

21st Century neo-androgyny: A measure of de-gendered androgyny

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Introduction

The androgyne, a person who is psychologically androgynous and behaves androgynously, and their representation as an ideal person in an ideal world, has been idolized in many forms - from Greek mythology to the biblical Jesus Christ (Hopkins, 2013), till the present day (Weigel et al., 2020). However, the androgyny hypothesis that claims androgyny provides for healthy personal adjustment lacks consistent theoretical and empirical support. Regardless of a few contemporary studies and discussions claiming an androgynous personality provides positive outcomes for individuals in pursuits such as medicine (Rupavataram, 2017), the arts (Jonsson & Carlsson, 2000), science (Norlander et al., 2000), and leadership (Powell, 2015), support for the construct remains ambiguous (Pauletti et al., 2016). The notion of androgyny as a balance of ill-defined masculinity and femininity gives all the signals of being outdated. Notwithstanding the demise of Bem's 1970s androgyny theory, her provocative work transformed and modernized gender theory (Dean & Tate, 2016). However, androgyny remains a slippery construct, and one that can be influenced by the zeitgeist (the socio-cultural thinking and biases of the day). This current article is an effort to make its meaning more objective and concrete.

What is psychological androgyny and the androgyny hypothesis?

The notion of androgyny in humans has referred to myriad and variable constructions of literal and figurative images of woman-in-man and man-in-woman

(Ramet, 1996) and unification of the sexes in some form has often served as a symbol of salvation (Hopkins, 2013). The androgyny hypothesis states that being androgynous is positively correlated with higher levels of psychological health and well-being for both sexes. According to the hypothesis, being behaviorally stereotyped shapes and creates a personal environment that provides less benefits than does being psychologically androgynous by allowing better access to a wider range of situationally appropriate behavior, which in turn fosters better adaptation to life or at least provides a buffer to life's vicissitudes (Woodhill & Samuels, 2004).

Is the idea of androgyny still relevant?

While the promises of the androgyny hypothesis still seem intuitively attractive, these have not been unequivocally substantiated. One is thus prompted to ask whether or not the construct of androgyny as some mystical combination of masculine and feminine characteristics is any longer defensible. The study of sex and gender should perhaps be charged with offering a new framework from which a coherent, consistent, and lasting concept of androgyny may be derived, and from which the androgyny hypothesis may be re-examined and perhaps reborn. In contrast to the inference that androgyny is a pathological form of unsustainable expression, it has not since been listed in the Diagnostic and Statistical Manual of Mental Disorder (DSM-IV).

The problems

The problems with traditional androgyny theory are multiple, yet we propose the shortcomings more theoretic than psychometric. Theorists historically presented psychological androgyny as a balanced mix of ill-defined masculinity and femininity, measuring it categorically. By 'ill-defined' we mean an unspecific collection of innate traits and non-innate behaviours. Traditionally, masculinity has been tied to instrumental traits and femininity to expressive traits. Up to the 1970s, these differences were politicized hierarchically with instrumentality privileged (Morawski, 1987). Feminist researches of the 1970s saw a chance to dilute this hierarchy in the race for equality. They believed differences prescribed on the basis of biological sex were flawed and viewed androgyny as a tool to defeat the politics and minimize difference. For feminists, difference was tied to culture and society and not to biology, and so the combination of masculinity and femininity would be of greatest benefit to all individuals in terms of skills or styles of behaving (Morawski, 1987).

In her powerful critique of androgyny, Morawski (1987) blamed individual constraints, especially for women, on socio-cultural power structures. The lack of a general theory for androgyny and what she referred to as “psychological gender” were her (valid) weapons for its de-construction. Certainly, ambiguity in definitions of gender has been presented as a fundamental flaw in androgyny theory, obfuscating the construct of androgyny. The belief that opposing biological gender differences are insignificant to non-existent and manufactured for the political convenience of the androgyny era, had kept androgyny research problematical (Morawski, 1987), and it seems it remains so.

The links with high self-esteem and general positive outcomes for girls and women and their relationship with feminist beliefs (such as affirmative action, agency, autonomy, sexual refusal) of the late twentieth century was indeed complex, explaining why there were inconsistencies in the literature (Yoder, Snell, & Tobias, 2012). Gender was seen as a social process and thus androgyny as the combination of socially bred hierarchies and so irrelevant to its expression. Politics, power, and culture were to blame for inequality. Morawski (1987) claimed that falling prey to the hierarchical language of difference established by outdated male dominated science, and maintaining innate differences, researchers of androgyny theory appear to operate in a ‘social vacuum’ (Morawski, 1987). For the defeatists of androgyny, it is politics and social structures and not any innateness in gender that affect individual locus of control and wider choices, especially women’s. Nevertheless, reconciliation of debates about innate difference and the total removal of social and political confounds from androgyny theory has not since been achieved.

Traditional models of androgyny ignored the socio-political drives of behaviour and the possibility of innate difference was either ill-defined or outright renounced. This position has overpowered the relevance of androgyny as currently defined because innate cognitive differences must be removed from its theory. If they are not, then the criticism that androgyny violates any natural order based on innate biological differences (Carlson, 1995) becomes viable. The significance of *not* removing innate traits from androgyny theory is highlighted when either their attempted dilution or removal may be regarded as a threat to a person’s integrity through a perceived impact on the inner sense of self (Weigel et al., 2020). The attempted merging of innate masculine and feminine characteristics may suppress effectiveness in services such as management, the military, in people generally unable to integrate parts of their

masculine and feminine selves (Carlson, 1995). In other words, whether one believes in innate behaviour differences or not, the traditional notion of being androgynous merged real or imagined differences which may threaten an individual's inner sense of self and hence bring fear of adopting an androgynous lifestyle.

