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Evolution is Not Relevant to Sex Differences in Humans Because I Want it That Way! Evidence for the Politicization of Human Evolutionary Psychology

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ABSTRACT

This research explored political motivations underlying resistance to evolutionary psychology. Data were collected from 268 adults who varied in terms of academic employment and parental status. Dependent variables represented whether participants believed that several attributes are primarily the result of biological evolution versus socialization. Variables addressed attitudes about: (a) sex differences in adults, (b) sex differences in children, (c) sex differences in chickens, (d) human universals, and (e) differences between dogs and cats. Using a Likert-scale, participants were asked to rate the degree to which they believed items were due to "nature" versus "nurture." For instance, one of the items from the cat/dog subscale was "Dogs are more pack-oriented than cats." Independent variables included political orientation, parental status, and academic employment status. Political liberalism corresponded to endorsing "nurture" as influential - but primarily for the two human sex-difference variables. Academic employment status was independently predictive of the belief that sex differences are the result of "nurture." This effect was exacerbated for academics who came from sociology or women's studies backgrounds. The effect of academic employment status also corresponded to seeing behavioral differences between roosters and hens as caused by "nurture." Further, parents were more likely than non-parents to endorse "nature" for the sex-difference variables. Beliefs about differences between cats and dogs and beliefs about causes of human universals (that are not tied to sex differences) were not related to these independent variables, suggesting that the political resistance to evolutionary psychology is specifically targeted at work on sex differences.

KEYWORDS

Sex differences, Blank Slate, evolution and higher education, Lionel Tiger, Evolutionary Psychology, Evolutionary Studies

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INTRODUCTION

By this point, it is clear that a battle is raging regarding the politics of evolutionary psychology. This battle, documented by various scholars (e.g., Pinker, 2002; Tybur, Gangestad, & Miller, 2007), generally exists within the confines of academia. However, in light of recent popular accounts of the purported political underpinnings of evolutionary psychology (e.g., Begley, 2009), this battle is now moving across a broader landscape and is seeping into the fabric of modern western cultures.

For reasons to be delineated below, we believe that the notion of biologically evolved behavioral sex differences in humans resides at the core of this controversy – suggesting, perhaps, that there is not really a controversy about evolutionary psychology but, rather, a controversy about the idea that men and women evolved via organic evolutionary forces to engage in differentiated behavioral patterns. While other controversies regarding evolutionary psychology certainly have been documented (see Hagen, 2005), the current research suggests that the primary issue here pertains to the notion of evolved sex differences.

Recent Historical Context

This research was motivated by a specific recent event on the campus at SUNY New Paltz that we consider relevant in understanding this research. In short, our campus recently started an interdisciplinary Evolutionary Studies (EvoS) program – with a speaker series as a core element of the program. Our first invited speaker was the Charles Darwin Professor of Anthropology at Rutgers – Lionel Tiger – who was set to visit our campus in early 2008. In some of his writing, he explicitly argues against the fields of Women's Studies and Sociology. Further, he argues that modern societal structures, including colleges and universities in the United States, which accept a higher proportion of female than male students, are biased against males (Tiger, 2000). On a relatively liberal college campus such as SUNY New Paltz, it seemed that there might be some resistance to Dr. Tiger's visit.

As part of his visit, Dr. Tiger agreed to give an informal talk on the evolution of behavioral sex differences – designed as a small event before his public lecture on Darwin's work. This "relatively small" event apparently got a lot of attention – well over 100 people packed the small room where the event took place. Something of a small protest, organized largely by faculty, transpired. Accordingly, the event was contentious and even somewhat unpleasant.

In an interesting bit of fallout of this event, Paul Brooks (2008) published an article about the event in a regional newspaper, *The Times Herald Record*. Mr. Brooks did a fine job of summarizing the event and its elements. However, what we found of particular interest corresponds to the reader website postings (which have recently been taken off the web by the publisher as part of a software migration issue[1]). Of 17 postings submitted by members of the general public, not a single posting supported the perspective of the individuals who protested Tiger's talk.

