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Overexcitability in Children Aged 8 and 9 in Parents' Perception. Does Sex Matter?

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Abstract
Overexcitabilities (OEs) that manifest themselves in intense, emotional, and deep experiencing are part of the developmental potential in Kazimierz Dąbrowski's Theory of Positive Disintegration. Most of the studies of OEs are conducted with gifted individuals, using self-evaluation. The present study was carried out among children randomly selected from a general school population, excluding the selective criterion of high abilities. With the use of the Overexcitability Inventory for Parents (OIP-II), parents' perceptions of their children's profiles of OEs were collected. The OIP-II consists of six scales: psychomotor, sensual, imaginational, intellectual OEs, plus emotional sensitivity and emotional empathy. The participants were 116 parents of children aged 8 (13 girls, 29 boys) and 9 (37 girls, 37 boys) from Poland. The multivariate analysis of variance (MANOVA) showed that girls scored statistically significantly higher than

boys on sensual OE and emotional empathy. Older girls obtained higher scores on sensual OE and younger on emotional empathy. No OE profile of boys was found. The novelty in the present study is a random selection of children from a general population for the study as well as the use of the OIP-II. In the discussion, possible explanations and interpretations of the findings are presented, including a suggestion for the direction of further research.

Keywords: emotional empathy overexcitability, parents' perception, sex, children aged 8 and 9.

Introduction

Overexcitability (OE) is an excessively intense response to stimuli coming from the external and inner environment of an individual and stored in the affective memory for a long time. OE is part of developmental potential (DP) in Kazimierz Dąbrowski's Theory of Positive Disintegration (TPD) (Dabrowski, 1964a; 1972). The theory focuses on personal, moral, emotional (Dabrowski, 1967; 1972; Piechowski, 1991; 2014), and spiritual (Dabrowski, 1970; 1972; Cienin, 1972a; 1972b; Piechowski, 2001; 2014) development of an individual. The development of an individual is determined by three factors: development potential, external environment, such as family and social milieu, and the third factor represents the autonomous forces of self-directed development (Dabrowski, 1970; Tillier, 2018).

A factor that is important for personal development is constitutional DP that includes heredity, birth conditions, and biological potential of the body. It includes abilities and talents, and high intelligence, special interest, an emerging inner psychic life, and five forms of overexcitability: psychomotor, sensual, intellectual, imaginational and emotional (Dabrowski, 1967; 1970). Each OE form has a specific profile (Dąbrowski, 1938/2019; Dabrowski, 1964a; Daniels & Piechowski, 2009; Piechowski, 2014; Wells, 2017). Dąbrowski noticed the existence of OEs in outstanding creators (Dąbrowski, 1937; Dabrowski, 1964a; 1967) and gifted students that could signal personal development and at the same time indicate mental disorders (Dąbrowski, 1963; Dąbrowski & Kujawska, 1965). Piechowski (1979), a close colleague of Dąbrowski's, has assumed, and so have other researchers after him, that overexcitabilities may be good indicators of giftedness. The popularity of studies on OE profiles of the gifted may be a reason for the lack of studies on individuals randomly selected from a general population, including young non-gifted children.

Overexcitability in children

In Dąbrowski's studies a considerable attention is devoted to the issues of children's mental health, so important for their proper development, and help in the treatment of mental disorders. In numerous publications he described OEs in children, showing positive and negative aspects of emerging profiles (Dabrowski, 1938/2019). He also prepared educational and therapeutic programmes for teachers and parents, the application of which may allow children to grow in accordance with their developmental potential towards higher values and advanced development (Dąbrowski, 1962; 1964b; Dabrowski, 1967).

Dąbrowski (Dabrowski, 1970) believed that different forms of DP could already be observed in one-and-a-half to two-year-old children and could be expressed through various differentiated forms of OE.

Based on Dąbrowski's studies (Dabrowski, 1964a; 1970; 1972) and his own findings, Piechowski prepared forms and expressions of overexcitability (Piechowski, 1979; 1999; Daniels & Piechowski, 2009; Piechowski, 2014; Wells, 2017). Psychomotor OE manifests itself in the surplus of energy, intense physical activity, competitiveness, rapid speech, nervous habits, impulsive actions as well as fast talking. According to Piechowski (2014, p. 34), increased psychomotor OE is manifested in children's boundless energy and stamina that are often confused with ADHD (Mika, 2006; Wells & Falk, 2021). Sensual OE includes heightened sensitivity to sound, light, touch, taste, or smell that express the capacity for aesthetic appreciation. It can be mistakenly interpreted as Sensory Integration Dysfunction. Children with sensual OE enjoy being in the centre of attention and they are often artistically gifted. Due to the lack of favourable conditions and proper stimulation, children can become anxious, irritable, withdrawn, or even explosive. Imaginational OE is characterized by a free play of imagination, frequent use of image, rich invention and fantasy, animistic and magical thinking, capacity for living in a world of imagination, imaginary companions, low tolerance of boredom, a need for novelty, converting the everyday into fantastic images or daydreaming. The behaviour of children with imaginational OE can be confused with Attention Deficit Disorder (ADD). Increased imaginational OE is characteristic of individuals with poetic, artistic, and acting abilities as well as of film-makers

