Young Adults' Partner Preferences and Parents' In-Law Preferences across Generations, Genders, and Nations

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Abstract

To examine cultural, gender, and parent-child differences in partner preferences, in eight countries undergraduates (*n*=2,071) and their parents (*n*=1,851) ranked the desirability of qualities in someone the student might marry. Despite sizable cultural differences—especially between Southeast Asian and Western countries—participants generally ranked *kind/understanding* (reflecting interpersonal communion) highest, and *intelligent* and *healthy* (reflecting mental/physical agency) among the top four. Students valued exciting, attractive partners more and healthy, religious partners less than parents did; comparisons with rankings by youth in 1984 (i.e., from the parents' generation) suggested cohort effects cannot explain most parent-child disagreements. As evolutionary psychology predicts, participants prioritized wives' attractiveness and homemaker skills and husbands' education and breadwinner skills; but as sociocultural theory predicts, variations across countries/decades in gendered spousal/in-law preferences mirrored socioeconomic gender differences. Collectively, the results suggest individuals consider their social roles/circumstances when envisioning their ideal spouse/in-law, which has implications for how human's partner-appraisal capabilities evolved.

Keywords: partner preferences, in-law preferences, cross-cultural, gender differences, cohort effects

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Comparing qualities of potential romantic partners—and demonstrating qualities that might appeal to desired partners—can be central concerns for young adults. Because each potential partner has different strengths and weaknesses, deciding among them requires deciding which attributes (such as intelligence, beauty, and a fun personality) matter more than others (Li, Bailey, Kenrick, & Linsenmeier, 2002). Young adults' parents may be simultaneously evaluating those potential partners as potential in-laws (Apostolou, 2011). If parents and their children disagree about which attributes matter most, then they may disagree—and potentially quarrel—about who would be the best choice. Over the longer term, partner/in-law preferences likely played a role in shaping human nature. Intersexual sexual selection occurs when over many generations individuals with particular partly-heritable attributes are preferentially selected as mates, thereby increasing the prevalence of genes contributing to those preferred attributes (Buss & Schmitt, 2019; Darwin, 1871). Thus, understanding our partner/in-law preferences may help us to better understand the forces that steered the unique evolutionary trajectory of our species.

The introduction below first reviews descriptive findings from prior research on partner/in-law preferences and how the current study adds to those findings, and then explicates two competing theoretical explanations of gender and parent-child differences in preferences and how the current study can help test those theories.

Describing Partner Preferences

Cultural similarities and differences. Buss and colleagues' (Buss, 1989; Buss et al., 1990) survey of approximately 10,000 adults from 37 groups in 33 countries remains the most extensive multi-nation study of preferences for attributes in a spouse.[1] Their study along with similar surveys of single countries (e.g., Guo, Li, & Yu, 2017; Souza, Conroy-Beam, & Buss, 2016; Tadinac & Hromatko, 2004; Zietsch, Verweih, & Burri, 2012) collectively suggest that partner preferences show consistencies across cultures, genders, and time periods. In general, young adults allotted top priority to character traits such as kind and trustworthy. Often the next most desired attribute was intelligence. Also highly desired were healthy, attractive, and having an

exciting or easygoing personality. Attributes such as being educated and religious were generally considered less important.

Buss et al. (1990) also found cultural differences. Many differences were idiosyncratic to particular countries. Nonetheless, when they subjected their 37 samples to multidimensional scaling (based on correlations between each group's profile of preferences), the primary dimension to emerge was roughly an East-West dimension (which they interpreted as reflecting "traditional versus modern" or "collectivism versus individualism" values) anchored by India and China at one end and Northern, Western, and Southern European countries at the other. Examining preferences for specific attributes (rather than preference profiles) showed that culture influenced evaluations of some attributes more than others; for example, culture explained much more variance in rankings of the desirability of *Good Housekeeper* and *Easygoing* than in rankings of *Good Earning Capacity* and *Intelligent*.

Explanations for between-country differences in attitudes generally refer to between-country differences in (a) broad cultural dimensions such as individualism-collectivism, values, or tightness-looseness (Smith, 2019), and/or (b) socioecological variables such as population density and sex ratios, residential mobility, and climatic, economic or health threats (Oishi, 2014). However, the only well-developed example of such an explanation in the partner preference literature is research suggesting that pathogen prevalence predicts the value of physical attractiveness, presumably because attractiveness indicates having remained disease-free (Gangestad & Buss, 1993). Otherwise, partner preference studies (including the current study) simply report between-country differences without offering cultural or socioecological explanations. Perhaps one reason the literature has not focused on explaining between-country differences is that it has predominantly focused on parent-child and especially gender differences.

Gender and parent-child differences. Studies of long-term partner preferences invariably report gender differences. Across the various studies conducted in various countries, two gender differences have proven most robust: Compared to men, women typically place less priority on partners being physically attractive and more priority on partners having resources or attributes potentially predictive of acquiring resources, such as education (e.g., Buss, 1989;

Buss & Barnes, 1986; Chang, Wang, Shackelford, & Buss, 2011; Guo et al., 2017; Li et al., 2002; Perilloux, Fleischman, & Buss, 2011; Sprecher, Sullivan, & Hatfield, 1994). Studies suggest that parents similarly place more importance on a potential *son-in-law* having an education and earning capacity and more importance on a potential *daughter-in-law* being attractive and a good housekeeper (Apostolou 2008a, 2008b; Guo et al., 2017; Perilloux et al., 2011).

While there are similarities between young adults' partner preferences and parents' in-law preferences (e.g., those just mentioned above), research also suggests differences between them. Four studies (Apostolou, 2011, 2015; Guo et al., 2017; Perilloux et al., 2011) have compared young adults' preferences for attributes in a long-term partner or spouse with their parents' preferences for attributes in a son/daughter-in-law. The most consistent findings were that young adults were more interested in an entertaining, exciting, attractive partner and less interested in a religious partner than their parents wanted them to be. Other differences appeared in some studies but not others. Specifically, two studies found that, compared to parents, youth placed less priority on partners' health (Guo et al., 2017; Perilloux et al., 2011) or family background and social status (Apostolou, 2011, 2015); and one study each found that youth placed more priority on partners being kind and easygoing (Guo et al., 2017), and less on their being a good housekeeper (Perilloux et al., 2011) or wanting children and being educated (Guo et al., 2017).[2]

Overview of current study. To further our understanding of cultural, gender, and parent-child differences in partner preferences, the current study asked young men and women in eight countries (Canada, India, Italy, Japan, Malaysia, Mexico, Philippines, United States) to rank order the desirability of various attributes (e.g., kind, intelligent) in someone they might marry; and simultaneously asked these young adults' parents to rank those attributes' desirability in someone their child might marry. We employed this ranking technique for conceptual, methodological, and practical reasons. Conceptually, because any potential partner possesses some desirable attributes but lacks others, deciding which partner is better for you requires knowing which attributes matter more or less to you. Methodologically, cultural differences in response styles (e.g., acquiescent or extreme responding) can contribute to spurious cultural differences on rating scales; ranking measures overcome this problem by imposing the same

response distribution on every participant. Finally, our practical motivation was to use the same ranking measure Buss et al. (1990) used so we could compare our data with their data.

The current study advances previous research in several ways. First, youth partner preferences have rarely been systematically assessed in more than one country simultaneously. Thus, the current study can help clarify what youth generally want in a partner, whether men and women express different preferences, and whether preferences—and gender differences in preferences—vary across cultures or differ from those Buss et al. (1990) observed in the 1980s. Second, our study is the first to compare parents' in-law preferences across multiple countries, and only the fifth to compare parents' in-law preferences with their children's partner preferences. Thus, the current study can help clarify what parents want in a son-in-law or daughter-in-law, whether their preferences typically differ from their children's preferences, and whether parents' preferences—and parent-child differences—differ across cultures. Third, our study is the first to compare preferences of middle-aged parents with those of youth of roughly their own generation. Thus, the current study can help clarify if preferences reflect societal changes, generational changes, or the effects of considering others as potential spouses versus potential in-laws.

Specifically, if the preferences of youth in the 1980s differ from those of youth in the 2010s (i.e., from a different birth cohort) but not those of middle-aged parents in the 2010s (i.e., from the same cohort), then that would suggest *generational effects* (e.g., parents and their children having distinct formative experiences due to being born into different historical moments). In contrast, if current samples of parents and youth share similar preferences that differ from the preferences of youth in the 1980s, then that would suggest recent *societal shifts* that have shaped the attitudes of not only individuals born after the 1980s but also individuals who in the 1980s were already young adults. Finally, if youth in the 1980s and youth in the 2010s (who are considering potential partners) share similar preferences that differ from those of parents in the 2010s (who are considering potential in-laws), then that would suggest *role effects* (i.e., the role of potential partner versus potential in-law).

Lacking empirical or theoretical guidance from existing literature, most of the current study's tests of cultural, societal, and generational differences were exploratory and

descriptive. However, in addition to contributing unique descriptive information, the current study may also inform ongoing debates regarding how to explain the origins and mechanisms of partner preferences. These explanatory models have focused almost exclusively on explaining gender and parent-child differences.

Explaining Partner Preferences

Evolutionary psychology. The most prominent explanations of gender and parent-child differences in partner preferences derive from *evolutionary psychology*. Evolutionary psychology posits: "The programs comprising the human mind were designed by natural selection to solve the adaptive problems regularly faced by our hunter-gatherer ancestors—problems such as finding a mate… natural selection will ensure that the brain is composed of many different programs, many (or all) of which will be specialized for solving their own corresponding adaptive problems" (Tooby & Cosmides, 2015, p. 19-20). Applied to partner preferences, evolutionary psychology posits that if over many generations certain partner/in-law attributes reliably predicted inclusive fitness (i.e., reproduction by genetic relatives, including offspring) better than others, then current humans inherited predispositions to favor partners/in-laws with those attributes. Some evolutionary psychologists add that if over many generations an external or internal cue reliably moderated the associations between partner attributes and inclusive fitness, then current humans inherited predispositions to modulate their preferences based on those cues (Buss & Schmitt, 2019).