Furthermore, doubts about the validity of assessing only positive, socially desirable attributes in measure of androgyny were first raised in 1977 (Kelly, Caudill, Hathorn, & O'Brien, 1977). Pro-social and anti-social categories of androgyny were first described by Woodhill and Samuels who found only pro-social androgyny was associated with optimal psychological health and well-being (Woodhill & Samuels, 2003, 2004).

Bem (1974) stipulated that an androgynous gender identity might allow an individual to freely engage in both 'masculine' and 'feminine' behaviours. However, as we noted, the social push to adopt this nebulous androgynous identity may threaten an individual's inner sense of self and suppress individual effectiveness (Carlson, 1995). By not distinguishing between innately sexed behavior relevant to reproduction (Woodhill & Samuels, 2021) and non-innate or acquired behaviour (Maccoby & Jacklin, 1974) in the androgynous mix, traditional models of androgyny proposed, by default, that it consists of their ambiguous combination. By presenting androgyny as this combination of fixed (innate) and flexible (learned) behaviors, traditional models proposed some emasculation of men and 'masculation' of women.

Emasculation is apparent in traditional androgyny where it implicitly asks men to adopt innate femininity. Judith Halberstam asked why was there no word for the opposite of "emasculation" (Halberstam, 1998, p. 269) and Cynthia Secor (1974, p. 166) states that androgyny is essentially a male word and, in effect, "gynandry" does not exist. We present the word 'masculation' as implicitly asking women to adopt innate masculinity. Surely adoption of opposite sex innateness is a spurious concept when the most widely accepted model of identity establishment—the bio-psycho-social model (Wood & Eagly, 2002) presents some sex differences as innate and others as acquired. In the end, attempting to conflate political, cultural, and socially driven differences (Morawski, 1987), innately, and non-innately driven behavior, with positive and negative characteristics (Woodhill & Samuels, 2003, 2004) were the confounding features of androgyny's foundational theory.

What are the implications ?

The implications are the original categorical constructs and measures of psychological androgyny [such as the BSRI, the PAQ, and the EPAQ], are likely theoretically ungrounded (Ruscio & Ruscio, 2008; Morawski, 1987). While it is valid to ask to what extent are reported innate differences between the sexes due to physiological differences (the intrauterine organizational effects of genes and hormones), and to psychosocial factors (activational effects of the post-natal environment), it can be said with some confidence that factors such as genetics, hormones, and epigenetics (how nurture shapes nature) act in parallel to produce sex differences in some reproductive behavior in both the brains and bodies of males and females (Woodhill & Samuels, 2021; Fernandez et.al., 2018; Chaplin, 2015; Diamond, 2013; Rice, Friberg, & Gavrillets, 2012). With similar confidence it can be said the remainder of behavior associated with the general cognitive functions of reasoning, organization, and the execution of complex thoughts, including levels of intelligence, remain a mosaic (Joel & McCarthy, 2017; Jones & Lopez, 2014), and as such need be the only behaviors relevant to the theory of psychological androgyny.

The twentieth century was truly a time of intense interest of philosophers and psychologists in gender-related behavior. Despite flaws in applying Bem's 1970s concept of androgyny, its introduction into psychological research had a seminal contribution to the study of gender. Androgyny served as a catalyst for social justice and equality like never before, it brought focus on the social construction of many gender roles, and it drove scholars away from theorizing on categorical gender to multidimensional spectrums of gender (Dean & Tate, 2016). Undoubtedly such an influential legacy makes androgyny a concept that has *not* had its time. Nonetheless, the problems with the theory still require research (Weigel et al., 2020).

Neo-androgyny

Although Bem did not differentiate innate from learned behavior, nor account for the socio-political causes of difference, she did however seem regretful over her own interchangeable use of the terms sex and gender when perhaps they should have been differentiated (Bem, 1993). A more contemporary view of identity has the categories of male and female as 'fuzzy' (Haslam, 2002); that is, there are not two distinct categories of sex and gender. Instead, these are presented as gradations of the variables associated

with all people generally, as linear and continuous (Carothers & Reiss, 2013), or circular and continuous (van Anders, 2015), or canalized (Woodhill & Samuels, 2021). Studies since Bem's have highlighted the dimensional versus categorical classification of gendered behavior (Schudson et al., 2017; van Anders, 2015; Carothers & Reiss, 2013; Rosario, 2004; Reeder, 2003), or what we would refer here as de-gendered behavior. De-gendered androgyny explicitly asks for a balance the non-innate behaviors removed from social and political influences.

The current study

The de-gendering of androgyny involves leaving only non-innate or acquired behaviors in the mix. Neo-androgyny means in essence only learned behaviors are available in sufficient quantities to both sexes in support of situationally appropriate behavior.

The aim of this research was to identify items for a generic measure of pro-social neo-androgyny from a common repertoire of non-innate behavior; thereby alleviating the need to construct androgyny out of nebulous taxonomic concepts of masculinity and femininity or from statistically weak categorical measures. Following the desirable/undesirable split of items (Wajsblat, 2011; Woodhill & Samuels 2003, 2004) we focus here on social or positive items because negative behaviours override the positive benefits of pro-social androgyny where outcomes for pro-social androgyny are different from and superior to anti-social or negative androgyny on measures of psychological health (Woodhill & Samuels, 2003).