[1] Times Herald Record reader postings regarding Paul Brooks' (2008) article are available on the first author's website at the following URL: http://www.newpaltz.edu/~geherg/tiger_reaction.htm

Interestingly, people who submitted comments regarding Brooks' (2008) news story, in fact, tended to support Tiger's ideas regarding an anti-male bias that exists in American schools. A particularly provocative exemplar is found in this posting:

> I'm not sure what the true controversy here is but I do believe that schools have been skewed in favor of girls for years now and we do need to take a look at how we are educating boys---it can't be the right answer to accept that boys are more prone to ADD and we need to drug them up in order to educate them. I have not read the book (*The Decline of Males*; Tiger, 2000) but from the title I would bet this guy has some very valid points …… Colleges should not be afraid to discuss this because as a woman and the mother of both a male and a female I think it is an important issue.

A few points about this comment are noteworthy. First, the author is a woman – suggesting that attitudes about the issues at hand need not divide across gender lines. Further, the author is a parent of both a male and a female. This kind of real-world experience may well be crucial in shaping an understanding of the development of sex roles. Also, the author of this post makes no claims to be an academic, and she seems a bit confused by the nature of the controversy, writing "I'm not sure what the true controversy is here …" and "Colleges should not be afraid to discuss this …" Finally, we think it is worth noting that this author sounds reasonable and does not, to our reading, come across as particularly political.

These features of this author raise several interesting points about the politics of evolutionary psychology. Resistance to evolutionary psychology has primarily been championed by academics (see Geher, 2006). One interesting demographic feature of academics is that they are much less likely to have children compared with the population at large (Wolfinger & Mason, 2008) and are, in fact, less likely to have children compared with individuals in other careers that require advanced degrees, such as physicians and lawyers. Further, parents, compared to non-parents, are more likely to see children in a gendered manner, perhaps, thereby, being less likely to see malleability in the social behavior of boys versus girls (Witt, 1997).

So with the situation on campus, now known in the ethos of the New Paltz community as the "Tiger Incident," the resistance to Tiger's perspective may well have been something of an Ivory Tower effect.

The Current Study

When it comes to accepting the idea of natural (evolved) behavioral sex difference between males and females in our species, are there important effects of (a) political orientation, (b) status as an employed academic, and (c) status as a parent?

Answering these questions could go a long way toward addressing important factors that underlie the resistance to evolutionary psychology generally and toward understanding the Tiger Incident more specifically.

To examine these questions, we created five classes of dependent attitudinal variables, as follows:

1. Attitudes about whether human behavioral sex differences in adults are shaped by biological evolution (nature) versus socialization (nurture),
2. Attitudes about whether human behavioral sex differences in children are shaped by biological evolution (nature) versus socialization (nurture),
3. Attitudes about whether behavioral sex differences in chickens (between hens and roosters) are shaped by biological evolution (nature) versus socialization (nurture),
4. Attitudes about whether human universals that are not related to sex differences are shaped by biological evolution (nature) versus socialization (nurture), and
5. Attitudes about whether behavioral differences between dogs and cats are shaped by biological evolution (nature) versus socialization (nurture).

This set of dependent variables allowed for an examination of attitudes about sex differences tied to humans, attitudes about sex differences in a non-human species, attitudes about evolved behavioral tendencies in humans that are not related to sex differences, and attitudes about behavioral differences between species. This broad set of variables should allow for an assessment of whether attitudes about "nature" versus "nurture" are general - as they relate to political orientation, academic employment status, and parental status – or if these attitudes are context-specific. Importantly, nature/nurture makes for an inappropriate dichotomy in many cases, given that most complex anatomical structures and behavioral patterns emerge by the complex interactions of these forces. However, to measure attitudes about causes of the phenomena studied here with a largely lay audience, framing items in terms of "nature" versus "nurture" allowed for clarity in the process of providing data.