Gender differences. One such cue is biological sex. Evolutionary theory predicts that if an attribute reliably affected inclusive fitness differently depending on whether it was in a husband/son-in-law versus wife/daughter-in-law, then we inherit predispositions to weight that attribute differently depending on whether we are evaluating a husband/son-in-law versus wife/daughter-in-law (Buss, 1989; Perilloux et al., 2011). Recall that the most robust gender differences involve prioritizing attractiveness versus resources. Regarding attractiveness, evolutionary psychology argues that because physical cues more reliably predicted females' than males' fertility, being strongly attracted to those physical cues influenced males' more than females' inclusive fitness. Consistent with this hypothesis, the tendency for males to prioritize attractiveness more than females do is evident across cultures and largely unaffected

by societal gender equality (Zentner & Eagly, 2015). Conversely, evolutionary psychology posits that partners willing and able to contribute resources are more valuable to women than men because mothers have greater obligatory parental investment (e.g., pregnancy, birth, breastfeeding) and depend more on others to help them and their offspring, especially during pregnancy and after childbirth (Conroy-Beam, Goetz, & Buss, 2015). If across generations partners' resources increased inclusive fitness for women more than men, then women more than men should be predisposed to prioritize attributes indicating willingness and ability to contribute resources.

Child-parent differences. Evolutionary psychology also provided the theoretical framework for every study comparing partner and in-law preferences (i.e., Apostolou, 2008a, 2008b, 2011, 2015; Buunk & Castro-Solano, 2010; Buunk et al., 2008; Dubbs & Buunk, 2010; Dubbs et al., 2013; Guo et al., 2017; Perilloux et al., 2011). The theory is that partner attributes which maximized parents' inclusive fitness historically differed from those which maximized their children's inclusive fitness (Bovet, Raiber, Ren, Wang & Seabright, 2018). Specifically, because your offspring are more genetically related to you than to your parents (i.e., 50% versus 25%), natural selection favored individuals who automatically preferred (a) their own partners to have attributes that reliably predicted fertility and "good genes" (thus helping you reproduce) and (b) their children's partners to have attributes that reliably predicted being willing and able to contribute resources (thus helping genetic relatives to reproduce). "Essentially, parents are expected to have evolved preferences for offspring's mates that minimize their own investments and maximize the fitness of all of their grandchildren… [Therefore] conflict that exists between parents and children in mate choice is likely to revolve around mate characteristics that connote genetic quality versus parental investment: Mating individuals are more likely to prefer the former characteristics and parents the latter" (Buunk & Castro-Solano, 2010, p. 392). Partners with wealth and status (or whose family has wealth and status) may also enhance a parent-in-law's fitness indirectly by enhancing the social status and social connections of the parent-in-law's family, or by freeing the parent-in-law to devote resources to other children and grandchildren (van den Berg, 2016).

An alternative evolutionary story. In summary, the traditional evolutionary psychology story is that evaluating female spouses, daughters-in-laws, male spouses, and sons-in-laws are distinct problems, and each activates "different programs… specialized for solving" those problems. However, some theorists favor an alternative evolutionary story (e.g., Eastwick, 2009; Zentner & Eagly, 2015): Over hundreds of generations the associations between particular partner preferences (e.g., preferring sexy over wealthy) and inclusive fitness depended on sundry changing and interacting environmental (e.g., reliable nutrient sources), social (e.g., living with male's versus female's extended family), and personal (e.g., your own sexiness or wealth) circumstances. Because inclusive fitness was greater for those who could consider these circumstances when evaluating potential partners, current humans inherit these *adaptable partner-appraisal capabilities*.

Bolstering this alternative story, the neuroscience literature has identified large-scale networks of functionally interconnected brain regions that appear to undergird non-specialized "domain-general" cognitive capabilities (Barrett & Satpute, 2013). Most relevant is the "default mode network" involved in social cognition about the self, others, and relationships (Spreng & Grady, 2010). This network's capacities include simulating past or future scenarios (i.e., retrospection and prospection), such as imagining one's life with a particular person or type of person (e.g., an easygoing family-oriented or ambitious educated partner/in-law). However, which evolutionary story better explains partner preferences remains an ongoing debate, partly because no analysis can definitively say whether multiple specialized mechanisms versus one adaptable mechanism better explains a set of observable responses. Nonetheless, the current study's data may at least inform this debate, as described below.

Gender differences revisited. "Sociocultural" or "social role" theorists articulate a case for adaptable partner-appraisal capabilities (rather than specialized programs) being responsible for gender differences in evaluating partners as homemakers versus breadwinners (Zentner & Eagly, 2015). They argue that the impact of partner resources on inclusive fitness was not reliably greater for women than men; instead, inclusive fitness was greater for individuals who could evaluate the fit between their needs and potential partners' assets. Accordingly, they predict gender differences in partner preferences only if men and women in a society

experience different challenges and thus expect different partner attributes to help them meet those challenges (Zentner & Eagly, 2015). In particular, if women expect to spend more time as homemakers and have fewer opportunities for being successful breadwinners than men do, then women will place more priority on a male partner who can accomplish wage labor and men will place more priority on a female partner who can accomplish domestic labor (Eagly & Wood, 1999). In sum, sociocultural theory predicts smaller gender differences in desiring partners who can contribute wage labor versus domestic labor in societies that offer men and women greater equality of opportunity.

Several studies report evidence supporting this hypothesis. Researchers reanalyzing Buss et al.'s (1990) data found negative correlations between national indices of economic, educational, or sociopolitical gender equality and gender differences in preferences for partners with breadwinner or homemaker qualities (Eagly & Wood, 1999; Kasser & Sharma, 1999; Zentner & Mitura, 2012). Using more recent data from 10 countries, Zentner and Mitura (2012) found similar results. Finally, Buss, Shackelford, Kirkpatrick, and Larsen (2001) found evidence in the U.S. of decreases between 1939 and 1996 in gender differences in the value placed on partners being good homemakers versus being educated and having good financial prospects. The current study conducts analogous tests by comparing gender differences in preferences across the countries we surveyed and—by comparing our data with Buss et al.'s (1990) data—within countries over time.

Because women earn less than men in every country (U.N. Human Development Report, 2016), sociocultural theory predicts gender differences in preferences for partners who can contribute wage versus domestic labor in every country; but those same universal differences are also predicted by evolutionary theory due to innate partner preference programs automatically prioritizing males' resource-providing (versus care-providing) contributions. In contrast, the two theories make competing predictions regarding whether gender differences in preferences for partners who can contribute wage labor versus domestic labor will be larger in countries with larger gender differences in earning capacity. The reason is that specialized partner preference programs are moderated by at most a few variables (such as one's age and gender) that reliably predicted how partner attributes impacted inclusive fitness throughout

our evolutionary history in small hunter-gatherer bands. Societal gender differences in wages was not one of these variables. Consequently, only adaptable partner-appraisal capabilities—but not evolved specialized programs—can consider societal gender gaps in wages when weighing the value of a partner's wage versus domestic labor; and thus only theories that include adaptable partner-appraisal capabilities predict societies with smaller male/female wage gaps to show smaller gender differences in the value placed on partners' economic versus domestic contributions.

Parent-child differences revisited. The alternative evolutionary story also posits that effects of partner attributes on inclusive fitness were too contingent on variable circumstances to select for specialized programs that weight attributes one way when evaluating in-laws and another way when evaluating partners. Examples of variable circumstances might include sociocultural norms regarding family supports (e.g., do couples live far from extended family?), resource sharing (e.g., societal supports if someone gets sick?), and goals for relationships (e.g., producing heirs, having fun?). Accordingly, inclusive fitness was greater for individuals with the adaptable appraisal capabilities needed to take such circumstances into account when evaluating partners/in-laws.

Whereas the specialized partner/in-law programs hypothesis predicts parent-child differences in qualities with differential implications for genetic quality versus parental investment, the adaptable partner-appraisals hypothesis predicts parent-child differences in qualities with differential implications for rewarding romantic versus rewarding in-law relationships. Thus, comparing the hypotheses requiring examining attributes whose implications for romantic versus in-law relationships differ from their implications for genetic quality versus parental investment. Specifically, youth more than parents valuing physical attributes like *Healthy* and *Good Heredity* would be predicted by specialized programs (because those attributes predict genetic quality better than parental investment) but not general partner-appraisal capabilities (because those attributes lack clear implications for romantic versus in-law relationships). Conversely, youth more than parents prioritizing personality attributes like *Exciting, Creative*, and *Easygoing* would be predicted by general partner-appraisal capabilities (because people expect those attributes to more positively impact

romantic than in-law relationships) but not necessarily specialized programs (because those attributes are not better indicators of genetic quality than parental investment).[3]

Summary of Hypotheses. Thus, the current study—although mainly descriptive—will test the following specific hypotheses. Regarding parent-child differences we will test if youth prioritize (a) *Healthy* and *Good Heredity* (outcomes expected from specialized programs responsive to historical cues of partners' genetic quality versus in-law's parental investment) or (b) *Exciting, Creative*, and *Easygoing* (outcomes expected from general partner-appraisal capabilities envisioning implications of attributes for romantic versus in-law relationships). Regarding gender differences we will test if countries with smaller gender differences in wages have smaller gender differences in valuing partners/in-laws who can contribute wage versus domestic labor (i.e., *Good Earning Capacity* versus *Good Housekeeper*)—a pattern predicted only if the adaptable partner-appraisal capabilities posited by sociocultural models are shaping preferences to some degree. Finally, regarding societal/regional differences, we will test if the patterns Buss et al.'s (1990) reported—in particular, noteworthy East-West differences, with attributes reflecting "traditional" communal and domestic values (e.g., *Good Housekeeper*) more valued in Asian than Western countries—are still evident a generation later.

