sample of Eastern European participants. We are optimistic that our findings will contribute to the larger body of empirical work focused on bettering the lives of acculturating immigrants in the United States.

References


Implicit Person Theory and Feedback Environment Interact to Shape Undergraduate Research Relationships

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Saint Louis University

Alison L. O’Malley
Butler University

ABSTRACT. We examined undergraduate researchers’ perceptions of the malleability of human traits and aspects of these students’ relationships with their faculty research mentors. Undergraduate research students (N = 94) completed an online survey to capture their chronic implicit person theory, perceived feedback environment with their faculty research mentor, and whether they planned to continue research collaboration in the future. We observed no significant direct relationship between implicit person theory and trust. However, students’ perceptions of the feedback environment significantly moderated the relationship between a positive feedback environment and students’ intention to continue collaboration with the faculty member, $F(3, 88) = 15.88$, $R^2 = .35$, $p < .001$. This suggests that students perceiving a positive feedback environment will be more likely than students perceiving a negative feedback environment to continue collaboration with their faculty research advisor. We discuss future research ideas that should capture data from both students and their faculty research advisors to understand this relationship more holistically.

In a perfect world, individuals aspire to perform at their highest possible level while at school or at work. Unfortunately, there are instances in which people do not live up to their own standards or the standards of their evaluators. For example, one may have a positive self-assessment of one’s own performance, but another person may have a negative assessment of the performance. When these negative views are shared, the feedback recipient often interprets the feedback as an ego threat, resulting in feedback losing its value (O’Malley & Gregory, 2011). The current research sought to understand how undergraduate researchers perceive feedback in the context of their relationship with their research mentors, as well as how it relates to the general level of trust students have for their mentors and whether they intend to continue collaboration in the future. Although previous research has investigated feedback perceptions between a supervisor and a subordinate (Whitaker & Levy, 2012), there is a gap in the research examining these relationships in a collaborative academic environment. In our attempt to explore this gap, we applied the framework of implicit person theory.

Implicit Person Theory and Feedback

Dweck’s work on adaptive and maladaptive motivational patterns identified two fundamentally different ways of conceptualizing intelligence. Although these patterns do not reflect differences in actual intellectual ability, they have powerful implications for achievement behavior (Dweck, 1986). The first pattern is incremental theory; an incremental theorist believes that an individual’s performance can change over time. The other pattern is entity theory; an entity theorist believes that an individual’s performance cannot change.
Implicit Person Theory and Feedback Environment

After a few trials, the participants received a message that partners could betray the participants at least once. Partners, multiple trials were completed so that the participants could either keep the money or pass half of the money to their partners; the partners, however, had the option to keep the money if they passed it to the participants. As a test of trust for their partners, participants had a chance to double their money if they passed it to their partners; the partners, however, had the option to keep the money if they passed it to the participants. Thus, the teacher would go easy on the participants if they were able to move past the breach of trust and trust their partners again after the apology, as opposed to entity participants who were less likely to trust their partners after the breach of trust. Although the current study did not investigate breaches of trust specifically, trust is important for a successful mentoring relationship (Gregory & Levy, 2011). Drawing from Haselhuhn and colleagues (2010), we anticipated that incremental participants would report higher levels of trust in their faculty research advisors (Hypothesis 1).

Feedback Environment
Second, we sought to examine how implicit person theory moderates the relationship between undergraduate research students’ perceptions of the feedback environment and our outcomes of interest: trust and intent to continue in the research relationship. Ideally, feedback is an ongoing process between individuals in learning environments. Although there are typically formal performance evaluations set to take place at specific times, feedback exchanges ought to occur on a more frequent, informal basis. The feedback environment construct differs from traditional performance appraisal in that it deals with the day-to-day interactions between individuals giving and receiving feedback. Steelman, Levy, and Snell (2004) developed the Feedback Environment Scale in order to capture this feedback context, and found that feedback-seeking behavior was strongly correlated with a positive feedback environment. This suggests that individuals will be more likely to seek feedback from their supervisors if the supervisors promote feedback-seeking behaviors. We sought to address how modeling a positive feedback environment could be applied to an undergraduate research lab setting. Positive feedback environments refer to feedback environments in which students score highly on the Feedback Environment Scale (Steelman et al., 2004). This would suggest that students perceive both favorable and unfavorable feedback, readily available feedback, quality feedback, that the feedback is delivered appropriately, and that their research mentors are a credible source for feedback.

Feedback environment has been associated with important organizational outcomes, similar to those used in an academic context as explored in the current study. Anseel and Lievens (2007) found a positive correlation between a positive feedback environment and job satisfaction. High levels of
satisfaction should elicit intent to continue collaboration with the same faculty research advisor. Because Anseel and Lievens (2007) reflected the perceptions of government employees, it supports the current study’s purpose of examining the relationship between feedback environment and intent to continue collaboration in an academic context. In an organizational context, turnover intentions are similar to intentions to continue collaboration in an academic setting. Those experiencing a positive feedback environment are unlikely to have intentions of quitting their current job (Sparr & Sonnentag, 2008). Further, both the quality of feedback and favorable feedback subscales of the feedback environment scale (Steelman et al., 2004) were negatively related to turnover intentions in nurses (Van Waeyenberg, Decramer, & Anseel, 2015), accountants (Dalton, Davis, & Viator, 2015), and across multiple industries (Sparr & Sonnentag, 2008). This body of evidence serves as the basis for our prediction that there is a positive relationship between feedback environment and intent to continue the working relationship with a faculty research advisor. Thus, we predicted that research students who perceived more positive feedback environments would be more likely to intend to continue collaboration with their research mentor (Hypothesis 2).

In another study, Hartmann and Slapničar (2009) focused their attention to formal performance feedback and trust. Their analysis contributed to the understanding of the relationship between feedback and trust, such that the formality of the feedback was instrumental for levels of reported trust, mediated by the perceived quality of the feedback. Further, this relationship has been expanded upon such that useful feedback mediated the relationship between formal performance appraisal and perceived trust for one’s supervisor (Sari, Anugerah, Yusralaini, & Gusrifan, 2013). The claims made by Hartmann and Slapničar (2009) and Sari and colleagues (2013) reflected the need for an investigation of the relationship between a more informal feedback environment and trust. This relationship between formality of performance feedback and trust was mediated by the quality of the feedback (Hartmann & Slapničar, 2009). Thus, it can be speculated that the same level of trust would be reported from students if they perceived high-quality feedback from their faculty research mentors, independent of the formality of the performance feedback.

In an organizational context, professional coaching is similar to the academic mentoring relationship examined in the current study. Both feedback environment and trust have been positively associated with perceived quality of coaching relationships (Gregory & Levy, 2011). This suggests that general trust for one’s academic mentor should be related to the dyad’s positive feedback environment. Further, it can be postulated that, if feedback environment contributes to a positive coaching relationship, feedback environment should contribute to participants’ desire to continue collaborating with their mentors.

Drawing from the abundance of work on the learning benefits afforded by an incremental mindset (Burnette, O’Boyle, VanEpps, Pollack, & Finkel, 2013), we anticipated that students who possessed incremental mindsets would be particularly likely to thrive in positive feedback environments and thus would report high levels of trust and intent to continue conducting research with their undergraduate research advisors. Thus, we hypothesized that research students who experienced positive feedback environments and had incremental mindsets would report highest levels of trust for their faculty research mentors (Hypothesis 3). Also, we predicted that research students who experienced positive feedback environments and had incremental mindsets would be most likely to intend to continue collaboration with their faculty research mentors (Hypothesis 4).

**Method**

**Participants and Procedure**

Participants were undergraduate students enrolled at a private, midwestern university who had recently or were currently conducting research with a faculty research advisor. Before conducting the study, approval was given by Butler University’s institutional review board. Participants were recruited via e-mail; their research areas spanned the social and natural sciences, humanities, and pharmacy. Initially, 115 participants were recruited to participate in the study. However, 94 students (73.4% women) completed the entire survey. The 21 participants who did not complete the survey were removed from the data set and not included in the multivariate analyses. Respondents were 87.2% White, 1.1% Black, 5.3% Asian, 4.3% Hispanic, and 2.2% of the sample did not respond. Participants were an average 21.65 years of age with a standard deviation of 2.35.

Participants were informed that the study was intended to measure whether people change and
explore their experiences as an undergraduate researcher. Once giving consent to participate, participants completed a short online survey. After agreeing to participate in the study, participants were given, on subsequent online pages, the implicit person theory measure, trust measure, and feedback environment scale. Next, participants were presented with a demographic questionnaire including age, sex, race, and disciplinary affiliation. Lastly, participants were asked to indicate their intent to continue collaboration via the question mentioned below in the measures section. After completing the questionnaires, participants were presented with a debriefing form.

The following section details the scales presented to each participant. All reliability coefficients presented are unique to the current study and calculated using the data collected in this study.

**Measures**

**Chronic implicit person theory.** Participants completed a 3-item Implicit Person Theory Measure to capture their chronic implicit person theory (Levy et al., 1998). Participants indicated how much they agreed (1 = strongly agree, 6 = strongly disagree) with statements about the malleability of individuals (α = .89). An example item is: “The kind of person someone is, is something basic about them, and it can’t be changed very much.” Consistent with Levy and colleagues. (1998), participants answering a 1 to this question were associated with an entity mindset, and participants answering a 6 to this item were associated with an incremental mindset.

**Trust.** Mayer and Gavin’s (2005) 5-item scale to measure trust was administered (α = .54). Example items from this scale include: “If someone questioned my faculty research advisor’s motives, I would give him/her the benefit of the doubt,” “If I had my way, I wouldn’t let my faculty research advisor have any influence over issues that are important to me (R),” and “I would be comfortable giving my faculty research advisor responsibility for a task or problem which was critical to me, even if I could not monitor his/her actions.” Participants responded on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).

**Feedback environment.** All feedback environment measures came from Steelman and colleagues’ (2004) Feedback Environment Scale (α = .98). Rosen, Levy, & Hall (2009) reported a similar internal consistency measure (α = .94–.95). We included six subscales from the Feedback Environment Scale in our analysis: source credibility, feedback quality, feedback delivery, favorable feedback, unfavorable feedback, and feedback availability. Each subscale measured a different facet of the feedback environment between a student and a faculty research mentor. Thus, items were amended to evaluate each student’s relationship with a faculty research mentor instead of with a supervisor, as originally intended by the scale. Participants indicated their agreement on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). During data analysis, participants’ scores on the six subscales were aggregated to create an overall feedback environment score; this score was used in the analyses discussed in the results. Aggregating the subscales of the Feedback Environment Scale has been practiced in previous research (Rosen et al., 2009). An example of an item measuring the source credibility is: “My faculty research advisor is generally familiar with my performance,” feedback quality: “My faculty research advisor gives me useful feedback about my performance,” feedback delivery: “My faculty research advisor is supportive when giving feedback about my performance,” favorable feedback: “When I do a good job on my work, my faculty research advisor praises my performance,” unfavorable feedback: “On those occasions when I make a mistake, my faculty research advisor tells me,” and feedback availability: “When I do a good job on my work, my faculty research advisor praises my performance.”

