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Human Development

The Mysterious Interplay:
A brief meta-analytic essay examining the contemporary literature on gender development during childhood, with an emphasis on atypical gender-role assumption.

Throughout the comparatively short existence of the Behavioural and Social Sciences as an academic field of study, a great schism has existed in researchers' beliefs regarding the origins of the multitude of human developmental aspects. Historically, that split has been extreme; there were those researchers that believed development is almost wholly due to genetic, biological, and heritable causes (nature), and those who argued that it is not nature, but rather environmental variability, upbringing, and other social constructs (nurture) that caused developmental disparities. As recently as the middle of the twentieth century (and possibly even later), many social scientists considered these two viewpoints to be mutually exclusive. However, within the contemporary literature and current psychological and sociological studies, the majority consensus is that any aspect of human development results from the interplay between biological maturation and environmental variability, especially during the respective critical period (Bors, 1994).

With this new synthesis approach, it would be easy for one to assume that the nature-nurture debate is over. While the extreme viewpoints—arguing that a trait is developed completely through nature or nurture, respectively—have essentially faded out of existence, the deliberation hasn't disappeared, but has merely shifted. Now instead of arguing wholly for one cause or another, psychologists and sociologists agree that both nature and nurture contribute to development, but they debate over which is the most prominent for each respective aspect therein. For instance, it has been found that schizophrenia and other schizotypal disorders are vastly linked with genetic predispositions and neurophysiological anomalies (Oltmanns & Emery, 2004).

Concerning other areas of psychopathology, as well as many aspects of development, the epistemological components are not as clearly defined. One area of development in particular has many researchers enthralled in attempts to find genetic and environmental causes: sexual and gender development. Especially in the early stages of life—early childhood, later childhood, and adolescence—development of gender identity and respective roles has proven to be not only incredibly important, but also intensely complex (Heller, 2004).

Throughout childhood and adolescence, and especially in Western cultures, kids are bombarded with ideas and societal norms of what boys should be and what girls should be. These culturally constructed sex-based norms of toys, friends, attitudes, activities, mannerisms, clothing, and even imaginary play are all clustered

together under the umbrella term of 'gender roles' (Blakemore, 2003). As long as a boy or girl conforms to his or her gender role, society typically views his or her life choices (barring so-called 'devious' sexuality and matters of legality) in a positive light. For instance, with regard to playtime, if a little boy likes playing with Tonka trucks and wrestling around with his siblings or buddies, then there isn't a problem. Conversely, if a young girl enjoys pretending to have a tea party with stuffed animals, she's is playing in accordance with her gender role. However, what happens when that hypothetical little boy wants to play tea party? What happens if that little girl engages in more aggressive forms of play, and enjoys being around boys instead of girls? In either of those two cases, parents, other adults, and sometimes even other children will be concerned because they are playing in ways contradictory to the socially established gender normativity (Tulviste & Koor, 2005).

The study of non-normative gender development—otherwise known as atypical gender development or gender non-conformity—is wildly important within the area of psychology because of its strong correlation to a child's psychological well-being and psychosocial adjustment (Egan & Perry, 2001). Within Egan and Perry's study, gender identity was broken down into three different sub-aspects: how well one felt associated with his or her gender role, external “pressure for gender conformity”, and personal feelings about the construction of gender groups—namely, is one gender role better than the other; a type of pseudo-sexism (2001, p. 451).

The two researchers decided to analyze these individual aspects of gender schemata because they believed previous studies were too domain-specific, in that, they only looked at conformity to gender roles within the context of one particular area, such as toy preference or emotional sensitivity (Egan & Perry, 2001). While this domain specificity allows for deep insight into a certain aspect of development, it doesn't lend itself to extrapolation of general conclusions about one's overall gender conformity or non-conformity.