Method

Participants

The young adult participants were unmarried heterosexual undergraduates who were ≤ 30 years old, citizens of the country where data was being collected, and residents of that country for ≥ 5 years. Limiting our sample to undergraduates establishes a greater degree of comparability across cultures than is readily achieved using community samples. Canadian participants were 295 University of Toronto students (103 men, 192 women; *M* age = 18.7, *SD* = 1.3); their ethnicities were European (*n* = 120), Asian or Pacific Islander (*n* = 111), and other/missing (*n* = 64). Indian participants were 133 Bangalore, Goa, or Karnatak University students (23 men, 110 women; *M* age = 21.5, *SD* = 1.6); their religious backgrounds were Hindu (*n* = 91), Christian (*n* = 31), Islam (*n* = 6), and other/missing (*n* = 5). Italian participants were 290 Catholic University of Milan students (98 men, 192 women; *M* age = 20.8, *SD* = 2.0). Japanese participants were 255 Kansai University students (130 men, 125 women; *M* age = 20.3, *SD* =

1.2). Malaysian participants were 325 National University of Malaysia students (172 men, 153 women; *M* age = 20.5 years, *SD* = 1.2). Mexican participants were 273 National Autonomous University of Mexico students (100 men, 173 women; *M* age = 19.8 years, *SD* = 1.9). Philippine participants were 229 De La Salle University students (93 men, 136 women; *M* age = 18.9, *SD* = 1.3). Of those reporting their ethnicities, 81% were Filipino and 14% were Chinese or Filipino-Chinese. U.S. participants were 271 University of Idaho students (86 men, 185 women; *M* age = 19.3, *SD* = 1.8); their ethnicities were White/Caucasian (*n* = 229), Latino/Hispanic (*n* = 19), multi-racial (*n* = 15), and other/missing (*n* = 8). In total, we obtained rankings from 2,057 undergraduates. We also obtained rankings from 1827 parents (227 American, 197 Canadian, 97 Indian, 288 Italian, 208 Japanese, 266 Mexican, 296 Malaysian, 227 Filipino; 76.6% female; *M* age = 50.2).

Materials and Procedure

Student participants completed a partner preference measure used in numerous studies (e.g., Buss, 1989; Guo et al., 2017; Perilloux et al., 2011) that involves ranking the desirability of 13 attributes: *Kind & Understanding; Good Earning Capacity; College Graduate; Religious; Good Heredity; Intelligent; Exciting Personality; Healthy; Easygoing; Physically Attractive; Creative & Artistic; Wants Children; Good Housekeeper*. Students ranked their "*desirability in someone you might marry*" from 1 (the most desired attribute) to 13 (the least desired). The student questionnaire also included demographic questions and measures irrelevant to the current study.[4]

Each student participant provided us with one parent's contact information. We sent parents a briefer questionnaire that asked them to rank the 13 attributes with respect to their "*desirability in someone [your child completing this study] might marry*". To protect anonymity, parent and child surveys were linked by a random code number. The relevant review boards at each institution approved the research protocol, which included written informed consent from both student and parent participants.

Participants were recruited from undergraduate courses. Student participants in the U.S., Canada, India, Mexico, and Philippines received course extra credit. Parent participants received 2 USD in the U.S., 2 CAD in Canada, 100 INR in India, 200 JPY in Japan, 5 MYR in

Malaysia, and 30 PHP in the Philippines. Italian students received 2 EUR upon receipt of their parent's completed questionnaire.

Native speakers translated materials for Italian, Japanese, Malaysian, Mexican, and Filipino participants into, respectively, Italian, Japanese, Malaysian, Spanish, and Tagalog. Following standard backtranslation procedures, other translators translated the materials back into English, and minor modifications were made to resolve discrepancies with the original materials. (For translations of the 13 attributes, see Supplemental Table 1).

The study was not preregistered. Data collection took longer in some countries than others, but since two thirds of the data were collected in 2015, we will henceforth simply describe the data as having been collected in 2015. The data are posted on the Open Science Framework: https://osf.io/uj3tk/?view_only=dd92085a706f414282e2ada282bc8b7c .

Results

As recommended with ranked data, when possible we employed non-parametric statistical procedures. Specifically, we used Wilcoxon tests (a non-parametric analog of an independent-samples t-test) to test for gender differences, Mann-Whitney tests (a non-parametric analog of a dependent-samples t-test) to test for parent-child differences, and Kruskal-Wallis tests (a non-parametric analog of a one-way ANOVA) to test for differences among countries.

Table 1 shows parents' and students' mean ranking of each attribute. Our large samples and concomitantly small standard errors (*M SE* = .07) meant almost every possible comparison of rankings—within or across columns in Table 1—was statistically significant. Therefore, throughout the results we only discuss differences of practical importance, defined as ≥ 1 rank level, which is the minimum difference that can exist between the rankings of the same attribute by two different individuals or between the rankings of two different attributes by the same individual. For example, if parents' average ranking of *Religious* was 7, then students ranking *Religious* ≤ 6 or ≥ 8 would be considered a parent-student difference worth discussing.

Parents ranked *Kind/Understanding* most desirable, followed by *Healthy* and *Intelligent*, and ranked *Physically Attractive* and *Creative/Artistic* as least desirable. Students ranked *Kind/Understanding* most desirable, followed by *Intelligent* and *Exciting Personality*, followed

by *Healthy* and *Attractive*, and then *Easygoing*; they considered the remaining characteristics relatively less desirable. Compared to parents, students considered *Exciting*, *Attractive*, *Easygoing*, and *Creative/Artistic* more desirable and *College Graduate*, *Good Heredity*, *Earning Capacity*, *Healthy*, *Religious,* and *Wants Children* less desirable. *Exciting* and *Attractive* produced the largest discrepancies.

Cultural Differences

Table 2 shows the mean rankings for each attribute in each country. (Supplemental Table 2 also reports the *SD*s). Nationality influenced students' and parents' rankings of every attribute, but effect size estimates (η^2s using Kruskal-Wallis tests) varied greatly across attributes. Nationality explained relatively little variation in either parent or student rankings of *Artistic/Creative*, *Earning Capacity*, *Physical Attractiveness*, and *Wants Children* (η^2s ≤ .10). In contrast, nationality explained sizable proportions of the variations in parent and student rankings of *Easygoing* (η^2s = .57 and .53), *Good Housekeeper* (η^2s = .38 and .34), and *Religious* (η^2s = .48 and .50).

To test if three decades after Buss et al.'s (1990) study there remain noteworthy East-West differences, we compared how each attribute was ranked in the four Asian countries (India, Japan, Malaysia, Philippines) versus the four Western countries (Canada, Italy, Mexico, United States). Table 3 shows there indeed remain significant East-West differences in both students' and parents' rankings of most attributes. The most robust differences were that students and parents in Asian countries put more priority on *Religious* and *Good Housekeeper* and less priority on *Easygoing* and *Intelligent*, with the East-West dichotomy explaining at least 20% of the variation in students' and parents' rankings of each of these attributes. Additionally, Asian parents put more weight on *Good Heredity* and Asian students put less weight on *Exciting Personality* than did their Western counterparts. Finally, Table 2 shows there tended to be variation among the Asian countries; for example, *Religious* was more desirable and *Easygoing* less desirable in Malaysia and the Philippines than in India and Japan.

Comparisons with 1980s Youth Preferences

We can also directly compare our data with Buss et al.'s (1990) data. Using the same measure we used, in 1984 Buss et al. assessed partner preferences in five of the same countries

in which we assessed partner preferences—namely, the U.S. (852 women, *M* age = 20.4 years, *SD* = 4.6; 639 men, *M* age = 20.0, *SD* = 3.5), India (144 women, *M* age = 24.9, *SD* = 10.9; 103 men, *M* age = 30.5, *SD* = 12.5), Japan (153 women, *M* age = 19.4, *SD* = 0.9; 106 men, *M* age = 20.1, *SD* = 1.5), Italy (55 women, *M* age = 26.0, *SD* = 5.4; 46 men, *M* age = 27.8, *SD* = 5.3), and Canada (45 women, *M* age = 23.1, *SD* = 6.8; 56 men, *M* age = 20.9, *SD* = 3.0). Thus, in these five countries, Buss et al.'s participants' average age was 21.3. In our study (conducted 31 years later, in 2015) the average age was 50.8 for parent participants and 20.0 for student participants.

Table 4 in the main paper reports the differences in mean ranks between the 1984 sample and our 2015 sample (for each country x attribute separately). Interested readers can find each attribute's mean rank in 1984 in Supplemental Table 3, analogous 2015 data in Supplemental Table 2, and results of *t*-tests comparing the 1984 and 2015 data in Supplemental Table 4. (Because only mean ranks and *SD*s—and not the raw data—from 1984 were available, all analyses using the 1984 data employed parametric t-tests and ANOVAs; however, given the sample sizes, non-parametric tests would likely yield similar conclusions.)

Differences between the 1984 and 2015 data may reflect *Generational Effects*, *Role Effects*, or *Societal Shifts*. *Generational Effects* would manifest in youth in 1984 expressing preferences more like those of parents in 2015 (individuals from the same generation) than those of youth in 2015 (individuals from a different generation). *Societal Shifts* would manifest in parents and youth in 2015 being more similar to each other than to youth in 1984. *Role Effects* would manifest in 1984 youth being more like youth in 2015 (who are also considering potential partners) than parents in 2015 (who are considering potential in-laws). Operationally, we defined differences in an attribute's ranking as: a *Generational Effect* if 2015 youth differed by > 1 from both parents and 1984 youth (who in turn differed from each other by < 1); a *Societal Shift* if 1984 youth differed by > 1 from 2015 youth and parents (who differed from each other by < 1); or a *Role Effect* if parents' differed by > 1 from both 1984 youth and 2015 youth (who differed from each other by < 1). As Table 4 shows, 30 differences between the 1984 and 2015 data fit one of these patterns; specifically, four (13%) indicated societal shifts, nine (30%) indicated generational effects, and 17 (57%) indicated role effects.

Thus, most differences reflected role effects. Unsurprisingly, these role effects mirrored the previously described parent-child differences in current sample; for example, youth of *both* generations deemed *Attractive* and *Exciting* more desirable and *Earning Capacity*, *Healthy*, and *Religious* less desirable than parents did. Generational effects were limited to Italy (where *Exciting* is more desirable to the current generation of youth), India (where *Creative*, *Exciting*, and *Kind* is more desirable and *Wanting Children* and *Good Heredity* less desirable to current youth) and Japan (where *Attractive* and *Religious* are more desirable and *Healthy* less desirable to current youth). Societal shifts occurred only in Italy and Japan: In both countries between 1984 and 2015 *Creative* decreased and *Easygoing* increased in desirability.