Specific hypotheses are as follows:

1. Across participants, there will be a tendency to rate animal examples (behavioral differences between cats and dogs and sex differences in chickens) as (relatively) due to biological factors.
2. In judgments of three human-related dependent variables, we predict a tendency for participants to generally rate causes of behaviors as less "biological" than in the animal variables.
3. We predict that having children will correspond to a greater tendency to attribute causes of sex differences in children to "nature."
4. Having children should also correspond to a greater tendency to attribute causes of sex differences in adults to "nature."
5. Being an academic should correspond to a greater tendency to attribute causes of sex differences in children and adults to "nurture."
6. Being an academic in the field of sociology and women's studies (fields known for their strong political angles) should particularly correspond to a greater tendency to attribute causes of sex differences in children and adults to "nurture."

METHODS

A survey with Likert-scale items designed to tap attitudes about whether different outcomes were likely due to nature versus nurture was administered to participants using surveymonkey.com online survey software. The URL for the survey was distributed to lists of adults in many different contexts – including faculty with email addresses posted on academic websites, listservs from parenting websites, listservs from church websites, and Facebook groups regarding several classes of interests. Our primary goal in sampling was to make sure that we had a broad and representative sample of adults. Further, we sought to (a) ensure that we had a sufficient number of academics (so we could test hypotheses comparing academics with non-academics) and (b) a sufficient number of parents (so we could test hypotheses comparing parents with non-parents). A variety of email-spamming techniques was employed by members of our research team.

Participants

268 total participants started the survey (subsets of this total sample completed different subsections). The sample included 92 males and 176 females. The mean age was 36.77 (*SD* = 13.46); the range was 18-78. Of those reporting parental status, 111 were parents and 160 were not[2]. Of the individuals who reported their career status, 182 were not academics and 89 were academics. Of this group of reported academics, 19 reported being faculty of either Sociology or Women's Studies and 66 did not (reports of four academics were not able to be classified accordingly). On average, participants showed a tendency toward political liberalism, with a mean of 2.19 (*SD* = .42) across participants with scores on a 1 (very liberal) to 5 (very conservative) scale. The actual numbers for each survey are slightly lowered due to attrition – most scales were completed by approximately 171 participants (see Tables 1-4).

Measure and Procedure

A measure of attitudes about nature versus nurture was created. Five 10-item subscales were created. For each item, participants were faced with a five-point scale with 1 corresponding to "Definitely mostly due to nature (biology)" and 5 corresponding to "Definitely mostly due to nurture (environment)." These simple labels were used to make the task most clear to the broadest number of participants. Instructions given to participants were as follows:

> For the following items, we are interested in people's estimates regarding whether differences between males and females (that have either been documented by social scientists or that fit current

[2]Note that we collected nuanced data on parental status, asking, for instance, number of biological daughters, number of biological sons, number of step daughters, etc. However, with a total of 111 individuals reporting parental status at all, it was not statistically feasible to divide these individuals into discrete subgroups. Further, preliminary analyses that did attempt to break parents into subgroups revealed no differences on the dependent variables across subgroups. As such, parents of all varieties were collapsed into this single category.

stereotypes in our society) are primarily due to "nature" (e.g., genes, biological influences, etc.) versus "nurture" (e.g., environmental upbringing, social influences, media exposure, etc.).

As mentioned in the introduction, five subscales were created. The essential concept underlying each scale, along with a sample item, are as follows:

1. Attitudes about whether human behavioral sex differences in adults are shaped by biological evolution (nature) versus socialization (nurture).
    - Sample item: *Women are more responsive than men to the cries of infants.*
2. Attitudes about whether human behavioral sex differences in children are shaped by biological evolution (nature) versus socialization (nurture).
    - Sample item: *Girls develop language skills earlier than boys.*
3. Attitudes about whether behavioral sex differences in chickens (between hens and roosters) are shaped by biological evolution (nature) versus socialization (nurture).
    - Sample item: *Roosters seem to prefer copulating with more than one hen while hens don't seem to mind copulating with a single rooster.*
4. Attitudes about whether human universals that are not related to sex differences are shaped by biological evolution (nature) versus socialization (nurture).
    - Sample item: *Feces and vomit are found to be universally disgusting among humans.*
5. Attitudes about whether behavioral differences between dogs and cats are shaped by biological evolution (nature) versus socialization (nurture).
    - Sample item: *Dogs are more pack-oriented than cats.*

See the appendix for each of the 50 items along with information on the a priori subscale to which each corresponds.