**Intent.** Participants indicated on a 7-point Likert-type scale (1 = strongly agree, 7 = strongly disagree) their level of intent to continue collaboration with their faculty research advisor. The item presented to participants was “I intend to continue working with this faculty research mentor.” This variable was treated as continuous such that participants who marked “strongly agree” intended to continue collaboration with their faculty research advisor, participants who marked “4” on the scale were considered neutral, and participants who marked “strongly disagree” intended to leave their faculty research advisor.

**Results**

Table 1 shows the means, standard deviations, and correlations among study variables. The implicit person theory measure captured where participants fell on a continuous scale in regard to their chronic implicit person theory. Scores on the 3-item measure were averaged to achieve a combined implicit person theory score. Scores of 3.0 or below reflected entity; scores of 4.0 or
above reflected incremental. If participants’ scores fell between 3.0 and 4.0, they were considered to be neither entity nor incremental (Levy et al., 1998). The average participant was considered neither incremental nor entity (M = 3.46, SD = 1.03). Thirty participants (31.9%) scored above a 4.0, indicating an incremental mindset. Twenty-seven participants (28.7%) scored between 3 and 4, indicating no distinct chronic implicit theory. Thirty-seven participants (39.4%) scored between 1 and 3, indicating an entity mindset.

Hypotheses were tested via linear regression. The first hypothesis was not supported; incremental mindset was not significantly associated with students’ reported trust in their research mentors, B = 0.06, F(1, 92) = 0.77, R² = .01, p = .38.

However, the second hypothesis was confirmed such that feedback environment significantly predicted intent to continue collaboration with research advisor, B = -1.45, F(1, 90) = 38.52, R² = .30, p < .001. Lower scores indicate greater intent to continue collaboration, and thus undergraduate students who perceived positive feedback environments were more likely to intend to continue collaboration with their faculty research mentors.

The third and fourth hypotheses tested for moderator effects. The third hypothesis was confirmed in that additional variance in trust is explained when testing for an interaction between feedback environment and implicit theory on trust, F(3, 90) = 4.45, R² = .47, p = .04 (see Table 2). Figure 1 shows the interaction between implicit person theory and feedback environment when trust is the dependent variable. As predicted, students who experienced positive feedback environments and had incremental mindsets reported the highest levels of trust in their faculty research advisors. This interaction should be viewed with caution due to the low reliability of the trust scores (α = .54).

Our test of the fourth hypothesis revealed that an additional 5.1% of the variance in intent to continue collaboration was accounted for when testing for an interaction between feedback environment and implicit theory on intent to continue collaboration, F(3, 88) = 15.88, R² = .35, p < .001 (see Table 3). Again, scoring low on intent implies that participants intended to continue collaboration. Figure 2 displays the interaction between implicit person theory and feedback environment when intent to continue collaboration is the dependent variable. Although we predicted that research students who experienced positive feedback environments and had incremental mindsets would be most likely to continue collaboration with their faculty research advisors, this interaction shows that participants with entity mindsets were more sensitive to the feedback environments in terms of their intent to continue collaboration. These findings have theoretical implications as well as practical implications for those in academic research relationships.

Discussion

We sought to better understand students’ perceptions, particularly trustworthiness, of their faculty research advisors, and the relationship between

| TABLE 1 |
| Reliabilities, Means, Standard Deviations, and Bivariate Correlations for Study Variables |

<table>
<thead>
<tr>
<th>Predictor</th>
<th>M</th>
<th>SD</th>
<th>α</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<td>1. IPT</td>
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<td>.89</td>
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<td>3. Trust</td>
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<td>0.62</td>
<td>.54</td>
<td>.09</td>
<td>.66</td>
<td></td>
</tr>
<tr>
<td>4. Intent</td>
<td>2.13</td>
<td>1.71</td>
<td></td>
<td>-.11</td>
<td>-.55</td>
<td>-.54</td>
</tr>
</tbody>
</table>

Note: “*” indicates p < .05. IPT = Implicit Person Theory. High IPT = Incremental. Low Intent = intent to continue collaboration.

| TABLE 2 |
| Summary of Hierarchical Regression Analysis for Trust Between Student and Faculty Research Advisor (N = 91) |

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
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<td></td>
<td>B</td>
<td>SE</td>
<td>B</td>
<td>SE</td>
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<tr>
<td>IPT</td>
<td>.56</td>
<td>.05</td>
<td>.09</td>
<td>.04</td>
</tr>
<tr>
<td>FE</td>
<td>.63</td>
<td>.07</td>
<td>.66</td>
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<td>.17</td>
<td>.08</td>
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<tr>
<td>R²</td>
<td>.45</td>
<td></td>
<td>.47</td>
<td></td>
</tr>
</tbody>
</table>

F for change in R²: 36.89*, 4.45**

Note: IPT and FE were centered at their means. IPT = Implicit Person Theory. FE = Feedback Environment. “*” p < .05. “**” p < .01.

| TABLE 3 |
| Summary of Hierarchical Regression Analysis for Participant’s Intent to Continue Collaboration With Faculty Research Advisor (N = 91) |

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
<td>B</td>
<td>SE</td>
</tr>
<tr>
<td>IPT</td>
<td>.15</td>
<td>.10</td>
<td>.21</td>
<td>.15</td>
</tr>
<tr>
<td>FE</td>
<td>.14</td>
<td>.23</td>
<td>.55</td>
<td>.24</td>
</tr>
<tr>
<td>IPT x FE</td>
<td>.61</td>
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</tr>
<tr>
<td>R²</td>
<td>.31</td>
<td></td>
<td>.35</td>
<td></td>
</tr>
</tbody>
</table>

F for change in R²: 20.01**, 5.57**

Note: IPT and FE were centered at their means. IPT = Implicit Person Theory. FE = Feedback Environment. “*” p < .05. “**” p < .01. Low Intent = intent to continue collaboration.
feedback environment and students’ intent to continue collaboration with their faculty research mentors. We hypothesized that students’ chronic implicit person theory and feedback environment perceptions would shape their undergraduate research relationships, specifically trust perceptions and intent to continue research collaboration.

Contrary to expectations, we did not observe a direct effect of implicit person theory on trust for one’s faculty research advisor. These results were surprising, as Katz (2014) found that incremental mindsets were significantly positively correlated with high levels of trust during informal feedback scenarios. On the other hand, feedback environment significantly predicted one’s intent to continue working with a faculty research advisor. Consistent with Dahling, Chau, and O’Malley’s (2012) findings that individuals consistently seek feedback from perceived positive and open feedback environments, the current research took this further, indicating that open feedback environments encourage continued collaboration. It can be speculated that, because there is continuous feedback, students are able to improve their work at a continuous pace as opposed to waiting for formal feedback scenarios. Although we presented significant findings, there were clear limitations to our study, which create research questions to be studied in the future.

We also observed two significant interactions. First, incremental participants were more sensitive to changes in the feedback environment in terms of trust for their faculty research advisor. This suggests that entity theorists’ level of trust does not vary across different levels of the feedback environment as much as incremental theorists’. Second, entity participants were more sensitive to changes in the feedback environment in terms of intent to continue collaboration. Unlike the first interaction, entity theorists experience a greater benefit to having a positive feedback environment. Although there are differences between incremental and entity participants, all participants seem to have benefitted from a positive feedback environment.

**Limitations and Future Research**

First, it is necessary to explore possible reasons for the low reliability of Mayer & Gavin’s (2005) trust scores in this study. Although this trust scale is commonly used throughout the literature, often with an acceptable reliability estimate (Colquitt & Rodell, 2011 report $\alpha = .82–.84$), reliability estimates are unique to each use of the scale. There are a few reasons why this often-reliable scale was not reliable in the current study. First, the scale was modified from its original form to be used with a student sample. When created by Mayer & Gavin, the scale was intended to assess trust from an organizational sample. When transposing the scale from its original form, we attempted to maintain the original structure of the items. However, it is possible that this transformation impacted the scale. Second, it is possible that the low internal consistency of the trust measure was because the

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FIGURE 1

**Interaction Between Implicit Person Theory and Feedback Environment on Trust**

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FIGURE 2

**Interaction Between Implicit Person Theory and Feedback Environment on Intent to Continue Collaboration**

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Note. FE = Feedback Environment. Intent to continue collaboration is scaled such that 1 = strongly agree and 7 = strongly disagree.
5-item measure contained two negatively worded items. Having negatively worded items can cause psychometric problems (Barnette, 2000). However, given the abundant use of Mayer & Gavin’s (2005) trust measure, we did not anticipate internal consistency issues.

Because a portion of our sample were undergraduate seniors, unlikely able to continue the professional relationship after graduation, there was concern over whether our question measuring intent to continue collaboration is an appropriate measure in this context. At the undergraduate institution where this study took place, it is fairly common for research and collaboration to continue until or, in some cases, beyond graduation. Also, a number of undergraduate juniors, as well as students in professional programs (which extend beyond the traditional 4-year college structure) participated in this study. Although we believe that our intent question was adequate for the purpose of this study, future research should employ a deeper exploration of intent to continue collaboration. For example, capturing why participants may intend or not intend to continue collaboration would be valuable to this line of research.

Although participants in this study were completing research in a variety of fields, they all attended the same university. Some universities place greater emphasis on undergraduate research than others. For that reason, the external validity of the findings that a positive feedback environment will predict intentions for continued collaboration needs evaluation. At an institution in which there is less emphasis put on the importance of undergraduate research, students may be motivated by different individual differences to continue collaboration. For example, at institutions with a graduate psychology program, professors may put most of their effort into producing publications and other work. On the other hand, professors at other universities without a graduate program may be motivated to allow undergraduates to play a pivotal role in the research process. Because of this, it is possible that they spend more time focusing on feedback and fostering the academic development and growth of their students. Thus, we suggest replication of this study or a similar study at different universities across a number of countries to determine the generalizability of the presented results.