Gender Differences

Table 5 shows the average rankings of each attribute as a function of student gender. (Supplemental Table 5 reports this information separately for each country). To highlight gender differences and similarities, Figure 1 plots how each attribute was typically ranked by female students or their parents along the X-axis and by male students or their parents along the Y-axis. Attributes below the dotted (X=Y) line were ranked higher by female students or their parents, attributes above the line were ranked higher by male students or their parents, and attributes whose error bars (99% confidence intervals) overlap the line did not show gender differences. The fact that most points clustered near the X=Y (i.e., Female=Male) line means there were substantial similarities.

Gender had noteworthy effects on parents' rankings of only three attributes: Parents ranked *College Graduate* and *Good Earning Capacity* as more desirable in a daughter's partner, and *Good Housekeeper* as more desirable in a son's partner. Gender had noteworthy effects on students' rankings of four attributes: Compared to women, men considered *Physically Attractive* and *Good Housekeeper* more desirable and *College Graduate* and *Good Earning Capacity* less desirable. Among both students and parents, *Earning Capacity* evoked the strongest differences.

Evolutionary psychology predicts such differences, plus that these differences will be evident across cultures. Therefore, we checked if these seven noteworthy gender differences were consistent across countries (see Supplemental Table 5 for the relevant data). The signs of

the differences between male students' and female students' rankings of *College Graduate*, *Earning Capacity*, and *Physically Attractive* were in the expected direction in every country, and in 75% of countries the signs of the differences in rankings *Good Housekeeper* were in the expected direction. Similarly, in every country the signs of the differences between parents of males and parents of females in rankings of *College Graduate*, *Earning Capacity*, and *Good Housekeeper* were in the expected direction. Thus, the noteworthy gender differences were consistent across countries, as evolutionary psychology predicts. On the other hand, social role theory also expects gender differences to be consistent across cultures to the degree that gender differences in relevant opportunities are consistent across cultures.

Where the two theories diverge is that only social role theory predicts that countries with larger gender differences in wages will have correspondingly larger gender differences in preferences for partners who can contribute wage labor (i.e., *Good Earning Capacity*) versus domestic labor (i.e., *Good Housekeeper*). (Social role theory would not necessarily expect wage gaps to explain other observed gender differences such as preferences for educated and attractive partners). Figure 2 plots the magnitude of the gender difference in the desirability of *Good Earning Capacity* (panel a) or *Good Housekeeper* (panel b) as a function of the ratio of female income to male income within each country (U.N. Human Development Report, 2016). Consistent with social role theory predictions, the larger the female/male wage ratio (i.e., the smaller the wage gap), the smaller the mean gender differences in students' rankings of *Earning Capacity* (Spearman's $\rho(6) = -.57$, $p = .14$) and *Good Housekeeper* ($\rho = -.76$, $p = .03$) and in parents' rankings of *Earning Capacity* ($\rho = -.57$, $p = .14$) and *Good Housekeeper* ($\rho = -.81$, $p = .01$). However, Figure 2 also reveals that the primary driver of these associations was India, which had the smallest female-to-male wage ratio and the largest or second-largest gender differences. Nonetheless, India was not the sole driver of these associations: Malaysia and Japan also had relatively large gender differences in both wages and rankings.

Comparisons with 1980s gender differences. Supplemental Table 6 shows how young men and women in each country ranked each attribute in 1984. To test if gender differences among youth changed between 1984 and 2014, we conducted ANOVAs on youth's rankings of each attribute in each country, with Gender and Study Year (1984/2015) as between-subjects

predictors. Supplemental Table 7 summarizes the Gender x Year interaction effects, which are the effects of interest. Given the number of tests, we will only discuss the seven interactions significant at $p < .001$.

In the United States there were two Gender x Year interactions. First, whereas in 1984 *Earning Capacity* was more valued by women than men (*M* difference in rankings = -2.4), in 2015 that gender difference had weakened considerably (M_d = -0.8). Second, whereas in 1984 *Intelligent* was slightly more valued by women than men (M_d = -0.5), by 2015 the reverse was true (M_d = 0.6).

The other five Gender x Year interactions occurred in Japan. Whereas in 1984 *Earning Capacity* was ranked much higher and *Good Housekeeper* was ranked much lower by women than by men (M_d = -5.4 and 4.6, respectively), in 2015 those gender differences had greatly diminished (M_d = -2.0 and 1.3). Whereas in 1984 *Physically Attractive* and *Kind/Understanding* were ranked higher by men than women (M_d = 1.9 and 1.5), in 2015 those gender differences were negligible (M_d = 0.1 and 0.3). Finally, whereas in 1984 *College Graduate* was ranked moderately higher by women than men (M_d = -2.4), in 2015 that gender difference had almost disappeared (M_d = -0.5). Thus, in Japan between 1984 and 2015 these traditional gender differences either decreased or disappeared.

General Discussion

Cross-Cultural Similarities and Differences

Some attributes were generally more valued than others. Students clearly ranked *Kind/Understanding* highest, followed by *Intelligent* and *Exciting*. *Healthy* and *Attractive* were also relatively desirable. *Creative*, *Earning Capacity*, *Religious*, *College Graduate*, *Good Housekeeper*, *Good Heredity*, and *Wants Children* were less valued. Our results roughly replicate previous findings. Indeed, the ordering of the seven most highly ranked attributes in our study was identical to that in Buss et al. (1990). During the 31 years between when Buss et al. collected their data and we collected our data—while global changes occurred in many social and economic indicators (Pinker, 2018)—a typical youths' long-term partner preferences changed little.

Partner preferences that were consistent across individuals and generations may have helped to shape our species. The logic of intersexual sexual selection is that if over many generations individuals with particular partly-heritable attributes are more often selected as mates, then genes contributing to those attributes will become more prevalent (Buss & Schmitt, 2019; Darwin, 1871). Thus, if over many generations people everywhere have preferentially mated with smart, kind, exciting partners, then we may be a smarter, kinder, and more exciting species than we would have been in the absence of sexual selection.

Widely shared preferences may also help explain *assortative mating*—the tendency for partners to be similar to each other (Luo, 2017). Our participants showed considerable consensus in ranking *Kind*, *Intelligent*, and *Exciting* among the top most desirable attributes; consequently, exceedingly kind, intelligent, and exciting individuals are a valued but limited resource who accordingly can use their high value in the romantic marketplace to secure similarly desirable (i.e., kind, smart, exciting) partners. Conversely, because people who are not very kind, smart, or exciting cannot attract those more desirable partners, they are left with partners similarly lacking in desirable attributes. Thus, assortative mating may be the result of widely shared preferences rather than preferences for similarity per se (Luo, 2017).

While there were consistencies in preferences, there was also considerable variability. Approximately half of this variance was unexplained, which theoretically could facilitate stable relationships if each person's unexplained preferences differ from the normative ideal in the same ways that their partner's attributes differ from the normative ideal. However, significant variability in preferences was explained by nationality and social roles (wife, husband, daughter-in-law, or son-in-law), with nationality having the strongest effect.

The effects of nationality roughly aligned with those observed by Buss et al. (1990) three decades earlier. First, Buss et al. noted differences between Asian and Western countries, with "traditional" (e.g., status and domestic) concerns generally ranked higher in Asia. We similarly found robust East-West differences, with both students and parents prioritizing *Good Housekeeper*, *Religious*, and *Good Heredity* more and *Easygoing, Exciting*, and *Intelligent* less in Asian countries (India, Japan, Malaysia, Philippines) than Western countries (Canada, Italy, Mexico, U.S.). Second, Buss et al. observed that preferences varied more across Asian countries

than across Western countries. We too found preference patterns to be more similar across the four Western countries (and especially between the U.S. and Canada) than across the four Asian countries. Within Asia, Malaysia and the Philippines (the Southeast Asian countries) were the most similar to each other and also the most different from the Western countries. Third, Buss et al. reported that *Good Housekeeper*, *Easygoing*, and *Exciting* were the attributes that varied the most across countries; we also found these attributes were especially susceptible to cultural influences.

One difference, however, was that whereas *Religious* was the attribute that varied the most across countries in our study, *Religious* showed little variation across countries in Buss et al. (1990). Indeed, in Buss et al.—as well as newer studies that employed the same ranking measure in single countries (i.e., Chang et al., 2011, and Guo et al., 2017, in China; Souza et al., 2016, in Brazil; Zietsch et al., 2012, in Britain)—*Religious* was consistently the *least* desired partner attribute. *Religious* was also the least desired attribute in all our Western student samples (U.S., Canada, Italy, Mexico). In marked contrast, our Malaysian students ranked *Religious* the *most* desirable attribute. Notably, the only other sample in which *Religious* was ranked among the more desirable attributes (i.e., *M* rank < 7) was Buss et al.'s Iranian sample. Although Malaysia and Iran differ in many ways, in both countries Islam is the official religion and a large majority of Iranian and Malaysian participants (given where we collected data in Malaysia) would identify as Muslim. However, clarifying the link between specific religious traditions and preferences for religious partners will require further research because despite this ranking measure having been administered in 37 countries, the only Muslim-majority countries it which it has been administered are Iran and Malaysia.

Parent-Child Similarities and Differences

On average, parents valued *Kind/Understanding* most highly, followed by *Healthy* and *Intelligent*. *Physically Attractive* and *Creative/Artistic* were ranked lowest. Although parents' and students' rankings generally aligned, there were differences: Compared to students, parents gave less priority to *Attractive* and *Exciting* (and, to a smaller degree, *Easygoing* and *Creative/Artistic*) and more priority to *Healthy, Religious, Good Heredity*, and *College Graduate* (and, to a smaller degree, *Earning Capacity* and *Wants Children*). *Exciting* and *Attractive*

produced the largest discrepancies. Previous studies reported analogous parent-child differences in rankings of *Attractive*, *Easygoing, Exciting*, *Healthy*, *Religious*, and *Wants Children* (Apostolou, 2011, 2015; Guo et al., 2017; Perilloux et al., 2011). An intriguing hypothesis proposes that if over many generations parents' preferences reliably differed from their children's preferences and determined with whom their children had children, they might have influenced the course of human evolution (Apostolou, 2017; van den Berg, 2016). If so, and if the above results reflect patterns that endured for generations, then it is possible that absent the influence of parents on sexual selection, *Homo sapiens* might have evolved to be more exciting and physically beautiful and less pragmatic and devoted to cultural traditions.