Participants also reported on variables pertaining to parental status (including how many biological daughters, biological sons, step-daughters, and step-sons they had). They also were asked to report their career using an open-ended item. Participants who reported that they were academics / college professors were asked to write the academic department / field with which they primarily affiliated. Participants also completed a simple measure of political orientation on a 1 (very liberal) to 5 (very conservative) scale.

After the measures and procedures were approved by our on-campus IRB, members of our research team sent the link for the survey to listservs and groups including adults representing various domains, with an attempt to be as representative of the broader population as possible. As mentioned prior, groups that included academics and parents were particularly targeted in our team's mass emailings, as these groups pertained to primary hypotheses in the research.

RESULTS

Five continuous dependent variables were created to tap attitudes about (a) behavioral differences between roosters and hens, (b) behavioral differences between cats and dogs, (c) behavioral differences between boys and girls, (d) behavioral differences between men and women, and (e) the causes of human universal behavioral patterns. These 10-item subscales (each on a five-point Likert scale) demonstrated very high internal reliabilities, with Cronbach's alphas being . 88, .88, .87, .90, .84 (respectively).

Factor Analysis, Scale Reliability, and Intercorrelations among Subscales

While these alphas suggest that the scales have sufficient internal reliability for higher-order analyses, a principal-axis factor analysis using varimax rotation was next employed on all 50 items to examine the details of the factor structure. An obvious general factor emerged as the first factor extracted, explaining 31.77% of the variability in the data and including a sizeable and positive loading for each of the 50 items. Beyond this general factor, three other factors seemed somewhat interpretable in light of the factor loadings. These factors seem to represent items connected to (a) physical traits that are sex-differentiated in chickens – with an example item (loading of .34): "Roosters typically have more elaborate plumage than hens," (b) behavioral traits that are sex-differentiated in chickens – with an example item (loading of .60): "Roosters tend to be protective of hens (while hens do not show such protective behavior toward roosters)," and (c) universal features of human psychology – with an example item (loading of .36): "Feces and vomit are found to be universally disgusting among humans." These factors account for 10.40%, 4.69%, and 4.25% of the variability in the data respectively.

In light of the strong general factor that emerged from this factor analysis, it makes sense that the a priori subscales would be strongly intercorrelated – and this is exactly what we found (see Table 1). These correlations range from $r(179) = .44$ ($p < .05$) between (a) attitudes regarding differences between hens and roosters and (b) attitudes about sex differences in human adults to $r(179) = .84$ ($p < .05$) between (a) attitudes about sex differences in children and (b) attitudes about sex differences in adults.

While these intercorrelations and the corresponding factor analysis suggest that the predominant feature of the intercorrelations between these items pertains to a general tendency for the items to tap belief in *nature* versus *nurture* as underlying the nature of organisms, the highly internally reliable nature of the a priori subscales suggests that these subscales can be used as distinct variables for subsequent analyses. (Future research may benefit from following up on the psychometrics implied by the factor analysis here).

Table 1. Intercorrelations among Dependent Variables

Attitudes about …	Differences between Hens and Roosters	Differences between Dogs and Cats	Differences between Boys and Girls	Differences between Men and Women	Human Universals
Differences between Hens and Roosters	--				
Differences between Dogs and Cats	.75* (182)	--			
Differences between Boys and Girls	.48* (181)	.53* (182)	--		
Differences between Men and Women	.44* (179)	.45* (179)	.84* (179)	--	
Human Universals	.50* (180)	.54* (181)	.62* (182)	.66* (178)	--

*$p < .05$; Ns are in parentheses

Correlates of Political Orientation

The primary thesis of this work is that attitudes about the origins of human behavioral sex differences are politically motivated. To test this basic hypothesis, correlations were computed between these five dependent variables and a simple 5-point Likert-scale item of political orientation (with higher scores corresponding to *conservative* and lower scores corresponding to *liberal*). The results (see Table 2) conformed precisely to our predictions – political orientation was significantly correlated with attitudes about the origins of behavioral differences between boys and girls ($r(183) = -.27$, $p < .05$) and attitudes about the origins of behavioral differences between men and women ($r(180) = -.22$, $p < .05$). In each of these two instances, relatively liberal individuals were more likely to endorse *nurture* as the cause of behavioral sex differences. None of these other correlations were significant.