Egan and Perry administered two types of assessments to each of 182 nine- to fourteen-year-old boys and girls (2001). Both were self-report style assessments, including a questionnaire about various aspects of masculinity and femininity in play activities, sexuality, outward presentation, et cetera, and a sociometric scale measuring each student's like or dislike for each of their classmates (Egan & Perry, 2001). Their findings nicely supported their original hypotheses about the the interconnectedness of gender role typicality and psychosocial

adjustment (Egan & Perry, 2001). For instance, they found that by “middle childhood” there was statistically significant evidence that kids understand and realize—whether with overt consciousness or not—all three of the currently measured components of gender identity: role typicality, external pressure for conformity, and role superiority (Egan & Perry, 2001, p. 459). In accordance with other previously-done studies, they found that gender typicality—that is, how much a boy or girl assumes the societally-deemed appropriate level of masculinity or femininity, respectively—is strongly positively correlated with personal psychosocial adjustment and a “healthy sense of self” (Egan & Perry, 2001, p. 459). The other finding that was predicted was that boys experience a greater pressure to conform to gender norms than do girls (Egan & Perry, 2001). This idea has been theorized before, and has been anecdotally accounted for, but after the current study, there is more empirical and psychometric evidence therein, at least within the Western subculture of the United States.

While the Egan & Perry study added empiricism to a myriad of theorized sex-based gender role disparities, it did neglect a few key aspects of validity and scientific theory expansion. For instance, intergroup variability based on age was simply disregarded. It is possible that more precise and effective conclusions could have been drawn if the researchers had preformed multivariate analyses of variance (MANOVAs) on their data in this regard. However, it could be assumed that such differences were outside of the scope of the current study.

Egan and Perry, through their study, determined that gender role identification and the consequent assumption thereof is “multidimensional” (2001, p. 459). This conclusion allowed subsequent researchers to more accurately and appropriately hypothesize and test for both genetic and environmental factors of early gender development. Just a few years after their study, a group of researchers from Israel and the UK expanded Egan & Perry's study by investigating atypical gender role assumption through the Twins' Early Development Study (TEDS) (Knafo, Iervolino, & Plomin, 2005).

In their study, Knafo, Iervolino, and Plomin aimed to find out the contributions of “genetics, shared environment,” and unshared environment to gender atypicality by looking at both monozygotic and dizygotic twin pairs (2005, p. 400). These researchers believed that previous studies focused almost entirely on finding the genetic and environmental factors of sexuality and sexual orientation. While the researchers found these links to

be important, they deviated from that correlational study and instead focused on a multitude of other non-normative behaviours like “play [and] dress” (Knafo et al., 2005, p. 401). They also believe that placing a high emphasis on sexual orientation could bias the results, due to sexuality being an “extreme aspect of gender” (Knafo et al., 2005, p. 401). In preemptive studies, results yielded a slant toward environmental variability over genetics, and the current team of researchers wanted to either further validate and/or challenge those findings.

The current study used slightly different operational definitions of gender atypicality than did former studies. For instance, this study chose to use intragroup comparison of gender conformity rather than the usual societally constructed criteria for gender normativity. Further, the researchers distinguished between “fully gender atypical” children—kids who exhibited significant attributes common to the opposite sex while showing few idiosyncrasies of their own gender role—and “partially gender atypical” boys and girls, who displayed high numbers of both masculine and feminine dispositions (Knafo et al., 2005, p. 402). Using Golombok and Rust's Pre-School Activities Inventory (PSAI) in order to objectively assess gendered behaviours, and degree of freedom extremity, the team attempted to differentiate those behaviours primarily influenced by genetic propensities, and those manifested and perpetuated by environmental variability (Knafo et al., 2005).

The data yielded some interesting sex-based distinctions for possible sources of gender role behaviours. For instance, while genetics had some effect, shared environmental experience (between the twin pairs) showed the most contribution to non-normatively gendered behaviour, and the results did not differ between the fully gender atypical (FGA) and partially gender atypical (PGA) boys (Knafo et al., 2005). Interestingly, however, there were significant differences between FGA and PGA girls, in that there was a very strong genetic component in FGA girls' masculinities, but PGA girls more closely resembled the correlations found in both FGA and PGA boys (Knafo et al., 2005). These finding raise a lot of questions that require further investigation to answer. One question would be why there is a stronger environmental component for boys than for girls. Knafo and others hypothesized that it might be because parents place “stronger emphasis on gender conformity” for their boys than for their girls (Knafo et al., 2005, p. 409). This sex-based disparity could lead boys to feeling stronger pressure for conformity, as suggested by the earlier Egan & Perry study.