One possible explanation for parent-child differences is that parents are older and more experienced. However, age probably cannot explain most parent-child differences because previous research found that when parents imagined seeking a partner for *themselves* they were apt to want the same attributes that their children wanted; for example, parents placed more importance on attractiveness and an exciting personality when imagining partners for themselves versus partners for their children (Apostolou, 2008a, 2008b). On the other hand, because parents rated health equally important whether they were evaluating partners for themselves or their child (Apostolou, 2008a, 2008b), age/experience may help explain why parents allotted *Healthy* greater priority.

Another possible explanation for parent-child differences is generational differences. We did find possible cases of generational differences—i.e., where a particular attribute in a particular country was ranked differently by current youth than by both current parents and youth of the parents' generation. However, because these cases occurred almost exclusively in India and Japan (and involved different attributes in each country), they cannot explain the robust, cross-culturally consistent parent-child differences summarized above.

Instead, cases where parents' preferences differed from those expressed by youth from *both* generations—indicating *role effects*—were considerably more common and cross-culturally consistent. For example, in most of the countries for which we had data, the rankings of *Attractive*, *Exciting*, *Earning Capacity*, and *Religious* made by youth in 1984 and 2015 did not differ from each other, but did differ from parents' rankings. Thus, most parent-child

differences in preferences appear attributable to parents and youth having different roles vis-à-vis the potential partner.

Moreover, methodological differences between the current study and the Buss et al. (1990) study could have contributed to what seemed to be societal or generational (rather than role) effects. For example, supposed societal shifts (e.g., *Creative* decreasing in desirability in Italy) might partly reflect differences in translations between the two studies. As another example, only one generational difference appeared across more than one country: In both India and Italy, youth in 2015 considered *Exciting* more desirable than did youth in 1984. However, the 1984 sample's Indian and Italian participants were older than both (a) the Indian and Italian participants in our sample and (b) the typical participant from other cultures in the 1984 sample. Thus, if older individuals consider *Exciting* less desirable, then age rather than cohort effects may explain why the 1984 Indian and Italian participants deemed *Exciting* less desirable. The bottom line is that our estimates of the frequency of role effects relative to generational or societal effects were more likely to be underestimates than overestimates.

Gender Similarities and Differences

Gender differences were generally weaker than the parent-child and cultural differences discussed above. Overall, youth expressed similar preferences for husbands and wives, and parents expressed similar preferences for son-in-laws and daughter-in-laws. Only four attributes evoked notable gender differences: *College Graduate*, *Good Earning Capacity*, *Good Housekeeper*, and *Physically Attractive*. Roughly mirroring results of previous studies of young adults (e.g., Buss, 1989) and parents (e.g., Guo et al., 2017), male students and parents of male students placed more importance on *Attractive* and *Good Housekeeper* and less on *College Graduate* and *Earning Capacity* than did female students and parents of female students.

In accord with the expectations of evolutionary psychology (Buss, 1989), nationality had relatively little impact on gender differences in prioritizing *Physically Attractive*. However, the gender difference was small: Male students deemed *Attractive* the fourth most desirable attribute; female students deemed it the fifth most desirable. Nor was the gender difference insensitive to cultural influences: In Japan in 1984 the gender difference in rankings of *Attractive* was sizable, but by 2015 had disappeared.

The largest gender differences involved *Good Earning Capacity*. Even so, both women and men ranked *Earning Capacity* below the scale midpoint and considered multiple other attributes (e.g., kind, healthy, easygoing) more desirable. Moreover, nationality moderated gender differences in students' and parents' rankings of both *Earning Capacity* and *Good Housekeeper*. Interestingly, the strongest nationality x gender interactions in Buss et al.'s (1990) study also involved *Earning Capacity* and *Good Housekeeper*. Thus, gender differences in prioritizing *Earning Capacity* and *Housekeeper* may be particularly sensitive to sociocultural factors, as discussed in the next section.

Explaining Partner Preferences

The introduction described two alternative stories of how the cognitive circuitry we use to evaluate potential partners/in-laws evolved. The traditional evolutionary psychology story is that specific partner/in-law preferences—perhaps combined with a few internal or external conditions (e.g., androgens, pathogens)—predicted inclusive fitness with sufficient reliability to become inherited domain-specific predispositions (Buss & Schmitt, 2019). The alternative story is that the fitness implications of partner/in-law attributes depended on such complex and variable conditions that greater inclusive fitness was bestowed on individuals with adaptable partner-appraisal capabilities that could imagine how effectively particular attributes would satisfy their particular needs (Zentner & Eagly, 2015).

Both sociocultural and evolutionary psychological theory expect gender differences in partners/in-laws who can contribute wage labor (i.e., *Good Earning Capacity*) versus domestic labor (i.e., *Good Housekeeper*) because women (a) currently earn less than men in every country and (b) historically had to do more nurturing (e.g., gestating, breastfeeding) and thus depend more on other to provide resources (Buss & Schmitt, 2019; Zentner & Eagly, 2015). As expected, across parents and youth in the eight nations in our study, the gender differences (albeit not always statistically significant) were almost always in the direction of men caring more about *Good Housekeeper* and women caring more about *Earning Capacity.* However, consistent with the adaptable partner-appraisal capabilities posited by sociocultural theory—but not the specialized programs posited by evolutionary psychology—gender differences in prioritizing *Earning Capacity* and *Housekeeper* tended to be larger in countries with larger

gender differences in earning potential. Specifically, gender differences in rankings of *Good Housekeeper* and *Earning Capacity* were generally largest in India, which has the largest female-male wage gap. One caveat regarding these large gender differences in India is that our samples of Indian women and especially men were significantly smaller than our samples from other countries, and smaller samples are more apt to show larger variations. On the other hand, Japan and Malaysia, which have moderately large female-male wage gaps, also showed moderately large gender differences.

Comparing our data with those of Buss et al. (1990) also supported the influence of sociocultural factors. In the United States between 1984 and 2015—during which the female-male wage gap significantly declined (Graf, Brown, & Patten, 2018)—the gender difference in youth rankings of *Earning Capacity* weakened and the gender difference in *Intelligent* slightly reversed. Changes in Japan were even more striking. In 1984 Japanese women valued *College Graduate* and *Earning Capacity* much more and *Kind/Understanding* and *Good Housekeeper* less than did Japanese men. By 2015 those traditional gender differences had significantly shrunk (by > 3 rank levels for *Earning Capacity* and *Good Housekeeper* and > 1 rank level for *Kind/Understanding* and *College Graduate*). Gender differences in preferences were also smaller among parents in 2015 than among youth in 1984, possibly indicating a societal shift in attitudes that even influenced individuals who had been young adults in 1984. That these changes reflect broader societal changes is reinforced by demographic and sociological evidence that in Japan since the mid-1980s—while gender inequities remain both in employment and in the division of labor within marriages—the career opportunities and working conditions for women have improved (Aronsson, 2014) and both men and women are endorsing less traditional and more egalitarian gender attitudes (Lee, Tufis, & Alwin, 2010).

Both evolutionary psychology and sociocultural theory focus almost exclusively on partner attributes (e.g., health, wealth, intelligence) that can improve tangible outcomes and inclusive fitness. Thus, neither evolutionary nor sociocultural theory would have *a priori* predicted that young adults would rank *Exciting Personality* alongside *Intelligent* as the second most desirable attribute. Of course, clever theorists could conjure a *post hoc* evolutionary or sociocultural explanation whereby exciting partners indirectly confer tangible or fitness benefits; however,

unless such benefits are more consistent and potent than those conferred by other attributes, it remains puzzling why *Exciting Personality* would be ranked so much higher than other attributes (including *Physically Attractive* and *Good Earning Potential*). Accordingly, a comprehensive understanding of partner preferences may require additional, complementary theoretical perspectives (e.g., our flexible partner-appraisals capabilities may evaluate how well partners can satisfy intrinsic and self-expansion motives in addition to more pragmatic needs).

Regarding parent-child differences, we found that children more than parents prioritized *Exciting, Creative*, and *Easygoing*, which is what was predicted if adaptable partner-appraisal capabilities are anticipating how traits will enhance romantic versus in-law relationships. In contrast, we found that parents more than children prioritized *Healthy* and *Good Heredity*, which is the *opposite* of what was predicted if specialized programs automatically emphasize attributes that predict healthy offspring when evaluating partners versus family investment when evaluating in-laws (Buunk & Castro-Solano, 2010; van den Berg, 2016). Thus, overall the pattern of parent-child differences seem better explained by partner-appraisal capabilities that envision potential partners fulfilling particular roles. Evaluating others as potential romantic partners with whom you might regularly interact in many ways (e.g., publicly, privately, verbally, sexually) makes salient attributes that contribute to those interactions being enjoyable and rewarding (e.g., attractive, engaging). Evaluating others as potential in-laws makes salient attributes that can contribute to your extended family's stability and status (e.g., religious, well-paid).

To be fair, both evolutionary stories propose mechanisms that may be insufficiently specified to conclude that any finding *unequivocally* supports one over the other. Any observed similarities/differences in preferences could theoretically be explained by either a single flexible mechanism or multiple specialized mechanisms simply by asserting that the mechanisms are responsive to similarities/differences in relevant moderating variables (e.g., gender, social roles, wage gaps, and so on)**.**

Helpfully, though, evolutionary psychology posits that a *specialized* adaptation should appear improbably well-designed to solve a *specific* problem, like a key carefully carved to open one particular lock (Conroy-Beam, Goetz, & Buss, 2015, p. 4). Applied to partner or in-law

preferences, the metaphorical "lock" is the best partner/in-law for you and the "key" is the cognitive process you use to rank potential partners/in-laws. Yet, it remains unclear how any reasonable number of inflexibly specialized cognitive processes could explain the multiform variations in preferences we observed as a function of culture, gender, parent-child roles, time periods, and their interactions. In contrast, the observed variations are readily understandable as outputs of less specialized, more adaptable social-cognitive appraisal mechanisms. If so, then it would suggest that the best partner/in-law for our evolutionary ancestors was highly situation specific, and thus—rather than inheriting different keys for different situations—we inherited the capacity to think flexibly about our own situation, like a locksmith flexibly adjusting a generic tool to fit a specific lock.