Method

Participants

Four hundred and fifty two (319 female and 133 male) adults participated in this study, including 162 students from an Australian university and 290 international online recruits. One-hundred-and-ten participants completed less than 50% of survey items and were excluded from the study, leaving a final sample of 342 (251 females and 91 males) all aged over 18 ($M_{\text{age group}} = 21\text{-}30$). Inspection of the dataset indicated that participants who completed less than half the survey tended to reside in a country where English is not the native language. Correlational analysis confirmed that low

completion rates were associated with residence in a non-native English speaking country, $r = -.32$, $p < .001$. A low completion rate amongst non-native English speakers is understandable, given that the survey required comprehension and rating of a wide range of English adjectives. The remaining native English speaking ($n = 286$) and non-native English speaking ($n = 56$) participants did not differ significantly in their gender ratings of 86% of the adjectives assessed in this study.

Procedure

Participants completed an online, email, or paper version of a questionnaire. University participants were invited to participate online as credit towards their study. International participants self-selected from 64 other countries after responding to online promotion. Participants judged a list of 121 personality or behaviorally descriptive adjectives comprising behaviors that are commonly viewed as innately different - both quantitatively and qualitatively (e.g., aggressive, autocratic) and non-innate (e.g., ambitious, bold). First, participants rated the desirability of each behavior on a three-point scale with options including (1) 'desirable', (2) 'neutral' or (3) 'undesirable'. Second, they rated the genderedness of each term by assigning it to the sex they believed it most typically belonged: 'male', 'female', 'both', or 'neither'. Adjectives were sourced from The Adjective Checklist (Gough, & Heilbrun, 1980), the BSRI (Bem, 1974), the EPAQ (Spence, Helmreich, & Holahan, 1979), the literature, and expert opinion such as university professors and lecturers, as well as the views and intuitions of the authors of this current paper. The resulting list of 121 behaviors was consistent with lists of male or female characteristics identified in previous research (Woodhill & Samuels, 2003, 2004).

Participants were asked the following:

This list of 121 words represents some human personality behaviors. Generally speaking each behavior is associated more with one sex than the other, and sometimes with both. This list can give us a picture of the typical female or male in today's world. Think of typical men and women as you see them. Now decide whether each word below is desirable or undesirable and also to which sex that item mostly belongs. If you think the behavior a word describes is mostly desirable then highlight 'desirable'. If you think it is mostly undesirable then highlight 'undesirable'. If you think it is neither desirable nor undesirable then highlight 'neutral'. On the same line highlight for whom you think it usually applies. Of course, you will be able to think of a situation where an

item will be desirable and another situation where the same item will be undesirable; don't worry, we are asking you to indicate generally, in most situations, what you consider that item is. You may think an item is usually associated with both sexes, then highlight the word 'both'. If you consider a word irrelevant to a person's sex, that is if you can't decide which sex to assign it to, highlight only the 'neither' response. Finally if you are unsure of the meaning of a word then cross it out and go on.

For example:

Emotionally-in-touch - Desirable neutral undesirable : usually female usually male both neither

So this example tells us that the person thinks being 'emotionally-in-touch' is a desirable behavior usually associated with women.

Truthful - Desirable neutral undesirable : usually female usually male both neither

This example tells us that this person thinks 'truthful' is a desirable behavior that both sexes demonstrate.

A possible order effect was alleviated by creating four versions of the questionnaire in which the adjectives were presented in different orders determined by random number generation and then randomly assigning one of the four versions to participants in each delivery method. Random number generation was carried out by Survey Monkey (<http://www.surveymonkey.com>).

Results

Data cleaning

Missing values were observed on several variables, ranging from 0.3% on the behavior *Arrogant*, to 10.5% on the behavior *Virile*, with 10 variables exhibiting greater than 5% missing values. Missed responses were not missing completely at random, $\chi^2(23733) = 24621$, $p < .001$. No formal test exists to distinguish between data that are missing at random (MAR) and missing not at random (MNAR). Therefore, we considered the nature of the questionnaire items to infer whether or not missing data on a variable were likely to be related to respondents' actual scores on that variable. We considered it unlikely that a subset of participants would purposively avoid responding to a particular adjective to withhold their "true" score on that adjective. Rather, we concluded that missing values were more likely to be related to participants' patterns of responses across all adjectives. That is, we concluded that these values were missing at

random (MAR). Consequently, missing values were imputed using the expectation maximization algorithm in SPSS 20. For the Crosstabs analysis, imputed missing values were rounded to whole numbers. For the Principal Components Analysis, between one and 14 high univariate outliers observed on eight variables were recoded to .10 above the next most extreme value (Tabachnick & Fidell, 2001).

Descriptive statistics

Potential items for inclusion in a de-gendered androgyny measure were selected after examining participants' responses using SPSS Crosstabs and chi-square analyses. First, an adjective was deemed androgynous if significantly more participants than expected classified it as attributable to "both" genders than to "male", "female", or "neither" gender. Second, the desirability of each androgynous adjective was classified as "desirable", "neutral", or "undesirable" if >50% participants endorsed that classification. For example, 'open-minded' was judged as affiliated with both genders by a significantly larger than expected proportion of respondents (91.7%) and over half the sample rated it as a desirable behavior (64.0%). Similarly, 'persistent', 'fair' and 'friendly' were judged by a significantly larger than expected percentage of respondents as affiliated with both genders and rated as desirable by more than 50% of participants (61.7%, 62.4%, and 79.8%, respectively). Consequently, the above behaviors were among those categorized as positively or pro-socially androgynous (A+). In contrast, adjectives that were attributed to both genders by a significantly large percentage of respondents and were rated as undesirable behaviors by greater than half the sample (e.g., 'cynical' and 'sarcastic') were categorized as negatively, undesirably or anti-socially androgynous (A-).