To get a more in-depth understanding of the real interaction between a student and faculty research mentor, it would be beneficial to measure the perceptions of the faculty research advisor. We were unable to survey the faculty research advisor that each participant was collaborating with. Given this limitation, the next step in this line of research should inquire more about the faculty research advisor.

Past researchers asked participants to rate the implicit person theory of their supervisor (Kam, Risavy, Perunovic, & Plant, 2014; Jenssen, 2014). Kam and colleagues (2014) operationalized the perception of someone else’s implicit theory as whether the supervisor would notice performance change. They found that an employee’s implicit theory had no correlation with their supervisors’ perceived implicit theory. Kam and colleagues (2014) found that participants who perceived their supervisors to have an incremental implicit person theory were unlikely to indicate turnover intention. In an academic context, this is similar to measuring students’ intentions to continue collaboration. Similar to the findings in the present study, Kam and colleagues (2014) found no correlation between employees’ chronic implicit person theory and turnover intentions. In an academic environment, it could be beneficial to capture perceived implicit person theory score of the faculty research advisor to see if there is a similar effect.

Another construct that could be introduced to better understand research relationships is procedural justice, the level of perceived fairness in the decision-making process. Heslin and VandeWalle (2009) found that an individual’s implicit person theory score affects perceived procedural justice such that incremental participants experienced more positive procedural justice. It would be beneficial to understand the role that feedback environment plays in perceptions of procedural justice. Because Heslin and VandeWalle (2009) focused on procedural justice in formal performance evaluation scenarios, perceptions could differ based on one’s feedback environment. Given that feedback environment involves continuous feedback, participants would have more instances to form impressions of procedural justice.

Conclusion
Our research extended the feedback literature beyond applied organizational settings into undergraduate research relationships. Feedback environment plays a pivotal role in the relationships that undergraduate researchers have with their faculty research advisors. If students perceived their faculty research advisors to be familiar with their work, available to give feedback, and respectful in
their delivery, this indicates a positive feedback environment (Steelman et al., 2004). In light of these results, we believe that fostering a positive feedback environment is instrumental in ensuring high-quality relationships between undergraduate researchers and their research advisors.

References


Dahling, D. W., Davis, A. B., & Viator, R. E. (2015). The joint effect of high-quality relationships between undergraduate


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Effects of Password Type and Memory Techniques on User Password Memory
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ABSTRACT. In an attempt to examine factors that increase the likelihood of remembering a user password, the memory technique of chunking was tested on different password types. College students, aged 18 to 22, used a given login (username and password) to play a 3-round word scramble game online. The type of password (multiword passphrase and standard password) was manipulated, as well as the strategy for remembering (chunking or no chunking). After the last round, participants’ memory for passwords was tested. Results showed that the effect of chunking on memory for passwords depended on the type of password. Chunking had a negative impact on memory for multiword passphrases but a positive impact on memory for standard passwords, \( F(1, 53) = 12.74, p = .001, \) partial \( \eta^2 = .20. \)

Implications regarding the use of memory techniques in user interfaces to improve memory for passwords and the impact of such techniques on personal and professional use are discussed.

The increasing need for numerous distinct online accounts and security of personal information on those accounts has led to a corresponding rise in the number of passwords that people need to not only generate, but also be able to remember. According to Brown, Bracken, Zoccoli, and Douglas (2004), students use on average 8.18 passwords, with 4.45 unique passwords and 1.84 uses per password. Thirty-one percent of students reported forgetting their passwords, and 22.5% experienced password mix-ups (not surprising given that 41.4% of all utilizations shared a password with two or more other utilizations; Brown et al., 2004). In light of these statistics, the overarching purpose of this study was to examine factors that increase the likelihood of remembering specific types of passwords.

Often, the creation of a new password requires adherence to many restrictions (e.g., must contain at least eight characters, at least one number, a capital letter, and a symbol). Differences in password restrictions across multiple accounts have also led to various types of passwords that people are encouraged to use such as standard passwords and passphrases. Standard passwords typically consist of a minimum number of characters containing a combination of letters, symbols, and numbers (e.g., aJ$76ui#M). Passphrases may consist of multiple compositions (e.g., a phrase like "I love to do research in psychology" could become "Iluv2dor35e@rch4p$y," or a phrase with random dictionary words like "rhyme double farther represent" could be used).

Research shows there are some discrepancies over the perceived usefulness of passphrases among users (Keith, Shao, & Steinbart, 2007). Although research shows that passphrases may be more difficult to crack, more easily remembered, and more efficient, some people perceive them as being more difficult to use than standard passwords (Keith, et al., 2007). Despite this research in favor of passphrases, the fear of an inadequate capacity of human short term and working memory may discourage the use of longer, more secure passphrases (Keith et al., 2007).

Not only does password type (standard vs. passphrase) influence memory, but so do the number of passwords a person uses, the length of these passwords, their frequency (how often they are used), and how often a new password is
created or an old one is changed (Keith et al., 2007; Payton, 2010; Vu et al., 2007). All of these factors can affect both short and long-term memory. For instance, research shows that most people can hold things temporarily in their short term memory for about 30 s without aids (Cowan, 2000). Interference theory also suggests that previously learned information can interfere with a person’s ability to recall new information (proactive interference) and newly learned information can interfere with a person’s ability to recall old information (retroactive interference; Roediger, Nairne, Neath, & Surprenant, 2001). This helps explain why people dislike the idea of coming up with new and unique passwords (i.e., because they fear an inability to remember their other passwords). Further evidence of this comes from Vu et al. (2007) who found that the use of multiple unique passwords often increases the number of attempts needed to recall a password, leading people to use the same password for multiple accounts.

Fortunately, there are other techniques people can use to aid their memory. The process known as chunking, which combines pieces of information in some meaningful way, thus increasing the amount of information held in working memory, can contribute to better overall memory (Dilmar, 1972; Miller, 1956). This process can occur naturally in the ways that people re-code information such as in the use of mnemonic devices or in daily conversation (when people automatically re-group words or ideas and put it in their own words; Miller, 1956). However, chunking can also be used intentionally to facilitate memory (Miller, 1956). Miller (1956) suggested the “magic number seven” as a baseline for chunking information, and further research has suggested that three or four bits (or pieces) of information per chunk are best for aiding memory (Dilmar, 1972). However, recent research has indicated that there are limits to this memory technique; capacity (how many chunks) and length of individual chunks may both play a role in recall ability (Chen & Cowan, 2005; Cowan, 2000).

Despite this, the usefulness of chunking in aiding memory is certainly still worth consideration today as pointed out by Carstens, Malone, and McCauley-Bell (2006), who found chunking meaningful information into passwords to be beneficial. In their study, Carstens et al. (2006) explored the use of meaningful chunks of information and different password lengths. They found that using two, three, and even four chunks of information improved memory for passwords and reduced the need for participants to refer to a written password. Although there was no statistically significant difference between the chunking conditions, Carstens et al. (2006) found that using personally meaningful chunks of information in passwords improved memory compared to that of a seven-character password with no meaningful information incorporated in it. Brown et al. (2004) found that half of all password constructions in their study consisted of proper names and birthdays with two-thirds of passwords containing information about the self or personal elements, which makes it reasonable to suggest that these personally meaningful chunks do indeed aid memory. Carsten et al. (2006) also found that participants were able to remember passwords anywhere from 7 to 22 characters in length when they used chunking, showing how individuals can use chunking to create their own unique, meaningful passwords that are easy to remember.

Similarly, Bonneau and Schechter (2014) used chunking to help participants learn pass codes (consisting of just letters like “vnun” or words like “voice baker”) over a longer period of time. They used words and letters placed directly after a participant’s username and password of their own choosing, adding new chunks after each successful memorization of the previous chunk. This allowed participants to learn longer pass codes one chunk at a time through repetition and spacing for up to two weeks. Bonneau and Schechter (2014) encouraged participants to memorize their codes by increasing the delay time before showing them the correct word or series of characters, essentially allowing participants to log in faster if they remembered the code themselves. Bonneau and Schechter (2014) were able to help 88% of participants remember their codes even three days after the initial study. Only 21% of participants reported the need to write the code down (Bonneau & Schechter, 2014), which is in direct contrast to Brown et al. (2004) who found that more than half of the students kept written records of their passwords because they could not remember them. This showed how chunking can be used in conjunction with other memory techniques to learn longer pass codes that could possibly be used either in addition to or instead of passwords. The ability to learn longer passwords would also be beneficial because length of passwords also has an effect on memory, with longer passwords being less likely to be remembered (Payton, 2010).

People need to create complex passwords to safeguard their personal information, but complex
passwords are hard to remember, leading to the present study’s purpose of examining how chunking affects recall for standard passwords and passphrases. Previous research has indicated that spacing and chunking has a positive effect on memory for pass codes when used in addition to passwords (Bonneau & Schechter, 2014). However, no one to date has examined the effects of using chunking directly within the password user interface itself (e.g., typing each “chunk” of a password into separate input boxes) and how that may affect memory for different types of passwords. It was predicted that participants using the chunking method would report better memory for both standard and passphrase passwords (as measured by the number of attempts required to remember). Because passphrases are regarded as easier to remember due to the use of words (Bonneau & Schechter, 2014; Payton, 2010), it was also predicted that this effect would be most pronounced for the standard password.

Method

Participants
Participants were recruited through an undergraduate psychology department sponsored research activity. Sixty participants completed the study, but three participants were not included in the final analyses due to incomplete data. The remaining participants included 57 (39 women, 16 men, two unreported) undergraduate students attending a small liberal arts college in the midwest. Most of the sample was White American (82.5%), with 1.8% African American, 5.3% Asian, 5.3% other, 3.5% prefer not to answer, and 1.8% who were not reported. The participants' ages ranged from 18 to 22 (M = 18.81, SD = 2.76).

Materials and Procedure
Participants were randomly assigned to one of four conditions based on the two factors of password type and chunking: the standard password with chunking (n = 15), standard password with no chunking (n = 16), multiword passphrase with chunking (n = 13), and multiword passphrase with no chunking (n = 13). See Table 1 for demographics across conditions. Although participants did not receive formal compensation, they did receive extra credit for completing the study.

This study received Wisconsin Lutheran College Institutional Review Board approval (#41111031407). The materials used in this experiment consisted of web pages that the author created to carry out the study, in which participants

logged in to play a word scramble game. After three rounds, participants were asked to recall their passwords. To discourage intentional rehearsing, participants were not informed that they would need to memorize their password. Memory for the passwords was based on how many attempts it took for the participants to remember their passwords.