Indeed, evaluating spouses/in-laws may be instances of a more general class of recurrent problem our ancestors faced: Deciding how interdependent to become with others. One good heuristic is that interdependence with others (whether as co-parents or co-workers or in-laws or friends) is beneficial to the degree that others demonstrate relevant communion (i.e., benevolence towards you) and agency (i.e., able to further your goals) (Chan, Wang, & Ybarra, 2018; Locke, 2018). In short, good partners are those wish you well (communion) and can make your wishes come true (agency). If appraising the agency and communion of potential partners historically enhanced inclusive fitness, then we may be innately disposed to automatically activate social-cognitive circuitry that notices and evaluates whether others show relevant forms of agency and communion as soon as we consider becoming interdependent with them.

Communion may be the primary consideration in evaluating others because their agency only helps you if they use it to help you (Chan et al., 2018; Fiske, 2018; Locke, 2018). Accordingly, it makes sense that both students and parents deemed the communal attribute *Kind/Understanding* the most essential attribute. However, ideally partners also contribute agency. Accordingly, students and parents reliably deemed *Intelligent* (mental agency) and *Healthy* (physical agency) among the three or four most desirable attributes. Rankings of narrower forms of agency (e.g., *Good Housekeeper*, *Good Earning Capacity*) were less consistent presumably because their relevance depends more on a respondent's personal circumstances and cultural context.

If we evolved the social intelligence to flexibly evaluate potential partners based on our circumstances, then there would be pressure on those potential partners to have the social intelligence to understand the criteria being used to evaluate them. For example, imagine two men. The first is courting a woman whose partner will be chosen by her parents, who value earning potential over piety. The second is courting a woman who will choose her own partner and who values piety over earning potential. To be successful, the first man should convince the woman's parents of his earning potential, while the second should convince the woman of his piety. Individuals with the capacity to tailor their courtship strategy in this way presumably left more offspring, thereby further accelerating the evolution of our flexible social intelligence.

Limitations

Several aspects of our study may constrain the generalizability of its findings. We only sampled students who were seeking a long-term partner of a different gender; individuals not seeking a partner of a different gender may express different preferences. Although we recruited a linguistically, geographically, and culturally diverse sample, large parts of the globe (e.g., southern hemisphere) were not sampled. Within countries, our student participants within each country were typically recruited from a single university and thus may not reflect their country's cultural and socioeconomic diversity and may not represent preference patterns that are unique to distinct subcultures within that country.[5]

Methodologically, like most partner preference studies, our study relied on self-reports, which have been criticized as poor predictors of who people actually form relationships with (Eastwick, Luchies, Finkel, & Hunt, 2014). To some extent this is inevitable, because relationships depend not only on who we prefer but also on who prefers us. On the other hand, research has shown self-reported partner preferences to be moderately stable and to prospectively predict the characteristics of future partners (Gerlach, Arslan, Schultze, Reinhard, & Penke, 2019). Moreover, unlike most decisions (including decisions about dating or short-term sexual relationships), committing to a long-term partner is a singularly consequential decision that people may ruminate about and discuss with others for months or years. Thus, it would be surprising if individuals' expressed priorities—and the imagined reactions of close others—did not influence their decisions. That said, future research that juxtaposes self-

reported preferences with relevant behavioral, physiological, and neuroimaging data would help clarify the origins and outcomes of partner preferences and provide more definitive tests of competing theoretical models.

We have assumed that in general young adults' partner preferences are shaped by parents more than by other family members (e.g., grandparents, siblings, parents' siblings). Moreover, evolutionary theory expects parents and extended family members to generally share similar interests and thus similar preferences (van den Berg, 2016). Nevertheless, no studies (including ours) have actually tested whether other family members influence partner preferences and whether their influence varies across cultures, making this a worthwhile topic for future research. Finally, while our student participants were unmarried, we did not assess their relationship status (e.g., not dating, casually dating, in a long-term relationship); thus, how relationship statuses moderate preferences may also prove a productive direction for future investigations.

Conclusions

Despite its limitations, the current research has distinctive strengths: Only a few studies have compared partner and in-law preferences or compared preferences across countries or decades, and none have compared parents' preferences with the preferences of youth of their own generation. We found that culture influenced the rankings of every attribute; for example, being a good housekeeper and religious was more valued in Southeast Asian than Western cultures. Across cultures, though, youth clearly valued exciting, attractive partners more (and healthy, religious partners less) than parents did. Both youth and their parents placed more emphasis on men's partners being attractive and a good housekeeper and women's partners having an education and earning capacity, with gender differences in economic opportunities likely contributing to the differences in prioritizing breadwinner versus homemaker skills.

What Buss et al. (1990) said of their study is also true of ours: "the major goals of the study were descriptive" (p. 7). Like Buss et al.'s study, our study contributes unique descriptive data with which other samples can be compared. Indeed, a study like ours conducted a generation hence could juxtapose its data with both our and Buss et al.'s data, which would enable even more conclusive and compelling tests of the distinct effects of role, cohort, and

sociocultural norms. In this way, while theories wax and wane in popularity, large descriptive samples often prove to have enduring utility.

Nonetheless, we also considered how well our data fit patterns hypothesized by two major theoretical perspectives. We concluded that multiple theories are probably needed to fully explain patterns of partner/in-law preferences. For example, sex differences in prioritizing physical appearance may partly reflect specialized adaptations organized and activated by sex hormones. In general, though, our findings seemed most readily explained as outputs of adaptable partner-appraisal capabilities able to envision what it would be like to be a partner's spouse or in-law within a particular society and family system. Indeed, we speculated that considering others for *any* type of interdependent relationship may represent instances of the same class of abstract problem and thus recruit some of the same cognitive circuitry. If that circuitry is predisposed to focus on potential partners' relevant communal (e.g., kind, loyal) and agentic (e.g., healthy, intelligent) attributes (Chan et al., 2018), then we may be concomitantly predisposed to display these types of communal and agentic attributes that others reliably value (Locke, 2018).

Increasingly, technology can fill agentic and even communal roles that human partners traditionally filled for each other. For example, each year devices and algorithms become more able to produce useful conversation and information, perform domestic and wage labor, offer physical and sensual intimacy, and even create new life via assistive reproductive technologies. Thus, specialized partner/in-law preference programs that pick partners whose attributes best predicted inclusive fitness during the Pleistocene may no longer pick the best partners to meet our current and future needs. Indeed, if devices are tailored to display physical (e.g., shape) or behavioral (e.g., personality) cues our preference programs automatically respond to, then those programs may prefer devices to humans. However, the current results suggest an alternative scenario: Having also inherited adaptable partner-appraisal capabilities, we can also contemplate, evaluate, and emphasize the roles our human partners play in our lives that may be quite different from those either that devices can play or that humans played for each other in past generations.

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Footnotes

[1] In many studies—including Buss et al. (1990) and the current study—the materials given to participants defined long-term partners as "someone you might marry"; thus, for simplicity we often refer to long-term partners as *spouses* or, from the parents' perspective, *in-laws.*

[2] Seven other studies—despite not comparing youth's and parents' preferences directly—provide indirect support for the abovementioned partner/in-law differences. Three studies asked youth whether various attributes of potential partners would be more unacceptable to them or their parents (Buunk & Castro-Solano, 2010; Buunk, Park, & Dubbs, 2008; Dubbs, Buunk, & Taniguchi, 2013). Youth generally expected they would consider smelly, unattractive, uncreative, unexciting, humorless partners more unacceptable, while parents would consider uneducated partners from different Religious or ethnic backgrounds more unacceptable. Another study asked parents whether various attributes of a "child's potential partner" would be more unacceptable to them or their child (Dubbs & Buunk, 2010). Parents expected they would consider divorced partners lacking either a good family or a similar background more unacceptable, while their child would consider unattractive, unfit partners more unacceptable. Finally, when parents imagined seeking a partner for *themselves* rather than for their child, they placed more importance on attractiveness and an exciting personality and less having a good family and similar backgrounds (Apostolou, 2008a, 2008b, 2011).

[3] If specialized programs and adaptable partner-appraisals make identical predictions or no predictions about an attribute, then that attribute cannot help us compare the two models. For example, youth prioritizing *Physical Attractiveness* would be predicted by both general partner-appraisal capabilities (if people imagine attractiveness will enhance sexual relationships more than in-law relationships) and specialized programs (if attractiveness historically predicted genetic quality but not parental investment). Likewise, parents prioritizing *Religious* would be predicted by both general appraisal capabilities (if people imagine *Religious* will enhance in-law relationships more than sexual relationships) and specialized programs (if *Religious* historically predicted parental investment but not genetic quality). Thus, finding these parent-child differences would not help us contrast the models.

[4] The other part of our investigation concerned moderators of covariation between students' preference profiles for partner personality traits and their (a) beliefs about their parents' preferences and (b) parents' actual preferences (i.e., *assumed* agreement and *actual* agreement). To that end, the surveys also included the following. (1) Parents rated the desirability of 10 personality traits (carefree, cautious, frank, mischievous, nonconforming, outspoken, predictable, quiet, shy, traditional) in "someone your child might marry". (2) Students rated the desirability of the same traits in a "marriage partner for you". (3) Students predicted how their parents had rated each trait as well as the 13 attributes examined in the current study. (4) Students described their social goals during interactions with parents and peers on the *Circumplex Scales of Interpersonal Values*, a measure previously found to predict assumed self-other similarity in the United States, India, and Korea (Locke, Craig, Baik, & Gohil, 2012).

[5] Only the Canadian sample included sufficiently sizable ethnic groups to permit within-country comparisons—namely, Canadians self-reporting either a "European" or an "Asian/Pacific" background. Supplemental Table 8 reports exploratory analyses comparing these two groups. The only significant differences were that among female students, Asian-Canadians considered *Good Earning Capacity* and *College Graduate* to be more important than did European-Canadians.