In total, 68 behaviors were judged as de-gendered (applicable to both sexes). Of these, 40 adjectives were judged as pro-socially androgynous (A+) under this de-gendered model, and seven (7) adjectives were judged as anti-socially androgynous (A-). (Twenty-one androgynous adjectives were judged as neither desirable nor undesirable). Descriptive statistics for the A+ and A- adjectives are shown in Table 1.

Scale construction

Principal Components Analysis (PCA) was conducted on the 40 pro-social items using SPSS 20 to identify latent constructs underlying the pro-social (A+) variables. Kaiser's (1960) eigenvalues-greater-than-one rule and Cattell's (1966) scree test

indicated eleven and two components in the dataset, respectively. Two to eleven component solutions were extracted and subjected to direct oblimin rotations. All solutions with greater than five components failed to converge. The five-component solution offered the most interpretable solution, which explained 42.94% of the total variance in the dataset. Component one explained 25.91% of the variance in the dataset, component two explained 5.77%, component three 4.08%, component four 3.73%, and component five 3.42%. With .40 as the cutoff for inclusion, six adjectives failed to load on any component (peace loving, resolute, agile, vigorous, courageous, and alert) and one adjective (kind) cross-loaded above .40. Consequently, 33 items were retained. Table 2 presents all retained items with their factor loadings. Components one to three exhibited acceptable internal consistency ($\alpha = .86, .68, \text{ and } .82$, respectively), however reliability of components four and five was low ($\alpha = .59 \text{ and } .49$, respectively). Internal consistency of all 33 retained items, as a potential single scale, was very high ($\alpha = .88$).

Adjectives that loaded on component one tended to describe positive social interactions (e.g., friendly, courteous, sociable). Consequently, we labelled this component Social Efficacy. Component two captured expressions of Creativity (e.g., artistic, musicality), items on component three reflected Capability (e.g., practical, resourceful, clear-thinking), items on component four captured an individual's Eminence (e.g., worldly, strong, ambitious), and items on component five tended to reflect Determination (e.g., persistent, dignified). We calculated total component scores by averaging across items. Correlational analyses of the total scores indicated moderate to strong relationships between the five potential A+ subscales (See Table 3).

Discussion

Fifty-six percent of the 121 behaviors assessed were judged as androgynous. Constructs such as 'active' and 'passive' were no longer gender differentiating in the minds of many participants. Much behavior once considered gendered were now considered to apply equally to both sexes; they were simply classified according to their degree of desirability. Thirty-three percent (40) of the original 121 behaviors were judged as pro-socially androgynous (desirable and gender-neutral). Seven were judged as anti-socially androgynous (undesirable and gender neutral). From the 40 desirable behaviors, PCA identified five components that reflected five facets of de-gendered pro-social androgyny: Social Efficacy, Creativity, Capability, Eminence, and Determination.

If one adheres to biologically driven difference to any extent, then, as Woodhill and Samuels (2003) theory of differentiated androgyny suggests, none of these components represent innate psychology for either sex.

Participants in this study viewed many of the assessed behaviors as characteristic of both sexes. Consistent with the concept of de-gendered androgyny, almost all characteristics judged as androgynous in the current study are commonly viewed as ‘non-innate’ behaviors. That is, they do not reflect innately driven gender differences, but instead primarily reflect socially learned or culturally driven behaviors. However, we did find that the relationship items ‘sociable’ and ‘friendly’, which some authors have distinguished as relating to female reproductive roles (Buss, 1995; Pfaff, 2011), were classified as androgynous (gender-neutral) in the current study, while as previously discussed, other research has indicated that women tend to value sociability differently to men.

Significantly, all of our five components are identifiable amongst the character strengths of the Values in Action (VIA) Classification of Strengths (Peterson & Seligman, 2004); the first major project developed deliberately from positive psychology. The five factors we identified for androgyny that were also identified directly or as synonyms by Park, Peterson, and Seligman (2004) were;

1. Capability—as skilled performance in whatever domain of life one chooses. It subsumes such behaviors as practical, resourceful, rational, and transparent thinking.
2. Creativity—as thinking in productive ways to do things, including but not limited to strictly artistic domains. It subsumes such behaviors as artistic and musicality but is more about creative problem-solving.
3. Eminence—as being capable of leading harmoniously and respectfully, encouraging your group to get things done. Eminence subsumes such behaviors as worldly, energetic, and ambitious;
4. Social efficacy—or social intelligence as being aware of the motives and feelings of others and oneself, knowing what to do in different social situations, and acting appropriately. It subsumes such behaviors as being assertive, friendly, cooperative, compassionate, tender, patient, courteous, open, considerate, and helpful, and is akin to empathy.

5. Determination—as zest, enthusiasm and vigor, living life as an adventure, and not doing things half-heartedly. It subsumes such behaviors as persistence and dignity.

The five factors of neo-androgyny are well reflected in the theory of adaptive intelligence. Although intelligence is viewed as consisting of various kinds, the mental processes involved in creative, analytical, practical, and wise thinking are the same (Sternberg, 2020). Adaptive intelligence, on the other hand, is quite different to the traditional IQ test of cognitive intelligence. Adaptive intelligence is somewhat akin to Howard Gardner's theory of multiple intelligences (see Gardner, 2011), except it adds social intelligence. Adaptive intelligence, like androgynous principles, stresses the importance of interpersonal or social intelligence, as well as creative, analytical, and wisdom-based skills. Furthermore, adaptive intelligence is the “ability to set and accomplish personally meaningful goals in one's life, given one's cultural context” (Sternberg, 2020).