Table 2. Correlations between Political Orientation and Beliefs about Nature/Nurture

	Attitudes about Differences between Hens and Roosters	Attitudes about Differences between Dogs and Cats	Attitudes about Differences between Boys and Girls	Attitudes about Differences between Men and Women	Attitudes about Human Universals
Political Orientation	-.07 (181)	-.08 (182)	-.27* (183)	-.22* (180)	.06 (182)

*$p < .05$; Ns are in parentheses
For Political Orientation, low scores correspond to Liberal, high scores correspond to Conservative; For Attitude Scale, low scores correspond to more belief in *Nature* as causal factor (high scores correspond to *Nurture*)

Effects of Parental and Academic Employment Status

Given the role of political orientation in two of the key dependent variables, political orientation was used as a covariate in subsequent analyses, allowing us to see if the variables of parental and academic employment status significantly related to these dependent variables beyond the effects of political orientation. Five two-by-two ANCOVAs were computed. In each case, parental status (parent or not) and academic employment status (academic or not) were independent variables and one of the five attitude subscales served as the dependent variable, with political orientation as a covariate. For the ANCOVAs addressing attitudes about differences between dogs and cats and attitudes about human universals, no significant effects were obtained for the covariate or for either of the independent variables.

The ANCOVA addressing attitudes about differences between hens and roosters revealed no significant effect for the covariate of political orientation, but significant main effects were obtained for both parental status ($F(1, 176) = 7.20$, $p < .05$; partial eta squared = 4%) and academic employment status ($F(1, 176) = 5.20$, $p < .05$; partial eta squared = 3%). As shown in Table 3, these main effects result from parents' ratings as being closer to *nature* relative to non-parents and academics' ratings being closer to *nurture* than non-academics. No significant interaction between the independent variables was observed.

For the analysis addressing attitudes about sex differences in children, parents' ratings were more likely to reflect *nature* ($F(1, 178) = 4.23$, $p < .05$; partial eta squared = 2%). Interestingly, academic employment status had no significant effect on ratings. However, the effect of political orientation was large and significant ($F(1, 178) = 10.86$, $p < .05$; partial eta squared = 6%).

For the analysis addressing attitudes about sex differences in adults, a converse trend was found, with academic employment status having a significant effect ($F(1, 175) = 5.89$, $p < .05$; partial eta squared = 3%) but parental status having no significant effect. Further, political orientation yielded a significant effect ($F(1, 175) = 5.82$, $p < .05$; partial eta squared = 3%).

Table 3. Means for Attitude Subscales Broken Down by Academic Employment and Parental Status (Controlling for Political Orientation)

	Attitudes about Differences between Hens and Roosters[1,2]	Attitudes about Differences between Dogs and Cats	Attitudes about Differences between Boys and Girls[1,3]	Attitudes about Differences between Men and Women[1,2,3]	Attitudes about Human Universals
Parents	14.14 (4.49) [83]	19.41 (6.27) [83]	25.64 (6.72) [84]	28.51 (7.86) [82]	22.82 (7.02) [84]
Non-Parents	16.32 (5.41) [98]	21.13 (6.97) [99]	27.78 (7.30) [99]	30.23 (8.38) [98]	24.59 (7.53) [98]
Academics	16.26 (6.22) [69]	20.04 (6.59) [70]	28.14 (7.89) [71]	31.59 (9.29) [69]	24.54 (7.52) [70]
Non-Academics	14.74 (4.98) [112]	20.53 (6.79) [112]	25.95 (6.44) [112]	28.12 (7.12) [111]	23.29 (7.20) [112]
Total	15.32 (5.11) [181]	20.34 (6.70) [182]	26.80 (7.10) [183]	29.45 (8.17) [180]	23.77 (7.33) [182]