Table 1

Rankings of Attribute Desirability by Parents and Students

	Parents' Preferences		Students' Preferences	
Attribute	*M*	*SD*	*M*	*SD*
Kind & Understanding	2.69	*2.18*	2.61	*2.13*
Healthy	4.45	*2.91*	5.88	*2.75*
Intelligent	4.57	*2.74*	4.67	*2.83*
Religious	7.07	*4.74*	8.42	*4.75*
Good Heredity	7.46	*3.45*	8.67	*3.10*
Good Earning Capacity	7.54	*3.18*	8.41	*2.97*
College Graduate	7.55	*3.21*	8.51	*3.00*
Exciting Personality	7.84	*3.42*	4.74	*3.05*
Wants Children	7.95	*2.95*	8.67	*3.04*
Good Housekeeper	8.00	*3.47*	8.56	*3.26*
Easygoing	8.12	*3.91*	7.37	*4.01*
Physically Attractive	8.87	*2.82*	6.23	*3.00*
Creative & Artistic	8.90	*2.85*	8.27	*3.16*

Note. Rankings could range from 1 (most desirable) to 13 (least desirable). Attributes are listed in order from most valued to least valued by parents. *N*s = 1,827 parents and 2,057 students. Any differences > .5 ranks within or between columns are significant at $p < .0001$ (uncorrected for multiple comparisons) and differences > 1 are significant at $p < .0000001$ by Wilcoxon signed rank tests. Wilcoxon tests comparing parents with students were conducted on the 1,816 dyads where *both* parent and child returned usable rankings.

Table 2

Mean Rankings of Attribute Desirability by Parents and Students of Each Nationality

	Canada	India	Italy	Japan	Mexico	Malaysia	Philippines	U.S.	$\chi^2(7)$	η^2
Parent Rankings										
Kind/Understanding	2.2	3.4	2.5	2.8	2.7	3.8	2.3	2.0	251.3	.13
Healthy	3.7	4.3	4.5	1.8	4.1	5.1	7.3	4.4	461.9	.25
Intelligent	3.7	5.3	2.8	5.6	3.4	7.0	5.5	3.6	530.0	.29
Religious	9.4	4.7	8.9	10.1	9.4	1.2	3.8	8.8	871.2	.48
Good Heredity	8.8	7.7	8.9	7.5	7.8	3.8	6.5	9.6	498.5	.27
Earning Capacity	6.8	6.4	8.8	6.9	7.0	7.5	8.8	7.0	129.8	.07
College Graduate	7.0	6.9	8.3	9.1	5.7	9.7	5.4	7.7	393.6	.21
Exciting Personality	8.3	8.6	4.4	11.6	9.0	7.4	7.3	7.6	603.6	.33
Wants Children	7.6	9.2	7.3	6.7	8.9	8.2	8.8	7.5	132.5	.07
Good Housekeeper	9.7	7.8	10.7	5.7	8.3	5.9	5.1	10.4	695.8	.38
Easygoing	6.2	8.8	6.1	5.3	7.5	12.5	12.6	5.5	1038.1	.57
Physically Attractive	8.2	9.0	9.2	8.4	9.9	9.2	8.7	8.0	99.3	.05
Creative/Artistic	9.4	9.0	8.5	9.5	7.3	9.8	8.9	9.1	123.3	.06
Student Rankings										
Kind/Understanding	2.5	1.7	3.0	2.5	3.0	3.3	2.0	2.3	205.4	.10
Healthy	5.7	5.0	5.6	4.6	5.9	6.2	7.9	5.9	175.6	.08
Intelligent	3.7	4.5	3.0	6.5	3.1	7.4	5.1	3.9	612.6	.30
Religious	10.8	7.3	11.1	8.1	11.8	1.4	6.3	10.3	1025.9	.50
Good Heredity	9.7	8.9	9.6	10.0	9.0	5.5	7.4	9.6	408.4	.20

Earning Capacity	8.2	7.7	9.4	7.5	8.6	7.8	8.6	9.2	84.3	.04
College Graduate	8.0	7.8	9.5	10.0	7.0	10.0	6.5	8.4	358.0	.17
Exciting Personality	4.6	6.3	3.1	7.1	3.9	5.7	4.3	3.7	353.8	.17
Wants Children	7.9	10.2	8.2	8.2	9.8	8.8	9.3	7.9	129.9	.06
Good Housekeeper	10.1	8.9	10.7	6.8	9.8	5.7	6.1	10.1	713.6	.34
Easygoing	5.7	7.4	5.2	4.5	6.4	12.3	12.3	5.4	1095.6	.53
Physically Attractive	5.5	8.0	5.0	5.5	6.5	7.8	6.4	5.9	211.2	.10
Creative/Artistic	8.5	7.2	7.5	9.8	6.3	9.3	8.7	8.4	222.0	.10

Note. Attributes are listed in order from most valued to least valued by parents. *N*s = 1,827 parents and 2,057 students. Chi-squares (χ^2) and eta-squares (η^2) based on Kruskal-Wallis tests; all *p*s < .00001. Differences between countries within rows > 1 rank level are almost always significant at $p < .001$ by Mann-Whitney tests.

Table 3

Rankings of Attribute Desirability by Parents and Students in Western and Asian Countries

	Parents						Students					
	Asian		Western				Asian		Western			
Attribute	*M*	*SD*	*M*	*SD*	*z*	r^2	*M*	*SD*	*M*	*SD*	*z*	r^2
Kind & Understanding	3.1	2.1	2.4	2.2	-10.1	.06	2.5	2.1	2.7	2.2	0.7	.00
Healthy	4.8	3.3	4.2	2.6	-2.4	.00	6.0	3.0	5.8	2.5	-1.0	.00
Intelligent	6.0	2.6	3.4	2.2	-21.5	.25	6.2	2.8	3.4	2.1	-21.9	.23
Religious	4.6	4.3	9.1	4.1	20.6	.23	5.3	4.3	11.0	3.4	27.7	.37
Good Heredity	5.9	3.2	8.7	3.1	17.1	.16	7.7	3.5	9.5	2.5	11.5	.06
Good Earning Capacity	7.6	3.3	7.5	3.1	-0.8	.00	7.9	3.3	8.8	2.6	5.9	.02
College Graduate	8.0	3.3	7.2	3.1	-5.7	.02	8.8	3.1	8.2	2.9	-5.1	.01
Exciting Personality	8.6	3.1	7.2	3.5	-8.3	.04	5.8	3.2	3.8	2.6	-15.0	.11
Wants Children	8.1	2.9	7.8	3.0	-1.9	.00	9.0	2.9	8.4	3.1	-3.6	.01
Good Housekeeper	5.9	3.0	9.8	2.8	23.8	.31	6.6	3.2	10.2	2.3	24.7	.30
Easygoing	10.2	3.8	6.4	3.1	-21.4	.25	9.4	4.3	5.7	2.8	-20.0	.20
Physically Attractive	8.8	2.7	8.9	2.9	0.8	.00	6.9	3.2	5.7	2.8	-8.4	.03

Creative & Artistic	9.4	2.4	8.5	3.1	-5.8	.02	9.0	2.9	7.7	3.3	-8.6	.04

Note. Rankings could range from 1 (most desirable) to 13 (least desirable). Attributes are listed in order from most valued to least valued by parents. *N*s = 827 Asian parents, 1,000 Western parents, 928 Asian students, and 1,129 Western students. *Z*s and r^2s computed from Mann-Whitney U tests; if $z > 5$, then $p < .00001$ (uncorrected, two-tailed).

Table 4

Differences between Attribute Rankings by 1984 Youth, 2015 Youth, and 2015 Parents

Attribute	Canada			India			Italy			Japan			United States		
	84Y - 15Y	84Y - 15P	15Y - 15P	84Y - 15Y	84Y - 15P	15Y - 15P	84Y - 15Y	84Y - 15P	15Y - 15P	84Y - 15Y	84Y - 15P	15Y - 15P	84Y - 15Y	84Y - 15P	15Y - 15P
Kind/Understanding	-0.37	-0.10	0.27	1.74	0.12	-1.62	-0.06	0.39	0.45	0.94	0.67	-0.27	-0.04	0.25	0.29
Healthy	**-0.36**	**1.61**	**1.97**	-0.50	0.13	0.63	**0.34**	**1.51**	**1.17**	-1.95	0.92	2.87	**0.12**	**1.65**	**1.53**
Intelligent	0.61	0.65	0.03	-0.37	-1.14	-0.77	-0.95	-0.76	0.19	-1.67	-0.78	0.89	-0.26	-0.04	0.22
Religious	**0.56**	**1.94**	**1.37**	1.06	3.63	2.57	**-0.51**	**1.71**	**2.22**	2.61	0.55	-2.06	**0.22**	**1.72**	**1.50**
Good Heredity	0.37	1.32	0.95	-1.86	-0.64	1.22	-1.10	-0.38	0.72	**-0.29**	**2.21**	**2.50**	0.76	0.82	0.06
Earning Capacity	**0.63**	**2.01**	**1.38**	**-0.08**	**1.26**	**1.33**	0.21	0.81	0.60	-0.13	0.40	0.54	**-0.43**	**1.73**	**2.16**
College Graduate	1.09	2.12	1.03	-1.89	-0.92	0.97	-0.24	0.96	1.19	0.19	1.05	0.86	-0.27	0.48	0.75
Exciting Personality	**-0.35**	**-4.12**	**-3.77**	2.26	0.01	-2.25	2.16	0.82	-1.34	-4.53	-9.06	-4.53	**0.02**	**-3.87**	**-3.89**
Wants Children	-0.47	-0.16	0.31	-1.45	-0.39	1.06	-0.17	0.77	0.94	**0.56**	**2.12**	**1.56**	0.11	0.50	0.39
Good Housekeeper	-0.10	0.30	0.40	**0.27**	**1.42**	**1.15**	-0.98	-0.99	-0.01	1.32	2.39	1.07	0.51	0.23	-0.28
Easygoing	-0.46	-0.89	-0.43	0.65	-0.73	-1.39	*3.07*	*2.09*	*-.98*	*2.19*	*1.35*	*-.83*	0.36	0.29	-0.07
Physically Attractive	**-0.63**	**-3.26**	**-2.63**	-2.08	-3.14	-1.06	**0.40**	**-3.83**	**-4.24**	2.52	-0.38	-2.89	**-0.48**	**-2.54**	**-2.05**

Creative & Artistic	-0.36	-1.25	-0.89	2.19	0.37	-1.82	*-2.16*	*-3.08*	*-0.92*	*-1.62*	*-1.33*	*0.30*	-0.66	-1.28	-0.62

Note. Values indicate: 1984 youth's mean ranking minus 2015 youth's mean ranking (84Y - 15Y), 1984 youth's mean ranking minus 2015 parents' mean ranking (84Y – 15P), and 2015 youth's mean ranking minus 2015 parents' mean ranking (15Y – 15P), where rankings could range from 1 (most desirable) to 13 (least desirable). Patterns consistent with Societal Shifts are *italicized*; patterns consistent with Generational Effects are underlined; patterns consistent with Role Effects are **bolded**.