While we acknowledge that our five factors do not capture the exact content of behavior, one may argue, as do Park, Peterson, and Seligman (2004), that they capture their character strengths. Various components of our A+ adjectives are virtually tautological with the hope, zest, gratitude, curiosity, love, modesty, and intellectual strength that Park, Peterson, and Seligman found strongly associated with “life satisfaction” (Park, Peterson, & Seligman, p. 607, 2004). As Aristotle suggested, well-being is not necessarily an eventual consequence of virtuous action but rather inherent in such action (Ameriks & Clarke, 2000). And so, it would be difficult to argue that any combination of positive behaviors under the patronage of our five factors would not be more beneficial to psychological health and well-being. Interestingly, with the goal of broadening the scope of positive human functioning, Wajsblat (2011) sought to offer the field of positive psychology a better understanding of one positive individual behaviour—that of gender role identity. Her analysis of the component factors of the Big 5 indicated that A+ did add significant variance to self-report of well-being when controlling for Neuroticism and Extraversion.

Desirability of all behavior was measured on an ordinal scale; yet, our factor analysis showed that pro-social androgyny is not a one-dimensional construct. All psychological research is statistically more valid when it accounts for between group variability such as between the sexes. Spelman (cited in Gould, 1997) upholds that a general principle of feminist enquiry is to be skeptical about any account of human

relations that fail to mention gender. It is the reason why we should not randomly assign participants to groups in any experiment involving ‘people’ without due regard to their sex. ‘Groups’ of people are all female, all male, or some combination of both, and as such this ratio is a statistical confound when ignored in psychological research. It is also the reason why lay reports of ‘people’ doing such and such are an unsatisfactory representation of events; they refer to ‘people’ across the board when in fact, it is often to one sex or the other. They conflate dimorphic behavior into the one sex. However, ours is a scale of within-group difference in that we have treated our mixed-sex subjects as the one genus of contemporary Homo Sapiens where sex is irrelevant. Our scale items do not attempt to classify M and F behavior because that would reinforce the very stereotypes it seems to undermine. We suggest that the five facets of pro-social behavior identified in this study could form the basis of a new generic continuous measure of pro-social, behavioral versatility (i.e., a new conceptualization of androgyny or neo-androgyny).

Methods used in this current study were designed to represent a more contemporary measure of behavior from which generic levels of androgyny, or rather diversity or versatility could be calculated. Instead of attempting to fit this data as undifferentiated masculinity and femininity into traditional theories of androgyny, the current findings support a new and more precise theory of androgyny; one that makes use of the remaining full repertoire of pro-social behavior, once regarded as masculine and feminine to some degree, yet now more de-gendered and separate from innate difference. In this way, our methodology may be used as a tool in future research to identify further behavioral versatility, or to update the desirability status of behaviors in relation to changing social and cultural norms.

Limitations of this study

The underlying theory behind this study was developed for Western cultures, while participants were from many diverse cultures, 65 in all. Further, the majority of participants self-selected and were not balanced across numbers of men and women. These matters do raise statistical issues with the lack of random selection that may question normality. The number of missing values was of concern and was highly related to the inclusion of non-native English speaking respondents. Additionally, desirability of behaviors was measured on an ordinal scale whereas PCA/factor analysis requires interval/ratio data. We overcame this problem by treating ordinal variables as

if they were continuous (Tabachnick & Fidell, 2001). Although this may yield misleading results (Joreskog, 1994), the property of variables that is crucial to their application is shape and not type (Tabachnick & Fidell, 2001). It should also be noted that Cronbach's alpha for components four and five was very low, indicating weak internal consistency. While it is believed that the latent construct of interest in the behavioral and social sciences is continuous, all test data are innately binary because of multiple choice. PCA among the binary variables will not accurately represent the correlations. A better method of analysing categorical or ordinal data assumed to be drawn from an underlying continuous dimension is via tetrachoric correlation (Savalei, Bonett, & Bentler, 2015). Future research on neo-androgyny based on tetrachoric correlation factor analysis of categorical or ordinal data drawn from underlying continuous dimensions may improve validity and reliability.

Most variables in the PCA were positively skewed because they were selected on the basis of being pro-social, where low scores indicated high desirability. We have relaxed the practical limitations in favor of an exploration of the data relative to this new theory. All marker variables are pure variables when they correlate well with only one factor. The 33 variables selected are seen as relatively pure marker variables for each of the hypothesized five components in the solution because they do correlate well (all $>.40$) with only one component each.

Apart from Spence, Helmreich, and Holahan (1979), our imperfect statistical attempt to address the theoretical flaws in Sandra Bem's original and significant theory are better than anything else intending to do so since. We believe this paper is built on a strong theoretical foundation for androgyny, and is at least a statistical starting point for a well-grounded theory.

Conclusion

This initial research lays ground for the renaissance of an androgynous life as a valid and beneficial choice, as well as the basis of a contemporary empirical replacement of antiquated categorical measures of androgyny. Neo-androgyny may become a mindset model by not attempting to de-gender the sexes or interfere with individual identity, thus addressing concerns with the traditional model. Future studies could assess the validity of a measure of A+ de-gendered androgyny based on the adjectives identified in this current study and assess the de-gendered androgyny theory

by comparing the predictive abilities of A+ de-gendered androgyny and traditionally gendered androgyny.