Fifteen laptop stations were set up for participants to use, with the starting page set on the Google Chrome® browser. The experiment

FIGURE 1
Login Interfaces Across Conditions

A

Round 1
Create a login to play the game. Use your school email for your username.
A random password is provided for you.
Your password: g@V2&lq0!
Username: _______________
Password: __________

The “no chunking” interface shows the input box for the username as well as a single input box for the standard password shown.

B

Round 1
Create a login to play the game. Use your school email for your username.
A random password is provided for you.
Your password: laughveinmemoanvilnap
Username: _______________
Password: _______________

The “no chunking” interface shows the input box for the username and password as one would normally encounter them, with the multiword passphrase shown for the participant.

C

Round 1
Create a login to play the game. Use your school email for your username.
A random password is provided for you.
Your password: g@V2&lq0!
Username: _______________
Password: __________

The “chunking” interface shows the input box for the username as well as three separate input boxes for the standard password shown.

D

Round 1
Create a login to play the game. Use your school email for your username.
A random password is provided for you.
Your password: laughveinmemoanvilnap
Username: _______________
Password: _______________

The “chunking” interface shows input boxes for the username and password, with five separate input boxes for multiword passphrase shown for the participant.
consisted of three rounds of a word scramble game that required participants to log in with their usernames and the passwords shown to them on the screen. The system randomly assigned each participant to a particular password type (standard: "g@V2&lq0!" or passphrase: “laughveinmemoanvilnap”) so that participants saw the password at the top of the screen with an input box directly below it. Instructions at the top of the screen read: “Create a login to play the game. Use your school e-mail for your username. A random password is provided for you.” Participants in the no chunking condition saw one box for the entire password (either a standard password or multiword passphrase; see Figures 1A and 1B, respectively). Participants in the chunking condition saw either three separate boxes placed side by side for standard password input (one box for each chunk of the password; see Figure 1C) or five separate boxes placed side by side for multiword passphrase input (one box for each chunk [i.e., word] of the passphrase; see Figure 1D). Spaces at appropriate breaking points between characters in the passwords shown on the screen indicated to participants that passwords should be chunked.

After successfully entering the correct password, participants played the word scramble game for 30 s before moving on to the next round. The game contained 10 scrambled words each round, which the participants were asked to unscramble (e.g., ylogychpso = psychology). Passwords were shown on the screen for each round, along with the same prompts described above.

At the end of three rounds, participants were given five attempts to recall their password (Vu et al., 2007) without any cues. The system tracked the number of attempts that participants took to try to remember their passwords, whether they remembered or not, and the last password they attempted to use to log in. After completing the final login, participants completed the demographics questions online, at which point the next participants were able to start the study. The entire process took participants 5 to 10 min to complete.

### Results

To explore the impact of chunking and password type on memory, the author conducted a 2 x 2 between-groups Analysis of Variance (ANOVA) with chunking (chunking, no chunking) and password type (standard password, multiword passphrase) as between-participant independent variables and number of attempts required to recall the password as the dependent variable. There was a statistically
significant interaction between chunking and password type, \( F(1, 53) = 12.74, p = .001 \), partial \( \eta^2 = .20 \) (see Figure 2). Simple main effects analysis revealed that participants who received a standard password needed significantly fewer attempts to correctly remember the password when using the chunking strategy compared to no strategy, \( F(1, 53) = 6.04, p = .02 \), partial \( \eta^2 = .10 \), 95% CI [1.99, 4.01] [2.90, 4.73], respectively. However, those participants who received a multiword passphrase did better without the chunking strategy than those who did use chunking as a strategy, \( F(1, 53) = 6.71, p = .01 \), partial \( \eta^2 = .11 \), 95% CI [1.29, 3.18] [4.09, 5.30], respectively (see Table 2 for means across conditions). The main effect for chunking, \( F(1, 53) = 3.23, p = .08 \), 95% CI [2.96, 3.93], partial \( \eta^2 = .06 \), was not statistically significant. The main effect for password type, \( F(1, 53) = .92, p = .36 \), 95% CI [2.94, 3.94], was also not statistically significant, and the partial \( \eta^2 = .00 \).

**Discussion**

With this study, the author sought to investigate the effects of password type and use of memory techniques on memory for passwords. The results of this study suggested that the effectiveness of chunking on the ability to remember passwords depends on the type of password being used. Specifically, participants who were asked to remember a standard password did better when using chunking, but participants who were asked to remember a multiword passphrase did better without the use of chunking.

These results are especially interesting due to the lack of research taking into account both different password types and the memory technique of chunking within the password interface. Keith et al. (2007) found that password type alone does not affect the ability to remember passwords. Bonneau and Schechter (2014) found that the use of spacing and chunking improved memory for pass codes consisting of words only. Carstens et al. (2006) suggested a model for creating passwords incorporating participants' personal and meaningful information while using chunking. So although research has considered password type and memory technique, more research is needed to confirm the results found here, which indicated that the interaction between the two is important to consider, and may vary depending on password type and composition.

Although the finding that using chunking was helpful in remembering passwords is in line with previous research (Carstens et al., 2006), the finding that chunking actually hindered one’s ability to remember a passphrase is somewhat surprising and unexpected. One possible explanation is that chunking did in fact make it more difficult to remember passphrases. However, an alternative explanation is that the interface and presentation of the passwords required a greater amount of processing to use them. In the case of multiword passphrases in particular, the chunking condition showed the passphrase with spaces between each word, making it easier for participants to see and process each word. For those participants in the no chunking condition, however, the passphrase was shown as one continuous string of words with no spaces. The amount of mental processing used to read and use this version of the passphrase may account for the lowered number of recall attempts needed. Essentially, if participants worked harder to use the passphrase without chunking than those who used chunking, they might have had an easier time remembering it later. Future research could work to explore this interaction further and better understand the nature of passwords, memory, and the interfaces used in greater detail.

An important feature of this study to consider is the composition of the passwords used for each condition. Two passwords were used: one for the standard composition (g@v2&lq0!) and one for the multiword passphrase composition (laughveinmemoanvilnap). For the chunking conditions, the standard password was split into three chunks consisting of three, two, and four characters each, and the passphrase was split into five chunks according to each of the five meaningful words. To make the standard password manageable, the author kept the length at nine characters (most restrictions require at least eight characters), but made the passphrase longer in an attempt to ensure a similar level of difficulty. This difference in length could be a limitation to the study, but the author felt it necessary to keep the difficulty levels of each password composition relatively the same. Perhaps further research could explore how the number of chunks, number of characters in each chunk, and word or character composition for passwords affects memory. For example, variations of the passphrase structure could be studied further to see whether the use of chunking helps memory for a passphrase that introduces other characters in place of words or for shortened words that do not chunk as naturally at the onset.

The effort each individual put into solving the
word scramble could have affected the amount of interference caused by the distracter. Participants were not scored on the word scramble, nor were their answers tracked. Presumably, the random assignment to conditions should account for any individual differences in effort. However, the interference caused by the game could be an unforeseen limitation to the study because there is no way to determine the effort used to solve each word. Furthermore, the length of the game was only 30 s for each round. This short delay of (at the very least) 1 min 30 s from first seeing the password to needing to recall the password does not accurately depict a natural setting. In many cases, a user would create a password and then possibly not see or need to use it until logging in again (which could be a few hours, days, or weeks, depending on the situation). Given that using chunking with standard passwords did improve memory for the short term, perhaps continuing to use chunking with passwords over time would also see positive results.

Due to the prevalence of password use in current technology, continued research in this area has potential, especially with the variety of behaviors exhibited by people to manage their passwords and the different circumstances that influence such decisions. Researchers found that computer scientists, administrative staff, and students view passwords differently in regard to costs and benefits (Duggan, Johnson, & Grawemeyer, 2012). Memory constraints, the subjective utility of the password in a particular environment, and the person’s own knowledge of security all play a role in how people approach the creation and management of passwords (Duggan et al., 2012; Huang, Rau, Salvendy, Gao, & Zhou, 2011). Other issues include the need for multiple passwords, whether or not people actually comply with password restrictions (Campbell, Ma, & Kleeman, 2011; Huang et al., 2011), and elements of social engineering and desirability (e.g., choosing to share passwords with others; Stamp, 2006).

Unsurprisingly, people try different techniques to help themselves remember passwords. The generation effect (Mulligan, 2004), in which information is better remembered when created or generated on one’s own, could assist in memory for passwords. The processes of rehearsal, elaboration, repetition, and spacing also lead to automaticity and facilitate storage in long-term memory, which may explain why frequently used passwords are easier to remember (Roediger et al., 2001). Although the technique of learning an item through spacing repetition over a period of time (distributed practice) tends be slower (depending on the amount of time used and the frequency of repetition), the advantages of long-term retention and enhancements in learning is well-known in the realms of both psychology and information security (Bonneau & Schechter, 2014; Karpicke & Roediger, 2007). All of these techniques could be explored further and used in password creation and in educating people on better ways to remember their passwords. Other memory techniques could also be explored such as allowing for more elaborate encoding of passwords or using pictures or instructions for how to encode a particular password (e.g., providing prompts for a ridiculous story or using pictures to create a mind palace for the password). Further research could also look toward the use of randomly generated passwords, user-generated passwords, other password/passphrase types, as well as different password lengths.

Of course, there are security issues to keep in mind as people also adapt different strategies to changing situations (i.e., bank accounts vs. lower-risk accounts) that allow them to reconcile costs and benefits associated with the use of passwords (Tam, Glassman, & Vandeweaver, 2010). If changes in the interface compromise the security of the password itself, then it may not be as useful. The potential benefits may outweigh the costs if people are not as inclined to write down the password once they know it well enough and if they can remember longer passwords. By making the password process automatic (through having them memorized), security could potentially increase because people would not need to write passwords down and leave them in the reach of others. If something as simple as implementing a different interface to encourage chunking can help people remember their passwords, then there is potential to help web users and administrators in all walks of life.