Table 5

Rankings of Attributes by Parents and Students as a Function of Student Gender

	Parents' Preferences						Students' Preferences					
	Female		Male				Female		Male			
Attribute	*M*	*SD*	*M*	*SD*	*z*	r^2	*M*	*SD*	*M*	*SD*	*z*	r^2
Kind & Understanding	2.7	*2.3*	2.7	*2.1*	1.6	.00	2.4	*2.0*	3.0	*2.3*	6.8	.02
Healthy	4.5	*2.9*	4.4	*2.9*	-1.1	.00	5.8	*2.7*	6.0	*2.9*	0.9	.00
Intelligent	4.4	*2.6*	4.9	*2.8*	3.9	.01	4.5	*2.7*	5.0	*3.0*	3.7	.01
Religious	7.2	*4.7*	6.9	*4.8*	-1.1	.00	8.6	*4.7*	8.1	*4.9*	-2.2	.00
Good Heredity	7.7	*3.4*	7.1	*3.5*	-3.6	.01	8.9	*3.0*	8.3	*3.2*	-4.7	.01
Good Earning Capacity	6.6	*3.0*	9.0	*2.9*	15.7	.14	7.9	*3.0*	9.3	*2.8*	10.9	.06
College Graduate	7.1	*3.2*	8.3	*3.0*	7.7	.03	8.0	*3.1*	9.3	*2.7*	9.0	.04
Exciting Personality	8.0	*3.4*	7.6	*3.5*	-2.0	.00	4.7	*3.0*	4.7	*3.1*	0.0	.00
Wants Children	8.1	*3.0*	7.7	*2.9*	-2.7	.00	8.6	*3.1*	8.7	*2.9*	0.4	.00
Good Housekeeper	8.5	*3.4*	7.2	*3.5*	-7.9	.03	9.0	*3.1*	7.8	*3.4*	-8.1	.03
Easygoing	8.2	*3.8*	8.0	*4.1*	-1.2	.00	7.3	*3.9*	7.5	*4.1*	0.9	.00
Physically Attractive	9.1	*2.7*	8.6	*2.9*	-3.5	.01	6.7	*3.0*	5.5	*2.9*	-8.8	.04
Creative & Artistic	9.0	*2.8*	8.7	*2.9*	-2.8	.00	8.5	*3.2*	7.9	*3.1*	-4.6	.01

Note. Rankings could range from 1 (most desirable) to 13 (least desirable). Attributes listed in order from most valued to least valued by the average parent. *N*s = 1258 female students, 799 male students, 1121 parents of a female student, and 706 parents of a male student. *z*s and r^2s computed from Mann-Whitney U tests; if $z > 3$, $p < .001$ (uncorrected, two-tailed).

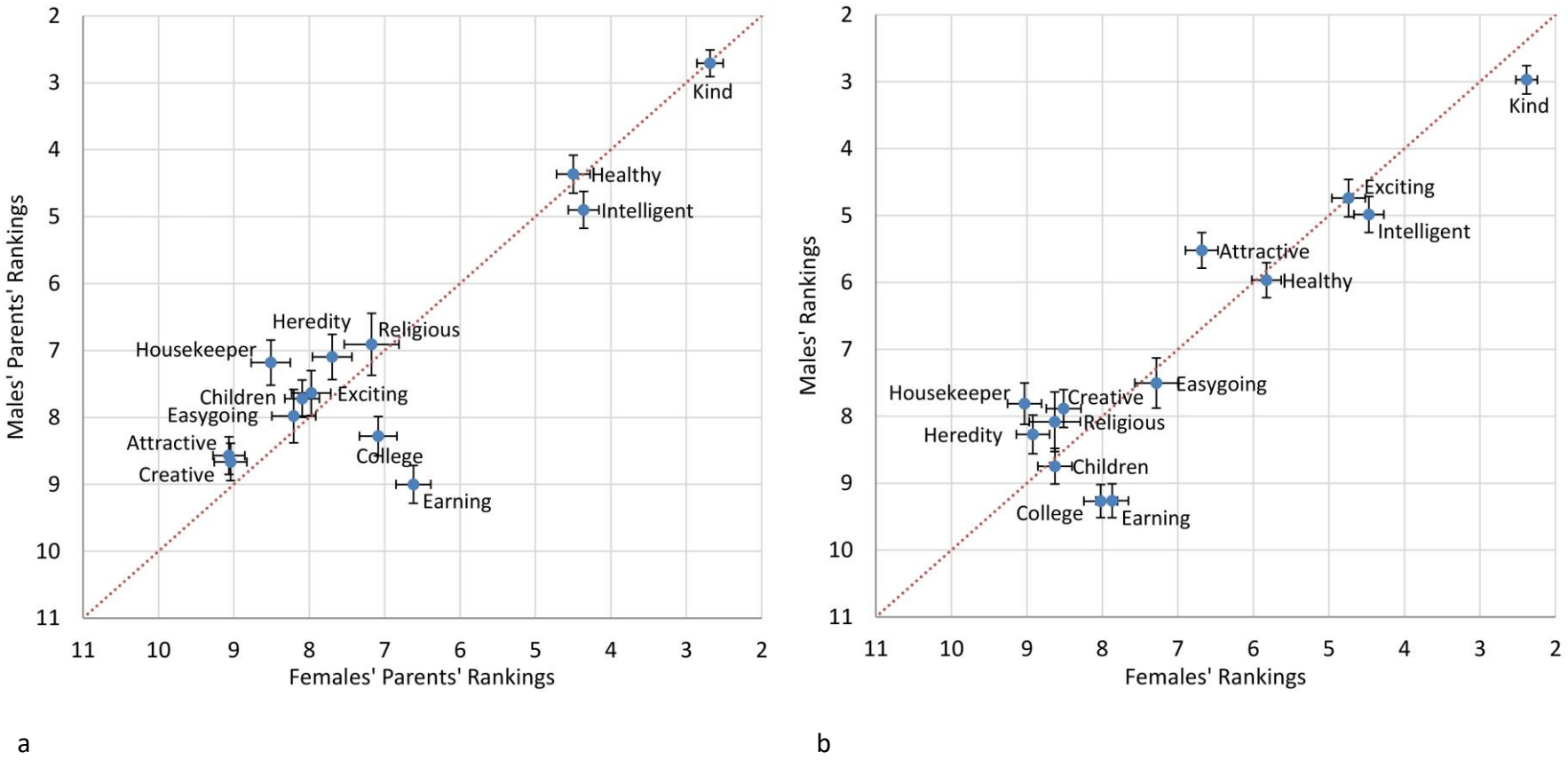
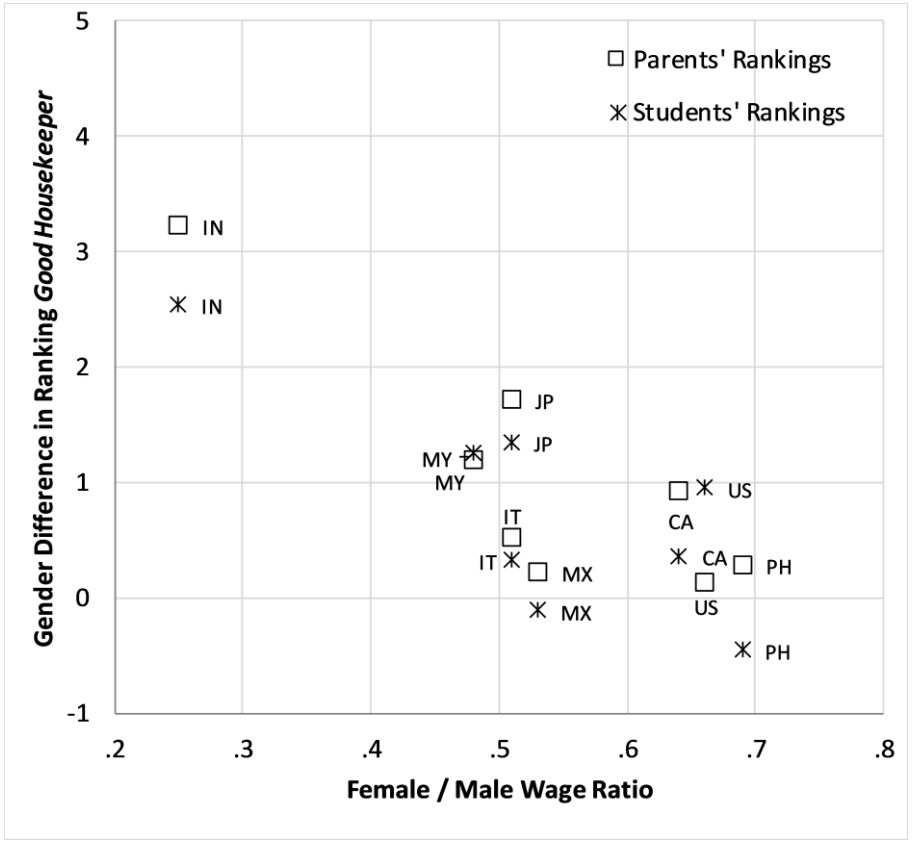


Figure 1. Scatterplots showing each attribute's rankings by parents of female and male students (panel a) or by female and male students (panel b). Error bars = 99% confidence intervals around each mean.

a



b

Figure 2. Gender differences in rankings of the desirability of *Good Earning Capacity* (panel a) and *Good Housekeeper* (panel b) as a function of the Female/Male Wage Ratio within each country. CA = Canada, IN = India, IT = Italy, JP = Japan, MX = Mexico, MY = Malaysia, PH = Philippines, US = United States. Larger sex differences (on the Y-axis) reflect *more* desirability being accorded to *Earning Capacity* (in panel a) or *less* desirability being accorded to *Housekeeper* (in panel b) by females or parents of females than by males or parents of males