Scores are on a 5-point Likert scale with lower numbers corresponding to endorsing *nature* and higher numbers corresponding to endorsing *nurture;* Standard Deviations are in parentheses; Ns are in Brackets; [1]ANCOVA revealed significant effect for parental status; [2]ANCOVA revealed significant effect for academic employment status; [3]ANCOVA revealed significant effect of political orientation as a covariate

Effect of Sociology or Women's Studies Affiliation

While the research here was largely designed to tap the attitudes of academics versus non-academics on attitudes, there are particular areas of academia that seem most relevant to the current research. In particular, scholars in the areas of Sociology and Women's Studies are especially known for denying the relevance of biology to an understanding of human nature (see Wilson, 2007; Pinker, 2002). Further, Sociology and Women's Studies are fields that are directly acknowledged by Tiger as politically motivated – and faculty from these fields were particularly interested in protesting his presence on campus during the Tiger Incident at New Paltz. Thus, a new variable was created exclusively among academics. Participants were divided into categories based on whether they reported holding affiliations with Women's Studies or Sociology (or not).

For each of the five dependent variables, independent-means t-tests were computed with "type of academic" as a dichotomous independent variable. For each of the five dependent variables, except for the one pertaining to attitudes about differences between dogs and cats, Women's Studies / Sociology faculty's ratings were significantly biased toward *nurture* relative to the ratings of other academics (see Table 4).

Table 4. Means among Academics Broken down by those Reporting Affiliations with Women's Studies or Sociology versus Other Academics

	Attitudes about Differences between Hens and Roosters*	Attitudes about Differences between Dogs and Cats	Attitudes about Differences between Boys and Girls*	Attitudes about Differences between Men and Women*	Attitudes about Human Universals*
Women's Studies / Sociology	18.33 (5.25)	21.33 (6.77)	32.77 (9.87)	38.08 (8.75)	28.31 (9.23)
Other Academics	15.50 (4.92)	20.13 (6.67)	27.00 (7.02)	29.94 (8.86)	24.34 (9.46)

*The difference between means among the two groups was significant at the $p < .05$ level. For Women's Studies / Sociology faculty, N = 12; for other academics, N = 48; Standard Deviations are in parentheses

DISCUSSION

Overall, this research was designed to examine the degree to which political orientation, parental status, and academic employment status relate to attitudes about the origins of human behavioral sex differences. Importantly, the data essentially suggest that the independent variables (in varying degrees) significantly predict scores on attitudes about sex differences (in both humans and chickens) but *not* about attitudes regarding whether human universals or behavioral differences between cats and dogs are due to nature versus nurture.

Regarding variables that are not linked to sex differences, political orientation, academic employment status, and parental status have essentially zero bearing on attitudes. Thus, being conservative or liberal, an academic or not, or being a parent have essentially no effect on whether people believe that behavioral differences between dogs and cats or human universals (such as smiling to express joy) are the result of organic evolutionary forces. We contend that these null findings are consistent with the idea that the evolutionary scholarship focusing on non-sex-differences (e.g., the universal nature of kin selection in humans) is politically correct and palatable across the demographic groups studied in this research. In fact, these findings suggest that findings from human evolutionary psychology that do not pertain to sex differences are just as non-politicized as are behavioral differences between cats and dogs.

Variables that, on other hand, correspond to attitudes about the origins of sex differences (in humans or otherwise) seem to relate significantly to these predictor variables. Political orientation was strongly related to attitudes about the origins of sex differences in both children and adults; politically liberal individuals are more likely to endorse "nurture" as a cause of such origins. Beyond the effect of political orientation, being a parent seemed to predispose an individual to think that boys and girls are different by nature – while being an academic seemed to predispose one to think that men and women are different due to nurture. These findings provide evidence for the Ivory Tower effect of attitudes about the origins of sex differences included in the introduction. In other words, being an academic seems to predispose one to deny the influence of biological forces in behavioral sex

differences. Further, the findings regarding attitudes about sex differences in children provide evidence that actually being a parent has an effect on attitudes about the origins of boy/girl differences.