References
España | Effects of Password Type and Memory


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Examining the Reliability and Convergent Validity of IPARTheory Measures and Their Relation to Ethnic Attitudes in Guatemala

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ABSTRACT. According to interpersonal acceptance-rejection theory (IPARTheory), parental acceptance is fundamentally important to healthy development. IPARTheory has been validated around the world, but there has been relatively little IPARTheory research conducted in Latin America. The first purpose of our research was to extend the reliability and convergent validity of measures of IPARTheory (perceived acceptance and rejection from parental figures, psychological maladjustment) among a Guatemalan sample. Because of Guatemala’s unique situation due to the relative fluidity of ethnic identity of the population and history of conflict between the two main ethnic groups of Ladinos and indigenous Maya people, we also examined how attitudes toward indigenous Maya people and Ladinos were related to participants’ perceived acceptance-rejection from parental figures. Participants were 62 students (75.8% women) from a public university in Guatemala who each completed a paper-and-pencil survey. Correlations ranging from 0.56 to 0.91 ($p < .001$) among the subscales of the IPARTheory measures, via strong Cronbach’s alphas ranging from 0.69 to 0.96, and correlations between IPARTheory measures and ethnic prejudice ranging from 0.26 to 0.34, provided support for the reliability and convergent validity of IPARTheory measures in Guatemala. The findings also established a relationship between parental acceptance-rejection and ethnic prejudice. Our study took an initial step in establishing IPARTheory in Guatemala and its connection to ethnic attitudes. Further research should establish IPARTheory measures in other Latin American countries, as well as explore connections between IPARTheory and other social psychological constructs.
parents, and emotional instability (Rohner, 1999).

IPARTheory has been validated among samples of participants in various countries, ethnicities, age groups, and gender identities (Alegre, 2012; Erkman & Ekmecki, 2011; Khaleque & Rohner, 2002; Lila, Garcia, & Garcia, 2007). Although IPARTheory has been studied in many countries around the world such as Turkey (Erkman & Ekmecki, 2011), Croatia (Glavak-Tkalic & Kukolja-Gicmanovic, 2014), and Colombia (Lila et al., 2007), relatively little IPARTheory research has been conducted in Latin America compared to other parts of the world. The purpose of our research was to extend the reliability and convergent validity of three IPARTheory measures to a Latin American sample in Guatemala to allow for further exploration of the theory. These measures included the short form of the Adult Parental Acceptance-Rejection Questionnaire for Mothers and for Fathers (PARQ-Mother and PARQ-Father; Rohner & Khaleque, 2005), and the Adult Personality Assessment Questionnaire (PAQ; Rohner & Khaleque, 2005). Studies that involve child participants would utilize the Child PARQ measures about the participants’ current situations. The Adult PARQ-Mother and PARQ-Father, however, are self-report questionnaires designed to assess adults’ memories of their perceptions of their mother’s and father’s treatment of them when the participants were about 7 to 12 years. Rohner and Khaleque (2005) defined treatment as consisting of a combination of warmth/affection, hostility/aggression, indifference/neglect, and undifferentiated rejection. The PAQ is a self-report questionnaire designed to assess adults’ perceptions of themselves with respect to seven personality dimensions that, together, define psychological maladjustment: hostility and aggression including physical aggression, verbal aggression, passive aggression, and problems with the management of hostility and aggression; dependency; negative self-esteem; negative self-adequacy; emotional unresponsiveness; emotional instability; and negative worldview (Rohner & Khaleque, 2005).

It would be noteworthy to explore these topics in Guatemala because it is a location where the relative ethnic fluidity of the population is easily observable and because of the history of conflict between the two main ethnic groups of Ladinos and indigenous Maya people (Gibbons & Ashdown, 2010; Little, 2004). For example, some vendors may present themselves as indigenous in order to improve sales of their handicrafts in the market, but present themselves as Ladino in other situations. Conversely, some indigenous Maya people might avoid speaking their native Maya language in certain situations to avoid discrimination (Little, 2004). Because of this interesting setting, we also explored connections between IPARTheory and ethnic attitudes.

The Universality of IPARTheory
Past research has demonstrated that children everywhere react in the same manner when they do not perceive parental acceptance (Rohner & Khaleque, 2002). One study of Croatian adolescents revealed that perceived paternal and maternal acceptance were positively associated with Croatian youths’ psychological well-being (Glavak-Tkalic & Kukolja-Gicmanovic, 2014). Similarly, in a study conducted in Colombia, perceived paternal and maternal rejection were positively associated with psychological maladjustment (Lila et al., 2007). These studies, along with many others, have provided evidence suggesting that IPARTheory is generalizable to a variety of populations.

Khaleque and Rohner (2002) further demonstrated the generalizability of IPARTheory in a large meta-analysis of 51 studies. Combined, the 51 studies included 6,898 respondents (about 50% children ages 6 to 19 years and 50% adults ages 23 to 54 years) representing most major ethnic groups in the United States, as well as samples from Europe, the Middle East, South Asia, and Africa. The results supported the reliability of the PARQ and PAQ measures across cultures. More notably, the results also showed that between 2,185 and 4,537 studies with insufficient alphas would be needed in order to offset the significant and robust alphas found for the PARQ measures. Overall, the implications of this meta-analysis reveal a universal tendency for people to react in similar manners to issues of parental acceptance-rejection despite differences in social class, race, gender identity, culture, and/or ethnicity.

Previous research has shown that recalling perceived parental acceptance-rejection that occurred during childhood, as measured by IPARTheory scales, has been related to various constructs in adulthood. For example, people who were diagnosed with borderline personality disorder were more likely to perceive paternal rejection (but not maternal rejection) and have greater psychological maladjustment in adulthood as measured by the PAQ (Rohner & Brothers, 1999). The effects of perceived parental acceptance-rejection in childhood
also tend to extend to future relationships. Turkish adults who felt more accepted by their parents as children were more likely to feel accepted by their current romantic partner (Varan, 2005).

IPARTheory also has a lingering influence on ethnic attitudes. In Cyprus, xenophobia, or an intense and irrational dislike of people from other countries and groups, was correlated with greater perceived parental rejection (Demetriou, 2013). In other words, individuals who reported more perceived rejection from their parents when they were children were also more likely to display greater dislike of dissimilar others. Similarly, participants who had less tolerance for dissimilar others were more likely to have perceived less warmth and affection from their parents. Also, participants who had lower levels of tolerance for others and more resistance to a multicultural society tended to perceive more indifference and neglect from their parents.

Interestingly, negative parental relationships and attachment insecurity are important factors in predicting future aggressive behavior. Casselman and McKenzie (2015) found that perceived paternal and maternal rejection and insecure attachments were related to increases in aggression including physical aggression (hitting others), verbal aggression (arguing), anger, and hostility in young adults regardless of gender. In turn, it is possible that this aggressive behavior can be translated to how one perceives ethnic groups and out-groups (Duckitt, 2001), as discussed in the Cyprus sample above (Demetriou, 2013).

Ethnicity and Attitudes Toward In- and Out-Groups

Many theories have attempted to explain ethnic attitudes and attitudes toward in- and out-groups. One theory, social identity theory (SIT; Tajfel & Turner, 1986), posits that individuals’ group memberships influence their attitudes and opinions about others. To enhance self-identity, individuals often unconsciously treat their own group more favorably than out-groups (Tajfel & Turner, 1986). For example, one study found that discrimination toward out-group members was unintentional and resulted from favoritism toward in-group members (Greenwald & Pettigrew, 2014). In-group bias, or favoring members of one’s own group, is present in children as young as three years old, intensifies until approximately six or seven years of age, and then tends to diminish after a child reaches late childhood (Augoustinos & Rosewarne, 2001; Powlishta, Serbin, Doyle, & White, 1994). Biased attitudes seem to escalate again during adolescence (Black-Gutman & Hickson, 1996; Teichman, 2001), though Hoover and Fishbein (1999) found that prejudiced ethnic attitudes remained stable during adolescence, yet increased sharply during college for traditionally aged students.

There are competing explanations for why these types of attitudes are present at such young ages. Some explanations suggest a biological or evolutionary basis for these attitudes (Tawa & Kim, 2011). For example, a study found that the belief in race as a biological construct was positively correlated with out-group discomfort and in-group racial salience, or how important people make their race to their identity (Tawa & Kim, 2011). Additionally, results suggested that people with intergroup anxiety strengthen their beliefs that ethnic groups are socially incompatible in order to justify their in-group racial salience (Tawa & Kim, 2011).

The belief in race as a biological construct is a learned attitude, and suggests that children and teenagers learn these attitudes from others, especially parents (Bandura, 1977; Sinclair, Dunn, & Lowery, 2005). According to social learning theory (SLT; Bandura, 1997), patterns of behavior and related attitudes are acquired through direct experience as well as when significant others model behaviors from their beliefs. A study that investigated the relationship between parents’ racial attitudes and their children’s implicit prejudice viewed parents as socializing agents to determine if their beliefs had affected the racial attitudes of their children (Sinclair et al., 2005). Children who identified more with their parents had greater correspondence and showed more similarity with their parents’ racial attitudes. The findings also suggested that the more strongly children identify with their parents, the more likely it is that parental racial attitudes and beliefs will influence the children’s implicit and explicit racial prejudice (Sinclair et al., 2005).

SLT is supported by research showing that cold and unaffectionate parenting is related to tough-minded personalities (Duckitt, 2001). This tough-minded personality leads individuals to view the world as threatening and a place of constant competition, where individuals must prioritize their own needs and desires. Duckitt (2001) hypothesized that this negative worldview influences an individual to desire superiority over others—promoting social dominance orientation (SDO). SDO is an individual’s preference and acceptance that one group is superior to another (Pratto, Sidanius,
Issues related to discrimination and inequality among ethnic groups have been an aspect of life in Guatemala for centuries since the arrival of the “conquistadores” in the 16th century, and very likely before that (PNUD, 2005). During the era of colonization, early independence, and then a 36-year civil war that started in 1960, the indigenous Maya people were often the targets of harassment, violence, disenfranchisement, property theft, and murder (Grandin, Levenson, & Oglesby, 2011). This history has laid the foundation of the current situation in Guatemala, where the two main ethnic groups are Ladinos, who make up about 40% of the population and maintain economic and political power, and indigenous Maya people, who comprise approximately 58% of the country’s population (Gibbons & Ashdown, 2010; Martínez Peláez, 1992; PNUD, 2005). Ladinos, who are of mixed European and indigenous ethnicity, tend to reject an indigenous cultural heritage. Although indigenous Maya people make up a numerical majority of the population compared to Ladinos, they tend to be the targets of discrimination and suffer disparities in education, financial power, health, and politics (PNUD, 2005).

One aspect of Guatemala that makes it a unique and interesting place to investigate issues related to ethnicity is the relative fluidity of ethnic identification (Little, 2004). Because ethnic markers in Guatemala tend to be cultural and flexible in nature such as language and clothing, some Guatemalans are able to effectively move between ethnic groups if they deem it necessary or beneficial (Little, 2004). Gibbons and Ashdown (2010) found support for this fluidity of ethnic identity in Guatemala when they allowed their participants to ethnically identify themselves using a continuous variable rather than a categorical variable. One-third of their participants identified as having mixed Ladino and indigenous heritage. This relative ethnic fluidity leads to interesting questions about Guatemalans’ ethnic group attitudes such as in relation to SIT (Tajfel & Turner, 1986). Although a rich literature has addressed the fluidity of identity including that people have multiple identities that become more or less salient depending on context (for a good review, see Spears, 2011), what makes Guatemala particularly interesting in this regard is that people are able to be relatively fluid between ethnic identities. This fluidity within ethnic identity is usually less common than fluidity within various other social identities such as occupational or political identities.