Instead of using the researcher-created subcategories of FGA and PGA that Knafo, Iervolino, and Plomin established, many researchers rely on the criteria presented in the DSM-IV-TR or ICD-10 manuals. Coolidge, Thede, and Young investigated the not only the genetic components but also the hereditary aspects of the DSM-IV-specific diagnosis of Gender Identity Disorder (2002). While some psychologists view GID as being an evasive way of maintaining the pre-DSM-IV classification of homosexuality as a psychopathological disorder, many principal researchers and clinicians still use that definition in practice (Zucker & Spitzer, 2005).

In this particular study, Coolidge, Thede, and Young administered the CPNI scale for DSM diagnosis of Gender Identity Disorder to the parents of 157 monozygotic and dizygotic twin pairs (2005). Though all of the "parents-as-respondents" were, at the time, living in the United States, there was vast ethnic, cultural, and regional variability amongst the participants (Coolidge et al., 2005, p. 253). Due to the probable statistical flaws in the CPNI scale, the "4-point Likert" responses were transposed into binary scores for further tests of statistical significance (Coolidge et al., 2005, 254).

After vast intra- and intergroup analyses (based on age cohorts, MZ and DZ twins, males and females, et cetera), the team found some interesting trends in the data suggesting that the DSM-IV-diagnosed Gender Identity Disorder was "highly heritable" (Coolidge et al., 2005, p. 256). One aspect of the heritability trend that strongly warrants further study, however, is that there were age differences. Considering the CPNI was administered to parents who answered on behalf of their children, there is a possibility that the parents' responses were biased by their older children (namely mid-to-late adolescents) being away from the home more often than their younger children. This respectively shorter amount of time spent in the presence of the parents could skew the parents' perspectives of their teenagers' behaviours (Coolidge et al., 2005). Also, because the inventory was given to such a small group of parents (N=157), the resulting p-values—being only slightly significant—are even more questionable. In essence, while this study provided a valid starting point for the investigation of the heritability of GID, few conclusions can be adequately appropriated.

With all the studies that have been done within the last decade, there have only been a few that have deviated from similar methodologies to the ones previously mentioned. However, instead of observing children's

behaviours or asking for parental response regarding their children's gender normativity, Judith Blakemore chose to actually question the *children* about their *own* beliefs (2003). She asked 87 boys and 99 girls a series of questions regarding several hypothetical situations revolving around sex-based and gender-based societal norms (Blakemore, 2003). Some of the questions were directly asking for the child's opinions and beliefs, while others more indirectly required the child to evaluate an activity within the context of the greater society. For example, she asked, using a 5-point Likert scale, how comfortable the children would be to see a boy playing in a "toy kitchen" (Blakemore, 2003, p. 413). Based on the children's responses to these question sets, she assessed the three- to eleven-year-old children's answers on three different yet developmentally interrelated axes. Applicability of those axes—"knowledge of the norms, flexibility," and social "evaluation of norm violations"—showed interesting correlations to the children's chronological ages, respectively (Blakemore, 2003, pp. 414-415).

Her findings primarily fell in accordance with her initial hypotheses. For instance, the data showed that understanding particular activities and behaviours of gender normativity, as well as not necessarily acceptance, but "possibility of violating them (flexibility)", were highly positively correlated with age (Blakemore, 2003, p. 417). Though several findings were simply further validations of previously found results, there was one newly discovered and exceptionally interesting finding, which consequently found its way into the title of the publication: boys more often believed that gender violations in appearance were more extreme, while girls believed violations of activitiy were more socially unacceptable (Blakemore, 2003). Concretely put, boys were more confused by other boys who looked like girls, while girls were more puzzled by other girls who acted like boys (Blakemore, 2003).

Though many studies have been done within the general areas of sexual and gender development, as well as the more specific areas of sexuality and gender non-conformity, there is still a vast array of unknown elements within this aspect of human development. Further investigation is necessary to establish direct links from biology, genetics, heredity, and environmental variability to gender role recognition and assumption.

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