The findings regarding attitudes about the origins of differences between hens and roosters are particularly intriguing. While political orientation does not significantly predict this variable, parental status and academic employment status do. Parents and non-academics are more likely than others to think that hens and roosters differ by nature.

Women's Studies and Sociology

Given the strong relevance of the issues studied here to scholars in the fields of women's studies and sociology, we thought it would be useful to examine the attitudes of scholars from these fields separately to compare these attitudes with academics from other fields. Interestingly, scholars from these fields do, in fact, hold stronger attitudes about nurture (rather than nature) as primary in shaping the nature of phenomena. Specifically, these scholars were more likely than other academics to underscore nurture over nature in explaining the origins of (a) sex differences between boys and girls, (b) sex differences in human adults, (c) sex differences between hens and roosters, and (d) universal features of human psychology. Participants in this demographic group underscored nurture over nature for all variables except the one about explaining behavioral differences between cats and dogs.

This pattern of findings provides an important window into the nature of how scholars from these areas approach problems. Explaining phenomena in terms of socialization seems axiomatic in these fields – and this fact may explain these findings. In fact, focusing on experiential causes of behavior does potentially lead to relatively clear applications for solving social problems – as such, there is likely some utility to this perspective. However, understanding potential political underpinnings of such approaches is likely useful as well.

Summary, Limitations, and Future Research

The "Tiger Incident" at SUNY New Paltz in 2008 led to a series of discussions about several classes of phenomena. Conversations about the origins of human behavioral patterns and conversations about academic freedom emerged concurrently in the aftermath. This research was designed to explore the nature of the causes that underlie attitudes about whether behavioral phenomena are rooted in organic evolutionary forces. While the findings are a bit nuanced, the bottom line seems to be that attitudes about sex differences – in humans and chickens – have politically charged underpinnings. Attitudes about behavioral differences between species and attitudes about universal features of human psychology that are unrelated to sex differences are much less politicized.

Some methodological and statistical limitations should be noted. First, while the overall N was reasonably high, many participants failed to complete all the measures, thus leading to some small Ns for some measures. In particular, the sample of academics in women's studies and sociology was relatively small (19) – and this number was reduced by the fact that seven of these participants failed to complete the main attitudinal measure, leaving a sample of only 12 individuals from

that class – a small number that leads us to proceed with caution in making generalizations beyond the current data.

Future research could also benefit from elaborating on the factor analytic work included here. While the five a priori subscales had high internal reliability and made for a study with a clear trajectory, the factor analysis suggests that the items may map onto a different empirical set of factors. Future research that elaborates on these psychometric details could lead to improved measures that could bring about important insights on this research topic in the future.

An additional methodological consideration pertains to the manner in which "nature versus nurture" was operationalized. To keep the response format simple for adults at all educational levels, we concluded that a continuous conception of this concept (from "definitely mostly due to nature" to "definitely mostly due to nurture") was most sensible. A liability of this approach is the fact that behavioral phenomena in general result from complex interactions between genetic and socialization-based factors. The current response format does not allow for an assessment of attributions along these lines.

A parting thought, relevant to the goals of *EvoS Journal*, pertains to the role that a strong education in evolutionary studies may have on the kinds of beliefs and ideas studied here. The goal of an EvoS education is, decidedly, not to convince students that everything is due to “nature.” Rather, a major goal of this program, steeped in an interdisciplinary approach (see Garcia, Geher, Crosier, Saad, Gambacorta, Johnsen, & Pranckitas, in press), is to provide a deep and broad education on the variegated kinds of organic evolutionary forces that exist as well as the nature of cultural evolution and other, not-directly-organic evolutionary forces (see Wilson, Geher, & Waldo, 2009). With that said, future research could benefit from examining the effects of an EvoS education on attitudes about “nature” versus “nurture.”

One potential outcome could be to see if EvoS graduates are better able than others to disentangle their political leanings from scientific research. We believe that being able to approach information in a way that is free of political biases represents a major goal of a liberal arts education. The current research applied in a way so as to examine the effects of different academic programs (including EvoS programs) on the ability to conceptually compartmentalize political attitudes from scientific observation would be extremely exciting, and such research could be used as a way of assessing how well academic programs facilitate critical thinking skills.