As would be expected according to SIT, indigenous Maya people had more positive attitudes...
and beliefs toward their own ethnic group, and those claiming Ladino heritage felt more positively toward Ladinos (Ashdown, Gibbons, Hackathorn, & Harvey, 2011). However, less is known about whether people learn about these attitudes in Guatemala the same way they do in other parts of the world such as the United States. As described above, Duckitt (2001) argued that children who are raised by rejecting, neglectful, or abusive parents are more likely to have prejudiced attitudes and a higher SDO. It is interesting to consider whether perceived parental acceptance-rejection is related to greater prejudiced attitudes among Guatemalans—with the uniqueness of ethnic group identity and its relative fluidity—and whether IPARThory measures can help elucidate this relationship.

The Current Study
The purpose of our research was to first extend the reliability and convergent validity of various measures of IPARThory (i.e., parental acceptance and rejection and psychological maladjustment) among a Guatemalan sample. We hypothesized that these measures would demonstrate acceptable reliability via strong Cronbach’s alpha coefficients. We also hypothesized that the scales and subscales of the IPARThory measures of parental acceptance and rejection would correlate in expected directions with each other, as well as IPARThory measures of psychological maladjustment, indicating convergent validity. That is, we expected that higher perceived parental rejection would correlate with more psychological maladjustment.

Secondly, to further examine the convergent validity and appropriateness of these measures in Guatemala, we explored the bi-directional relationships between measures and attitudes of ethnicity (attitudes towards Ladinos, attitudes towards indigenous people, ethnic identification) and parental acceptance-rejection. Third, we also hypothesized that greater perceived parental rejection would be correlated with more negative attitudes toward indigenous Maya people, regardless of the participant’s own ethnicity, because this group is generally and prejudicially viewed in Guatemala as subordinate and less valuable. Finally, we explored correlations among parental acceptance-rejection and participants’ own ethnic identification. However, because this aspect of the work was exploratory, we did not make specific hypotheses about these relationships.

Method
Participants
Participants were 62 students from a public university in Guatemala. Their mean age was 20.89 years ($SD = 3.08$), and most participants were women (75.8%, $n = 47$). All but one participant’s primary language was Spanish (98.4%, $n = 61$) and on a continuous scale that measured ethnic identity from 0 (purely indigenous) to 17 (purely Ladino), the sample’s mean score was above the midline, indicating that participants tended to self-identify as Ladino or having a mixed heritage ($M = 9.60$, $SD = 5.76$). This measure was developed and used in previous research assessing ethnicity in Guatemala (see Ashdown et al. 2011; Gibbons & Ashdown, 2010). In terms of education, approximately 58% of our sample ($n = 36$) had studied in a university for one year, 21% ($n = 13$) for two years, 8.1% ($n = 5$) for three years, and 8.1% ($n = 5$) for four or more years.

Measures
Parental Acceptance-Rejection Questionnaire: Father/Mother Short Form (PARQF/PARQM).
This 24-item questionnaire measures respondents’ reflections of their perceived acceptance-rejection from their parents when the respondents were between the ages of 7 to 12 years old (Rohner & Khaleque, 2005). The measure was created to measure reflections of participants’ memories of their childhoods, and not their current adulthood experiences. The measures are identical except that one asks participants to answer the questions while thinking about their mothers, and the other while thinking about their fathers. The PARQ consists of four subscales: warmth/affection, hostility/aggression, indifference/neglect, and undifferentiated rejection. A few examples from these measures include “… said nice things about me,” “… hit me, even when I did not deserve it,” and “… paid no attention to me.” Participants use a 4-point Likert-type scale to indicate whether each statement was almost always true (4), sometimes true (3), rarely true (2), or almost never true (1) of their parent. The PARQ is scored after reverse coding various items to find an overall sum measure of parental acceptance-rejection, as well as scores for each of the subscales. Higher scores indicate more negative perceptions on each scale (i.e., more rejection). See Table 1 below for information on the reliability coefficients for this measure obtained from our sample of 62 Guatemalan students.

PAQ. This 64-item questionnaire measures psychological maladjustment (Rohner & Khaleque,
2005), as reflected in seven subscales: hostility and aggression, dependency, negative self-esteem, negative self-adequacy, emotional unresponsiveness, emotional instability, and negative worldview. Participants indicate how accurately each statement describes them by using a 4-point Likert-type scale identical to the PARQ (i.e., almost always true, sometimes true, rarely true, or almost never true). For example: “I certainly feel worthless.” The PAQ is scored, after reverse coding various items, by creating sum scores. Higher relative scores indicate more relative psychological maladjustment (Rohner, 1990; Rohner & Khaleque, 2005). See Table 1 below for information on the reliability coefficients for this measure obtained from our sample of 62 Guatemalan students.

Multi-Ethnic Identity Measure-Revised (MEIM-R). This 6-item tool measures ethnic identification (Phinney & Ong, 2007). The MEIM-R consists of two subscales: exploration and commitment. Items on this scale include “I have spent time trying to find out more about my ethnic group such as its history, traditions, and customs” and “I feel a strong attachment toward my own ethnic group.” Participants use a 5-point Likert scale to rate each item from 1 (strongly disagree) to 5 (strongly agree). To score the MEIM-R, the six items are summed. Higher scores indicate stronger exploration of and commitment to the group identity. In the current study, items had a Cronbach’s alpha of $\alpha = .78$.

Attitudes Toward Ladino Persons of Guatemala (ALG). This 14-item questionnaire measures attitudes toward Ladinos (Gibbons & Ashdown, 2010). Items on this scale include “When I see Ladinos in the street, I think bad things about them” and “In general, Ladinos are well-educated.” Participants rated how much they agreed with each statement on a 4-point Likert-type scale from 1 (strongly agree) to 4 (strongly disagree). Relevant items were reverse-scored and then all items were averaged to create a mean score. Higher scores indicate more positive attitudes toward Ladinos. Items had a Cronbach’s alpha of $\alpha = .78$.

Attitudes Toward Indigenous Persons of Guatemala (AIG). This 22-item questionnaire measures attitudes toward indigenous persons (Gibbons & Ashdown, 2010). Items on this scale include, “Indigenous traditions provide a cultural base for Guatemala” and “In general, indigenous people are careless about their personal hygiene.” Participants rated how much they agreed with each statement on a 4-point Likert-type scale from 1 (strongly agree) to 4 (strongly disagree). Relevant items are reverse-scored and then all items are averaged to create a mean score. Higher scores indicate more positive attitudes toward indigenous persons. Items had a Cronbach’s alpha of $\alpha = .80$.

**Procedure**
The research procedure followed ethical guidelines and was approved by the Hobart & William Smith Colleges IRB (Protocol: 15-34). The Guatemalan University where the research was conducted did not have an IRB, and instead relied on the researchers’ home institution. All APA ethical guidelines were followed, and additional permission from the Guatemalan University was obtained. Potential participants were approached in classrooms at a large public university in Guatemala and invited to participate. Those who agreed were provided a recruitment statement that explained the details of the study. They then completed the anonymous survey packet in their classroom and returned it to one of the researchers. The survey packet took approximately 30 minutes for participants to complete. The ethnic attitudes measures (ALG & AIG) were originally developed in Spanish, and the

<table>
<thead>
<tr>
<th>Scale</th>
<th>Cronbach’s alpha (N = 62)</th>
</tr>
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<tbody>
<tr>
<td>PARQM Total</td>
<td>.94</td>
</tr>
<tr>
<td>PARQM - Warmth</td>
<td>.87</td>
</tr>
<tr>
<td>PARQM - Hostility</td>
<td>.86</td>
</tr>
<tr>
<td>PARQM - Neglect</td>
<td>.78</td>
</tr>
<tr>
<td>PARQM - Undifferentiated</td>
<td>.76</td>
</tr>
<tr>
<td>PARQF Total</td>
<td>.96</td>
</tr>
<tr>
<td>PARQF - Warmth</td>
<td>.95</td>
</tr>
<tr>
<td>PARQF - Hostility</td>
<td>.86</td>
</tr>
<tr>
<td>PARQF - Neglect</td>
<td>.86</td>
</tr>
<tr>
<td>PARQF - Undifferentiated</td>
<td>.79</td>
</tr>
<tr>
<td>PAQ Total</td>
<td>.91</td>
</tr>
<tr>
<td>PAQ - Hostility</td>
<td>.73</td>
</tr>
<tr>
<td>PAQ - Dependence</td>
<td>.82</td>
</tr>
<tr>
<td>PAQ - Neg. Self-Esteem</td>
<td>.73</td>
</tr>
<tr>
<td>PAQ - Neg. Self-Adequacy</td>
<td>.81</td>
</tr>
<tr>
<td>PAQ - Emotional Unresponsiveness</td>
<td>.79</td>
</tr>
<tr>
<td>PAQ - Emotional Instability</td>
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</tr>
<tr>
<td>PAQ - Neg. Worldview</td>
<td>.86</td>
</tr>
<tr>
<td>Attitudes Toward Indigenous Latinos</td>
<td>.80</td>
</tr>
<tr>
<td>Attitudes Toward Indigenous Guatemalians</td>
<td>.78</td>
</tr>
<tr>
<td>Multi-Ethnic Identity Measure-Revised</td>
<td>.78</td>
</tr>
</tbody>
</table>

*Note. PAQ = Adult Personality Assessment Questionnaire; PARQF = Parental Acceptance-Rejection Questionnaire: Father Short Form; PARQM = Parental Acceptance-Rejection Questionnaire: Mother Short Form.*
remaining measures (PARQ-M, PARQ-F, PAQ, MEIM-R, demographics) were translated into Spanish via a rigorous process involving multiple consultants, all of whom were fluent in Spanish and English.

**Results**

In Table 2, we present the descriptive information (e.g., $M$s, $SD$s, and frequencies) for the study variables. There was a significant difference between the two types of ethnic attitudes, $t(61) = 7.29$, $p < .001$, with a paired-sample t test indicating that participants had significantly more positive attitudes toward indigenous Guatemalans ($M = 3.22$, $SD = 0.29$) than toward Ladino Guatemalans ($M = 2.81$, $SD = 0.38$). This difference had a large effect size (Cohen’s $d$) of .93.