The significance of stable innate behavioral difference does not negate the benefits of this neo-androgyny because politically gendered and socially determined behavior is inherently gender-neutral and is distinct from, and can co-exist with, innate behaviors whether one believes they exist or not. Despite androgyny's ambiguous past and that it was once discredited as a kind of wishy-washy gender identity for either sex, we do admire those amongst us who can express the virtues of both sexes (Woodhill & Samuels, 2004).

The theory of neo-androgyny does not deny inborn differences since it neither calls for men to express innate 'femininity' nor women to express innate 'masculinity.' With patriarchy being the history of the world, it is significant to note a neo-androgynous identity promotes and validates the momentum towards more acceptable and adaptive masculinity amongst men and amongst women, and without the threat to self-esteem that earlier feminist versions of androgyny produced through their denial of innate sex differences.

Declaration of interest.

Conflict of interest: The authors have no competing interests to declare. .

Human and Animal Rights: This article does not contain any studies with human participants or animals performed by the author. No research grant has supported this work.

Funding. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Availability of data and material. Data no longer available.

Code availability. Principal Components Analysis using SPSS 20.

CRedit author statements.

Woodhill, B: Conceptualization; Data curation; Project administration; Resources; Software; Supervision; Writing - original draft & editing; Writing - review & editing.

Samuels, C: Data curation; Project administration; Resources; Software; Supervision;
Writing - review & editing

References

- Ameriks, K., & Clarke, D. (2000). *Aristotle: Nicomachean Ethics*. Cambridge University Press.
- Ainsworth, C. (2015). Sex redefined. *Nature*, 518(7539), 288.
- Bem, S. (1974). The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology*, 42, 155-162.
- Bem, S. (1993) *The Lenses of Gender*. Yale University Press, New Haven.
- Block, J. (1973). Conceptions of sex role: Some cross-cultural and longitudinal perspectives. *American Psychologist* (June), 512-526.
- Boye, K. (1994). *Complete Poems*. Bloodaxe Books. Hexham, UK.
- Buss, D. (1995). Evolutionary Psychology: A new paradigm for psychological sciences. *Psychological Enquiry*, 6, 1-30.
- Carothers, B., & Reiss, H. (2013). Men and women are from earth: Examining the latent structure of gender. *Journal of Personality & Social Psychology*, 104, 2, 385– 407. doi: [10 1037/a0030437](https://doi.org/10.1037/a0030437)
- Carlson, C (1995). *The Androgyny Hoax*. Retrieved from <https://www.pop.org/the-androgyny-hoax/>
- Cattell, R. (1966). The scree test for the number of factors. *Multivariate Behavioral Research*, 1, 245–276.
- Chaplin, T. (2015). Gender and emotion expression: A developmental contextual perspective. *Emotion Review*, 7(1), 14-21.
- Dean, M., & Tate, C. (2017). Extending the legacy of Sandra Bem: Psychological androgyny as a touchstone conceptual advance for the study of gender in psychological science. *Sex Roles*, 76(11-12), 643-654.
- Diamond, M. (2013). Transsexuality among twins: identity concordance, transition, rearing, and orientation. *International Journal of Transgenderism*, 14(1), 24-38.
- Elshtain, J. (1981). Against androgyny. *Telos*, 47, 5-21.

- Fernández, R., Guillamon, A., Cortés-Cortés, J., Gómez-Gil, E., Jácome, A. (2018). Molecular basis of Gender Dysphoria: androgen and estrogen receptor interaction. *Psychoneuroendocrinology*, 98, 161-167.
- García-Acero, M., Moreno-Niño, O., Suárez-Obando, F., Molina, M., Manotas, M. (2020). Disorders of sex development: Genetic characterization of a patient cohort. *Molecular medicine reports*, 21(1), 97-106.
- Gardner, H. (2011). *Frames of mind: The theory of multiple intelligences* (10th anniversary ed.). New York, NY: Basic Books.
- Gough, H., & Heilbrun, A. (1980). *The Adjective checklist manual*. Palo Alto, CA: Consulting Psychologists Press.
- Gould, C. (1997). *Gender: Key concepts in critical theory*. Amherst, New York: Humanity Books.
- Halberstam, J. (1998). *Female masculinity*. Duke University Press.
- Haslam, N. (2002). Kinds of kinds: A conceptual taxonomy of psychiatric categories. *Philosophy, Psychiatry, & Psychology*, 9(3), 203-217.
- Hefner, R., Rebecca, M., & Oleshansky, B. (1975). Development of sex-role transcendence. *Human Development*, 18, 143-158.
- Hopkins, B. (2013) The Bible as a medium for social engineering: Jesus as the androgynous role model. *Journal of Research in Gender Studies*, 3,1,78–87.
- Joel, D., & McCarthy, M. (2017). Incorporating sex as a biological variable in neuropsychiatric research: where are we now and where should we be?. *Neuropsychopharmacology*, 42(2), 379.
- Joel, D., Berman, Z., Tavor, I., Wexler, N., Gaber, O. (2015). Sex beyond the genitalia: The human brain mosaic. *Proceedings of the National Academy of Sciences*, 112(50), 15468-15473.
- Jones, R., & Lopez, K. (2014). *Human reproductive biology*. Chapter Sixteen. Academic Press.
- Jonsson, P., & Carlsson, I. (2000). Androgyny and creativity: A study of the relationship between a balanced sex-role and creative functioning. *Scandinavian Journal of Psychology*, 41, 269-274.

Joreskog, K. (1994). On the estimation of Polychoric correlations and their asymptotic covariance matrix. *Psychometrika*, 59, 381-389.

Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement*, 20, 141-151.

Kelly, J., Caudill, M., Hathorn, S., & O'Brien, C. (1977). Socially undesirable sex-correlated characteristics: Implications for androgyny and adjustment. *Journal of Consulting and Clinical Psychology*, 45(6), 1185.

Lenny, E. (1979). Androgyny: Some audacious assertions toward its coming of age. *Sex Roles*, 5(6), 702-719.

Maccoby, E., & Jacklin, C. (1974). *The Psychology of Sex Differences*. Stanford, CA: Stanford University Press.

Maney, D. (2014). Just like a circus: the public consumption of sex differences. In *Ethical issues in behavioral neuroscience* (pp. 279-296). Springer, Berlin, Heidelberg.

McCarthy, M., De Vries, G., & Forger, N. (2017). Sexual differentiation of the brain: a fresh look at mode, mechanisms, and meaning. *Hormones, Brain and Behaviour (Third Edition)*, 5, 3-32. doi: 10.1016/B978-0-12-803592-4.00091-2

Morawski, J. (1987). The troubled quest for masculinity, femininity, and androgyny. Review of Personality and Social Psychology: *Sex and Gender*, 7, 44-69.

Mustanski, B., DuPree, M., Nievergelt, C., Bocklandt, S., Schork, N. (2005). A genomewide scan of male sexual orientation. *Human genetics*, 116(4), 272-278

Norlander, T., Erixon, A., & Archer, T. (2000). Psychological androgyny and creativity: Dynamics of gender-role and personality trait. *Social Behavior and Personality: an international journal*, 28(5), 423-435.

Park, N., Peterson, C., & Seligman, M., (2004). Strengths of character and well-being. *Journal of Social and Clinical Psychology*, 23, 5, 603-619.

Pauletti, R., Menon, M., Cooper, P., Aults, C. & Perry, D. (2016). Psychological androgyny and children's mental health: A new look with new measures. *Sex Roles*, 76(11-12), 705-718.

- Peterson, C., & Seligman, M. (2004). *Character strengths and virtues: A classification and handbook*. New York: Oxford University Press.
- Pfaff, D. (2011). *Man and woman: An inside story*. New York: Oxford.
- Powell, G., & Butterfield, D. (2015). The role of androgyny in leader prototypes over four decades. *Gender in Management: An International Journal*.
- Ramet, S. (1996). *Gender reversals and gender cultures*. London: Routledge.
- Rice, W., Friberg, U., & Gavrilets, S. (2012). Homosexuality as a consequence of epigenetically canalized sexual development. *The Quarterly review of biology*, 87(4), 343-368.
- Rupavatham, S. (2017). Shouldn't Competence and Compassion Coexist in Medical Professionals? A Study of Psychological Androgyny in Doctors. *Indian Journal of Public Health Research & Development*, 8(4), 458-462.
- Ruscio, A., & Ruscio, J. (2008). Categories and dimensions: Advancing psychological science through the study of latent structure. *Current Directions in Psychological Science*, 17, 203-207. doi:10.1111/j.1467-
- Reeder, H. (2003). The effect of gender role orientation on same- and cross-sex friendship formation. *Sex Roles*, 49(3/4), 143.
- Rosario, V. (2004). The biology of gender and the construction of sex? *GLQ: A Journal of Lesbian & Gay Studies*, 10, 280-287.
- Savin-Williams, R., Cash, B., McCormack, M., & Rieger, G. (2017). Gay, mostly gay, or bisexual leaning gay? An exploratory study distinguishing gay sexual orientations among young men. *Archives of sexual behavior*, 46(1), 265-272.
- Savalei, V., Bonett, D., & Bentler, P. (2015). CFA with binary variables in small samples: A comparison of two methods. *Frontiers in psychology*, 5, 1515.
- Schudson, Z., Dibble, E., & van Anders, S. (2017). Gender/sex and sexual diversity via sexual configurations theory: Insights from a qualitative study with gender and sexual minorities. *Psychology of Sexual Orientation and Gender Diversity*, 4(4), 422.
- Secor, C. (1974). Androgyny: An early reappraisal. *Women's Studies: An Interdisciplinary Journal*, 2(2), 161-169.

- Sisk, C. (2016). Hormone-dependent adolescent organization of socio-sexual behaviours in mammals. *Current opinion in neurobiology*, 38, 63-68.
- Spence, J., Helmreich, R., & Holahan, C. (1979). Negative and positive components of psychological masculinity and femininity and their relationship to self-reports of neurotic and acting out behaviors. *Journal of Personality and Social Psychology*, 37, 1673-1682.
- Sternberg, R. J. (2020). Rethinking what we mean by intelligence. *Phi Delta Kappan*, 102(3), 36-41.
- Tabachnick, B. & Fidell, L. (2001). Using multivariate statistics. 4th edition. Needham Heights, MA: Allyn & Bacon.
- van Anders, S. (2015). Beyond sexual orientation: Integrating gender/sex and diverse sexualities via sexual configurations theory. *Archives of Sexual Behavior*, 1-37.
- Wajsblat, L. (2011). *Positive androgyny and well-being: A positive psychological perspective on gender role Valence*. Hofstra University.
- Weigel, N., Vodolaga, V., Shapoval, G., Kartashova, E., & Safronenko, A. (2020). Modern Androgyny as a Manifestation of a Universal Personality. *Journal of Talent Development and Excellence*, 12(3s), 234-241.
- Wood., W., & Eagly, A. (2002). A cross-cultural analysis of the behavior of women and men: Implications for the origins of sex differences. *Psychological Bulletin*, 128, 699-727.
- Woodhill, B., & Samuels, C. (2021). Sex vs Gender: A Biological Location for Gender, not Sex. *Cambridge Open Engage*. doi:10.33774/coe-2020-k7gt1-v3
- Woodhill, B., & Samuels, C. (2004). Desirable and undesirable androgyny: A prescription for the twenty-first century. *Journal of Gender Studies*, 13(1), 15-28.
- Woodhill, B., & Samuels, C. (2003). Positive and negative androgyny and their relationship with psychological health and well-being. *Sex Roles: A Journal of Research*, 48(11/12), 555-565.
- Yoder, J., Snell, A., & Tobias, A. (2012). Balancing multicultural competence with social justice: Feminist beliefs and optimal psychological functioning. *The Counseling Psychologist*, 40(8), 1101-1132.