With support of the National Science Foundation, members of the EvoS Consortium have just begun to assess the impact that the EvoS program has on student learning outcomes (O’Brien, Wilson, & Hawley, 2009). Given the powerful and integrative nature of evolutionary theory in explaining phenomena across disparate fields of inquiry, we are excited about the critical thinking skills that the EvoS Consortium is helping foster in students around the world – and we look forward to collaborating with other members of this international consortium on future research on this momentous educational endeavor.

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Appendix. Items for all A Priori Subscales Pertaining to Attitudes about Nature versus Nurture

Behavioral Differences between Boys and Girls	Behavioral Differences between Men and Women	Behavioral Differences between Roosters and Hens	Universal features of Human Behavior	Behavioral Differences between Dogs and Cats
1. Little girls are more likely to engage in "pretend play" (e.g., 'playing house") than little boys.	1. Women more than men emphasize wealth in potential romantic partners.	1. Roosters tend to be protective of hens (while hens do not show such protective behavior toward roosters).	1. Humans generally like environments with natural features such as water and plants.	1. Dogs are more pack-oriented than cats.
2. Little girls have better attention spans than little boys.	2. Men are more interested than women in hunting.	2. Roosters seem to prefer copulating with more than one hen while hens don't seem to mind copulating with a single rooster.	2. Humans tend to show a preference for sweet foods.	2. Dogs are better able to understand pointing gestures by humans compared with cats.
3. Little girls cry more than little boys.	3. Men are more likely than women to get into physical confrontations.	3. Roosters are more aggressive in general compared with hens.	3. Humans show a remarkable ability to remember the faces of specific other people.	3. Dogs are more loyal than cats.
4. Girls develop language skills earlier than boys.	4. Men are more likely than women to commit homicide.	4. Hens invest more time caring after eggs than roosters.	4. Basic emotional states, such as happiness, sadness, and anger, are found in humans across the globe.	4. Dogs are more responsive to human emotions than cats are.
5. Little boys are more physically active than are little girls.	5. Married men tend to complain more than married women about their partners rejecting their sexual advances.	5. Roosters are often highly aggressive toward other roosters.	5. Qualities of babies that are considered "cute," such as large eyes and soft skin, are consistent across human societies.	5. Cats tend to be more OK with solitary conditions compared with dogs.

6. Little boys are more interested in superheroes than are little girls.	6. Women are more responsive than men to the cries of infants.	6. Roosters typically have more elaborate plumage than hens.	6. Fear of heights is common across human cultures.	6. Puppies need to be house trained over a longer period of time compared with kittens.
7. Six year-old boys are generally bigger than their female counterparts.	7. Men are more likely to engage in risk-taking behavior.	7. Hens tend to be more discriminating in choosing among different potential mates compared with roosters.	7. Feces and vomit are found to be universally disgusting among humans.	7. Dogs are more about pleasing humans than cats do.
8. Boys are more likely than girls to be diagnosed with autism.	8. Women show greater affection toward children than men do.	8. Roosters' combs are larger and more erect than hens' combs.	8. Across human societies, preferential treatment toward kin has been observed.	8. Cats are more likely to kill prey by hunting alone compared to dogs.
9. Little boys are more likely to be injured as a result of physical play compared to little girls.	9. Upon meeting a potential romantic partner, women tend to prefer a longer period of courtship before having sex than men do.	9. Roosters crow while hens do not.	9. Across the globe, humans express joy by smiling.	9. Compared to dogs, cats tend to show little in the way of guilt.
10. Little boys are more interested in tasks requiring spatial relations (e.g., building blocks) compared with little girls.	10. In choosing a romantic partner, men tend to place a greater emphasis on physical beauty compared to females.	10. Roosters are larger than hens.	10. Generally, humans tend to show favoritism toward members of their own groups or tribes.	10. Dogs are easier to train than cats.

For each item, participants were faced with a five-point scale with 1 corresponding to "Definitely mostly due to nature (biology)" and 5 corresponding to "Definitely mostly due to nurture (environment)."