**Reliability and Convergent Validity of IPARTTheory Measures**

The first purpose of the present research was to explore the reliability and convergent validity of IPARTTheory measures (PARQF, PARQM, PAQ) among a Guatemalan sample. We hypothesized that the IPARTTheory measures would demonstrate acceptable reliability via strong Cronbach’s alphas. The Cronbach’s alphas for PARQF, PARQM, and PAQ ranged from .91 to .96, and the subscale alphas for these measures ranged from .69 to .95, all within an acceptable range. See Table 1 for each scale’s (and subscale’s) Cronbach’s alpha.

To explore the convergent validity of IPARTTheory measures in our study, we hypothesized that the scales and subscales of the IPARTTheory measures of parental acceptance and rejection would correlate in expected directions. The intercorrelations among the PARQM and PARQF (and their subscales) were in the expected direction. See Table 3 for the correlations among the PARQM and PARQF subscales. As can be seen in Table 3, the sum score of the PARQM significantly correlated with each of the measure’s subscales, and the sum score of the PARQF significantly correlated with each of its subscales. In addition, each subscale within each measure significantly correlated with

<table>
<thead>
<tr>
<th>Scale</th>
<th>$M$</th>
<th>$SD$</th>
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<tbody>
<tr>
<td>PARQF Total</td>
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<tr>
<td>PARQF - Warmth</td>
<td>11.90</td>
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<tr>
<td>PARQF - Hostility</td>
<td>8.68</td>
<td>3.43</td>
</tr>
<tr>
<td>PARQF - Neglect</td>
<td>10.55</td>
<td>3.83</td>
</tr>
<tr>
<td>PARQF - Undifferentiated</td>
<td>5.24</td>
<td>2.33</td>
</tr>
<tr>
<td>PARQF Total</td>
<td>42.08</td>
<td>15.64</td>
</tr>
<tr>
<td>PARQM Total</td>
<td>24.76</td>
<td>2.76</td>
</tr>
<tr>
<td>PAQ Total</td>
<td>124.32</td>
<td>24.05</td>
</tr>
<tr>
<td>PAQ - Hostility</td>
<td>16.90</td>
<td>4.05</td>
</tr>
<tr>
<td>PAQ - Dependence</td>
<td>24.76</td>
<td>4.93</td>
</tr>
<tr>
<td>PAQ - Neg. Self-Esteem</td>
<td>16.25</td>
<td>5.44</td>
</tr>
<tr>
<td>PAQ - Neg. Self-Adequacy</td>
<td>12.65</td>
<td>3.94</td>
</tr>
<tr>
<td>PAQ - Emotional Unresponsiveness</td>
<td>26.06</td>
<td>4.25</td>
</tr>
<tr>
<td>PAQ - Emotional Unstability</td>
<td>14.34</td>
<td>4.91</td>
</tr>
<tr>
<td>Attitudes Toward Indigenous Persons of Guatemala</td>
<td>3.22</td>
<td>2.09</td>
</tr>
<tr>
<td>Attitudes Toward Ladino Persons of Guatemala</td>
<td>2.81</td>
<td>0.38</td>
</tr>
<tr>
<td>Multi-Ethnic Identity Measure-Revised (MEIM-R)</td>
<td>3.57</td>
<td>0.81</td>
</tr>
</tbody>
</table>

Note. PAQ = Adult Personality Assessment Questionnaire; PARQF = Parental Acceptance-Rejection Questionnaire: Father Short Form; PARQM = Parental Acceptance-Rejection Questionnaire: Mother Short Form. Higher scores on the PAQ, PARQF, and PARQM indicate more rejection as measured by each subscale; Higher scores on the attitude measures indicate more positive attitudes toward the respective ethnic groups; Higher scores on the MEIM-R indicate stronger ethnic group identification.
every other subscale in that measure, as expected. Interestingly, the warmth/affection subscale of the PARQM correlated with the PARQF sum score \( (r = .31, p = .02) \), the warmth/affection subscale of the PARQF \( (r = .34, p = .01) \), and the indifferent/neglect subscale of the PARQF \( (r = .27, p = .08) \). In other words, less maternal warmth/affection correlated with less paternal warmth/affection, greater paternal indifference, and greater overall paternal rejection. Finally, the PARQM indifferent/neglect subscale correlated with the PARQF sum scale \( (r = .29, p = .03) \), the PARQF warmth/affection subscale \( (r = .28, p = .03) \), and the PARQF indifferent/neglect subscale \( (r = .31, p = .01) \). This indicates that greater maternal indifference or neglect is related to greater paternal indifference/neglect, less paternal warmth, and greater overall paternal rejection.

To further explore the convergent validity of IPARTTheory measures in our study, we hypothesized that parental acceptance-rejection would correlate with measures of psychological adjustment through the PAQ. Specifically, that higher perceived parental rejection would correlate with more psychological maladjustment. The correlations between the PARQF, PARQM, and PAQ (and subscales) are presented in Tables 4 and 5. As expected, PAQ sum scores were significantly correlated with the PARQM \( (r = .41, p = .001) \) and PARQF \( (r = .35, p = .01) \) sum scores, indicating that greater perceived maternal and paternal rejection were related to greater psychological maladjustment. The PAQ sum scores correlated significantly with the PAQ subscales and with all of the PARQ subscales as well as two of the four PARQ subscales, as suggested by IPARTTheory.

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PARQ - Mother</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>2. Warmth/Affection-Mother</td>
<td>.91***</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
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<td>–</td>
</tr>
<tr>
<td>3. Hostility/Agression-Mother</td>
<td>.86***</td>
<td>.65***</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>4. Indifferent/Neglect-Mother</td>
<td>.92***</td>
<td>.83***</td>
<td>.67***</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>5. Undifferentiated-Mother</td>
<td>.81***</td>
<td>.61***</td>
<td>.75***</td>
<td>.64***</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
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<td>–</td>
</tr>
<tr>
<td>6. PARQ - Father</td>
<td>.25</td>
<td>.31*</td>
<td>.13</td>
<td>.29</td>
<td>.09</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>7. Warmth/Affection-Father</td>
<td>.24</td>
<td>.34*</td>
<td>.12</td>
<td>.28</td>
<td>.02</td>
<td>.92***</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>8. Hostility/Agression-Father</td>
<td>.18</td>
<td>.20</td>
<td>.15</td>
<td>.14</td>
<td>.13</td>
<td>.79***</td>
<td>.56***</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>9. Indifferent/Neglect-Father</td>
<td>.23</td>
<td>.27*</td>
<td>.10</td>
<td>.31</td>
<td>.06</td>
<td>.90***</td>
<td>.82***</td>
<td>.56***</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>10. Undifferentiated-Father</td>
<td>.20</td>
<td>.20</td>
<td>.08</td>
<td>.23</td>
<td>.17</td>
<td>.83***</td>
<td>.64***</td>
<td>.75***</td>
<td>.66***</td>
<td>–</td>
</tr>
</tbody>
</table>

Note: PARQF = Parental Acceptance-Rejection Questionnaire: Father Short Form; PARQM = Parental Acceptance-Rejection Questionnaire: Mother Short Form. \( p < .05 \); \( ** p < .01 \); \( *** p < .001 \).
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### IPARTheory and Measures and Attitudes of Ethnicity

The second purpose of our research was to determine if scores on the IPARTheory measures (PARQF, PARQM, PAQ) correlated with measures and attitudes of ethnicity (attitudes toward indigenous and Ladino Guatemalan groups and ethnic identification). Interestingly, only PARQF scores correlated with attitudes toward Ladinos ($r = -.34, p = .01$), suggesting that more overall perceived parental rejection was related to less positive attitudes toward Ladinos. Attitudes toward Ladinos were also correlated with PAQ scores ($r = -.33, p = .01$), indicating that more psychological maladjustment was related to less positive attitudes toward Ladinos. All of these correlations suggest that individuals who experienced more rejection from their fathers (but not mothers) had less positive attitudes toward Ladinos. In terms of ethnic identification, attitudes toward indigenous Guatemalans were correlated with MEIM-R scores ($r = .26, p = .05$). Findings indicated that people with a stronger ethnic group identification, regardless of which ethnicity they claimed, felt more positively toward indigenous Maya people. Additionally, MEIM-R scores also correlated with paternal warmth ($r = -.26, p = .04$), meaning that those with a stronger ethnic group identification remembered more perceived affection from their fathers.

### Parental Acceptance-Rejection and Attitudes Toward Indigenous Maya People

In terms of attitudes toward indigenous Maya people, we hypothesized that greater perceived parental rejection would be correlated with more negative attitudes toward indigenous people, regardless of participants’ own ethnicities. Perceived parental rejection (maternal and paternal) did not significantly correlate with attitudes towards indigenous Maya people. However, one subscale of paternal acceptance-rejection, hostility/aggression, did significantly correlate with attitudes towards indigenous Maya people ($r = .27, p = .03$). However, this suggests that those who perceived their mother as more hostile and aggressive actually had more positive attitudes towards indigenous Maya people.

### Parental Acceptance-Rejection and Ethnic Identification

Some of the most interesting correlations were between ethnic identity, as measured by the line test, and some of the IPARTheory measures. Participants who claimed more Ladino heritage perceived less paternal neglect ($r = -.26, p = .04$), less negative self-esteem ($r = -.41, p = .001$), less negative self-adequacy ($r = -.35, p = .01$), less overall maternal rejection ($r = -.33, p = .01$), more maternal warmth ($r = -.36, p = .004$), less maternal hostility ($r = -.29, p = .03$), and less maternal neglect ($r = -.31, p = .01$) than those that claimed more Indigenous heritage. These correlations can also be found in Tables 4 and 5.

### Discussion

#### Cross-Cultural Generalizability of IPARTheory in Guatemala

In accordance with our first hypothesis, we found that all of the IPARTheory measures (PARQF, PARQM, PAQ) demonstrated acceptable reliability via strong Cronbach’s alpha coefficients. This indicates the internal consistency of these measures among the Guatemalan sample. Additionally, the sum scores of the PARQ significantly correlated with each of the measure’s subscales for both the father and mother versions in the direction posited by IPARTheory. The PAQ sum scores correlated significantly with the PAQ subscales, the PARQM subscales, and two of the four PARQF subscales. PAQ scores did not correlate with the PARQF hostility/aggression subscale and PARQF undifferentiated rejection subscale.