Table 1.

Means and Standard Deviations for the Desirability of the A+ and A- Items.

Items	Mean	SD	Items	Mean	SD
<u>Socially Positive (A+)</u>					
alert	1.16	0.38	open-minded	1.09	0.33
agile	1.36	0.54	passionate	1.15	0.38
ambitious	1.35	0.53	peace-loving	1.20	0.43
artistic	1.23	0.44	persistent	1.45	0.50
attractive	1.16	0.39	pleasant	1.09	0.29
bold	1.51	0.58	practical	1.20	0.43
calm	1.14	0.38	rational	1.19	0.41
capable	1.04	0.19	resolute	1.54	0.59
cheerful	1.11	0.32	resourceful	1.08	0.28
clear-thinking	1.06	0.23	sociable	1.17	0.42
communicates-well	1.04	0.23	stable	1.15	0.38
confident	1.10	0.31	strong	1.16	0.39
courageous	1.13	0.35	successful	1.19	0.42
courteous	1.10	0.36	vigorous	1.46	0.57
dedicated	1.08	0.30	worldly	1.51	0.65
dignified	1.27	0.48			
fair	1.09	0.31	<u>Socially Negative (A-)</u>		
firm	1.48	0.55	cynical	2.60	0.61
friendly	1.06	0.23	nasty	2.94	0.28
fun	1.11	0.36	prejudiced	2.90	0.32
giving	1.09	0.30	quarrelsome	2.88	0.36
helpful	1.06	0.24	sarcastic	2.51	0.68
imaginative	1.13	0.34	stubborn	2.63	0.59
kind	1.04	0.22	vindictive	2.85	0.41
musical	1.31	0.48			

Notes: All items rated on a 3 point scale ranging from 1) desirable to 3) undesirable.

Table 2.

Direct Oblimin Rotated Component Loadings for the Socially Desirable Androgynous Adjectives.

A+ Adjectives	1 Social Efficacy	2 Creativity	3 Capability	4 Eminence	5 Determinati on
Friendly	0.75	0.11	-0.03	-0.04	-0.10
Fair	0.72	0.07	-0.05	-0.06	-0.04
Fun	0.67	0.08	0.07	0.21	-0.09
Courteous	0.63	-0.27	0.06	0.08	0.25
Communicates well	0.62	-0.10	-0.29	0.11	0.01
Pleasant	0.59	0.05	-0.34	0.05	-0.15
Cheerful	0.54	0.28	-0.02	0.07	-0.12
Sociable	0.52	0.03	0.02	0.28	0.10
Dedicated	0.50	0.05	-0.14	0.07	0.16
Calm	0.49	-0.09	-0.04	-0.19	0.32
Musical	0.02	0.75	0.11	-0.04	0.07
Artistic	0.06	0.72	-0.06	-0.01	0.08
Imaginative	0.09	0.56	-0.22	0.04	-0.03
Rational	-0.08	0.06	-0.77	0.04	-0.16
Practical	-0.12	0.09	-0.63	0.14	0.09
Resourceful	0.08	-0.06	-0.58	-0.01	0.30
Open-minded	0.11	-0.13	-0.56	0.06	0.16
Capable	0.20	0.01	-0.47	-0.05	0.14
Helpful	0.29	0.27	-0.46	0.01	-0.20
Clear-thinking	0.34	-0.03	-0.46	0.00	0.14
Giving	0.25	0.26	-0.44	-0.09	-0.11
Stable	0.25	-0.01	-0.41	0.08	0.08
Confident	0.01	0.19	-0.41	0.27	0.02
Worldly	-0.14	-0.09	-0.17	0.59	-0.06
Attractive	0.14	0.19	0.16	0.48	-0.02
Successful	0.16	-0.03	-0.23	0.48	0.08
Passionate	0.00	0.20	-0.03	0.47	-0.05
Ambitious	0.13	-0.12	0.05	0.45	0.12
Strong	0.11	0.02	-0.33	0.45	0.19
Persistent	-0.05	0.08	-0.04	-0.02	0.65
Dignified	0.11	-0.03	-0.10	0.24	0.46
Firm	-0.19	0.22	-0.12	0.01	0.44
Bold	0.02	0.23	0.13	0.11	0.40

Notes. $N = 342$. Retained items loading $> .40$ are indicated in bold.

Table 3.

Correlations between Mean Total Scores on the Socially Desirable Androgynous

Components

A+ Components	1 Social Efficacy	2 Creativity	3 Capability	4 Eminence	5 Determination
Social Efficacy	1				
Creativity	.32	1			
Capability	.63	.41	1		
Eminence	.45	.30	.49	1	
Determination	.30	.38	.36	.31	1

Note: All correlations are significant at $p < .001$, two-tailed