The correlations in the present study are evidence that these IPARTheory measurements are reliable and valid and can be utilized among a Guatemalan population. Our findings were consistent with past research that has cited that children everywhere tend to suffer psychological consequences from parental rejection (Rohner & Khaleque, 2002). This relationship between higher levels of perceived rejection from parents and more psychological maladjustment has been validated in a variety of different countries, ethnicities, and age groups, and now in Guatemala (Adumitroaie & Dafinoiu, 2013; Khaleque & Rohner, 2002; Lila et al., 2007; Rohner & Britner, 2002).

For example, some research has suggested that Latino fathers’ main roles are as the authoritarian and disciplinarian (Engle & Breaux, 1998). If this pattern holds true for Guatemalan fathers, the lack of a relationship between the PAQ and the paternal undifferentiated subscale could be due to the cultural norm of fathers not being as involved in daily nurturance-based parenting. This could normalize undifferentiated rejection, making it effectively unrelated to psychological...
maladjustment. Our findings contributed to the growing literature supporting the cross-cultural generalizability of IPARTheory.

Ethnicity and Ethnic Attitudes

Before examining the relationship between ethnic attitudes and parental acceptance-rejection, we examined the initial relationship between ethnic attitudes and ethnicity. Overall, we found significantly more positive attitudes toward indigenous people than toward Ladinos. However, participants’ ethnicity correlated with their attitudes, such that participants who claimed greater Ladino heritage had less positive attitudes toward indigenous people. This is in accordance with SIT, which states that individuals’ attitudes and opinions are influenced by their group membership and they tend to view their own group more favorably (Tajfel & Turner, 1986).

It is possible that our finding, that attitudes toward indigenous people were generally more positive than attitudes toward Ladinos, occurred because of socially desirable responding (SDR). SDR refers to the tendency to give positive descriptions of the self (Paulhus, 1991) and respond in a way that makes the self appear better to others (Holtgraves, 2004). It is possible that participants were particularly conscious of the questions being asked because they related to ethnic and racial issues, and wanted to portray themselves in a more progressive, positive light. It is also possible that Guatemalan college students may be more politically liberal and social justice oriented. This could also potentially account for the general positive attitudes toward indigenous Maya people. Future research exploring the link between IPARTheory and ethnic attitudes should employ a method to control for socially desirable responding and a measure of liberal and social justice attitudes.

Parental Acceptance-Rejection and Ethnic Attitudes

Due to Guatemala’s unique ethnic and cultural contexts, we examined how attitudes toward indigenous people and Ladinos might be related to participants’ perceived acceptance and/or rejection from their parents. When examining the relationship between parental acceptance-rejection and ethnic attitudes, we found differential findings. Specifically, individuals who experienced more rejection from their fathers also had less positive attitudes toward Ladinos. In general, there is a relative lack of literature linking parental acceptance-rejection and ethnic attitudes. Demetriou (2013) found that, in Cyprus, xenophobia, or an intense and irrational dislike of people from other countries and groups correlated with greater perceived parental rejection. On the other hand, paternal warmth has been linked to less positive attitudes toward Muslims, an out-group (Brayko, 2011). Demetriou (2013), Brayko (2011), and the current research suggested a link, still unclear, between ethnic attitudes and parental acceptance-rejection, warranting further research.

It is particularly interesting that the link between ethnic attitudes and parental acceptance-rejection occurred only with paternal rejection. Previous research has demonstrated that maternal and paternal behaviors have different outcomes (Duncan & Hughes, 2011). This does not seem to be the case in our study. Perhaps the relationships among these variables become muddled in a Guatemalan society where ethnicity correlated with more positive attitudes toward the minority group (i.e., indigenous Guatemalans). The current research suggested a link, still unclear, between ethnic attitudes and parental acceptance-rejection, warranting further research.

Further, when a subscale of parental acceptance-rejection was examined, it was found that participants who perceived more hostility and aggression from their parents had more positive attitudes toward indigenous Maya people. Past research has suggested that children who are raised by rejecting, neglectful, or abusive parents are more likely to have prejudiced attitudes and higher SDO (Duckitt, 2001). This does not seem to be the case in our study. Although we did not measure SDO, we found that higher levels of parental hostility and aggression correlated with more positive attitudes toward the minority group (i.e., indigenous Guatemalans). Perhaps the relationships among these variables becomes muddled in a Guatemalan society where ethnic fluidity is possible and individuals are able to effectively “switch” their ethnicity with relative ease. Alternatively, as discussed above, perhaps participants who perceived more hostility and aggression from their parents felt an empathic connection to indigenous Maya people, themselves often treated with hostility and aggression (PNUD, 2005).

Psychological Adjustment and Ethnic Attitudes

We also found that individuals who experienced
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more psychological maladjustment had less positive attitudes toward Ladinos. This could be a direct result of Guatemala’s ethnic makeup. Indigenous Guatemalans tend to be the targets of discrimination despite being the numerical majority ethnic group (PNUD, 2005). Ladinos, the other ethnic group represented in Guatemala, are usually responsible for this discrimination (PNUD, 2005). Some past research has shown that being a target of prejudice and discrimination has a large negative impact on an individuals’ mental health and well-being (Bostwick, Boyd, Hughes, West, & McCabe, 2014; Merle, Liu, & Helms, 2012; Schmitt, Bramcombe, Postmes, & Garcia, 2014). It is plausible that participants in our study who experienced more psychological maladjustment believed that indigenous Maya people suffer from similar psychological maladjustment. Consequently, those who experienced more psychological maladjustment might identify more with indigenous Maya people. In turn, this could possibly result in individuals with higher psychological maladjustment having less positive attitudes toward Ladinos.

Psychological Adjustment and Parental Acceptance Rejection in Ladinos

Finally, a variety of correlations surrounding Ladinos’ psychological adjustment and parental acceptance-rejection were evident in the data. Specifically, participants who claimed more Ladino heritage perceived less paternal neglect, less negative self-esteem, less negative self-adequacy, less overall maternal rejection, more maternal warmth, and less maternal hostility and neglect. Once again, the MEIM-R was used to measure ethnic identification and the degree to which participants perceived themselves as belonging to their ethnic group. One explanation for Ladinos reporting less neglect could possibly relate to socioeconomic status. Rohner defined neglect by the “physical and psychological unavailability of the parent” (Rohner & Rising, 2006, p. 2). The physical presence of the parent may relate to socioeconomic status because poorer parents may not be able to be such a presence in their children’s lives because they need to focus on working to put food on the table. One report from Guatemala states that about 80% of indigenous Maya people live in poverty compared to only 45% of nonindigenous Guatemalans (PNUD, 2005). Put simply, Ladinos tend to be of higher socioeconomic status, and this could lead to them being more physically present for their children. Thus, this could lead to Ladinos reporting lower levels of neglect.

The relationships between Ladino ethnicity and some of the IPARTTheory measures may also reflect the protective benefits of being a member of the privileged group in a society. With this privilege might come more wealth and stability. This could allow parents more time and energy to demonstrate warmth and acceptance to their children. Because Ladinos are not the main targets of discrimination in Guatemala (PNUD, 2005), they may also perceive less overall rejection by society. It is possible that individuals who identified with Ladino heritage overgeneralized this feeling of being accepted by society to the current survey, resulting in perceiving less maternal rejection, less maternal hostility, and more maternal warmth. However, this explanation cannot account for why this pattern did not occur for perceptions of paternal warmth, rejection, and hostility. Further research should be conducted to attempt to decipher why this phenomenon occurred.

In terms of the psychological components, participants who claimed more Ladino heritage reported less negative self-esteem and self-adequacy. As mentioned before, Ladinos, being the majority power group in Guatemala experience less discrimination than indigenous Guatemalans (PNUD, 2005). Past research studies have suggested that discrimination is negatively related to psychological well-being and that discrimination can even predict future well-being (Schmitt et al., 2014). Therefore, it is possible that Ladinos in our study reported less negative self-esteem and self-adequacy than their indigenous counterparts because they did not experience as much discrimination that could undermine their psychological well-being.

Limitations

There were some limitations to this study. Namely, the sample was mostly female college students in Guatemala. Access to a university education in Guatemala is a privilege and therefore most of our sample was middle to upper class students. This could have a differential effect on our data, and in the future, it would be beneficial to find a way to survey and access a wide range of social classes. Also, most of the sample marked themselves above the midline of the ethnicity measure, indicating Ladino or mixed heritage. Because we were looking to observe ethnic attitudes, it was a limitation that our sample did not include as many self-identified indigenous Guatemalans. Additionally, the questionnaires used in the current study did not include...
measures that controlled for socially desirable responding. As stated previously, it is important to consider how responding in a favorable light may alter the accuracy of the data. Therefore, additional measures designed to account for these test taking attitudes are warranted. Finally, our sample size was small. Although our data provided evidence that there are interesting links to explore between parental acceptance-rejection and ethnic attitudes, the small sample size should lead to caution in interpretation of the results. The small sample size also limited our ability to use more sophisticated statistical analyses, such as factor analysis. This study, however, provided preliminary and promising testimony for future work with larger samples in diverse cultures.

Conclusion

This study provided a crucial first step in establishing strong reliability via Cronbach’s alphas for the PARQ measures and the PAQ in another Latin American context, and strong convergent validity by correlating the IPART Theory measures with measures of ethnic prejudice. By extending the reliability and convergent validity of the PARQ and the PAQ to Guatemala, there is even more support for the cross-cultural generalizability of these measures. Further research should extend the reliability and convergent validity of the measures in other Latin American countries in culturally appropriate ways. Now that perceived parental acceptance-rejection and psychological maladjustment can be reliably measured in Guatemala, researchers can explore connections between the PARQ and PAQ and other constructs among people in Guatemala such as we did here with ethnic attitudes.

Ultimately, the current research has important implications for understanding ethnic relations in Guatemala by establishing a relationship between some measures of ethnic prejudice and parental acceptance-rejection, as well as contributing to the growing research on the importance of parenting practices in general. Past research has linked parental rejection with xenophobia (Demetriou, 2013) and aggressive behavior (Casselman & McKenzie, 2015), and this study pointed to a link between paternal rejection and less positive attitudes toward the majority group. Work that seeks to explain the foundations of ethnic attitudes and biases, and that can attempt to provide solutions to these complex problems, is extremely important in a world that suffers from these challenges on a daily basis. Our exploration of the impact of parental acceptance-rejection on ethnic attitudes in Guatemala provided an important point from which future research can embark, not only in Guatemala but other parts of the world where ethnic prejudice is a significant challenge.

References


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