and inventors. Intellectual OE is characterized by an intensified activity of the mind, curiosity, probing questions and problem-solving, searching for truth and understanding, reflective thought, moral thinking, and independence of thought. These are characteristics of gifted children whose behaviour can be wrongly interpreted as annoying or arrogant and their stubbornness as defiance toward authority or indifference to social context. In the case of narrow interests, it also happens that such children are thought to have Asperger's syndrome (Piechowski, 2014, pp. 34–35). Emotional OE involves intense feelings and emotions, identification with others' feelings, capacity for strong attachments, deep relationships, an intense connectedness with others, strong affective and somatic expressions, responsiveness to others, and well-differentiated feelings toward self. Emotional OE, with its intense emotional highs and lows, relates to deeper and more intense processing of experience (Piechowski, 2014). Dąbrowski (Dabrowski 1970, p. 31) believed that emotional OE could be manifested in very young children in their great syntony and sensitivity that in the future could develop into empathy. Mendaglio (2008) says that a developmental view of empathy is a process of emotion contagion; for example, a child in a nursery cries, then all children cry.

Individuals with an increased level of excitability feel and understand more, they experience things at a deeper level, more exactly and in different ways than others. At the same time the excess of intense feelings and experiences may result in increased nervousness, tensions, and internal conflicts (Dabrowski, 1964a; 1970; Silverman, 2013; Piechowski, 2014).

Emotional sensitivity is often seen as immaturity, imaginational excitability is often perceived as the loss of contact with the real world and lack of concentration, and intellectual curiosity tends to be viewed as social maladjustment and authority questioning (Daniels & Piechowski, 2009).

Overexcitability and the sex of a child – review of studies

There are few studies dedicated to the evaluation of OEs in children by parents and teachers and they are usually carried out in terms of comparing the gifted and non-gifted. In these studies, different tools have been used: the Parent Questionnaire (PQ) (Kitano, 1990), the ElemenOE (Bouchard,

2004), and in the recent study (Falk et al., 2018; Miller, 2018; Guthrie, 2019) Overexcitability Inventory for Parents (OIP-II) was used (Falk & Silverman, 2016). Some of the researchers also used The Overexcitability Questionnaire – Two (OEQ-II) (Falk et al., 1999), e.g., in Australia (Miller, 2018) or Korea (Yoon & Moon, 2009), as well as the Me Scale in Taiwan (Chang & Kuo, 2013) and India (Sandhu & Prashar, 2018). Very few studies have been dedicated to children at preschool age or early school age.

In the study of young preschool children (n = 67, 55% girls) aged 32 to 55 months (M = 45.4, SD = 6.5) where the 40-item Parent Questionnaire (PQ) was used, parents evaluated the intensity of behaviour of their own children. No differences were found in the levels of OEs between boys and girls, but older children obtained slightly lower scores than the younger ones (Kitano, 1990).

In another study where the ElemenOE was used, teachers evaluated OEs in elementary school children aged from 4 to 12 (n = 171, 46% girls), gifted (n = 96, 55% girls) and non-gifted (n = 75, 35% girls). In gifted students a pattern consisting of a higher mean of intellectual OE and lower mean of psychomotor OE was found. This profile was a good predictor for 76% of the gifted, but it was also found in 42.7% of the non-gifted (Bouchard, 2004). According to Bouchard, the result for the non-gifted could mean that in the control group there were gifted children as well.

In India, in private schools of Patiala (Sandhu & Prashar, 2018), students (n = 56) from third to fifth grade of middle school, age ranging between 8–11 years (no information on the number of boys and girls was provided), were examined with the Me Scale I inventory (Chang, 2001). Boys obtained statistically significantly higher means than girls on intellectual ($p < 0.05$) and imaginational OE ($p < 0.05$).

In Korea, a study was conducted with the OEQ-II of third, fourth, and fifth grade elementary school (n = 372, 46.0% girls) children, gifted (n = 166, 45.2% girls) and non-gifted (n = 206, 46.6% girls). The analysis of the whole group scores showed that girls obtained statistically significantly higher means than boys on sensual and emotional ($p < 0.001$), and imaginational OE ($p < 0.05$). The comparison of scores obtained by boys and girls in the gifted and non-gifted groups separately showed that in both groups girls obtained statistically significantly higher means than boys on sensual ($p < 0.001$)

and emotional OE ($p < 0.01$), and additionally, gifted girls scored higher on imaginational OE ($p < 0.01$). In the other three forms of OE no statistically significant differences between boys and girls were found. According to the researchers, the differences in scores between boys and girls across the whole group as well as inside the gifted and non-gifted groups could mean that sensual, emotional, and imaginational OEs are typical of girls and independent of abilities (Yoon & Moon, 2009).

The study on overexcitability in highly gifted children rated by parents was conducted at the Institute for the Study of Advanced Development (ISAD) of the Gifted Development Centre (GDC), using OIP-II (Miller, 2018). The perceptions of 39 parents of their gifted children aged from 6 to 11 (median 8) of both sexes (no information on the number of boys and girls) were collected. The ranking of the means obtained for both sexes was as follows: the first was intellectual OE with the highest means for both groups: girls $M = 4.03$, boys $M = 3.99$; next was emotional OE, girls $M = 3.98$, boys $M = 3.77$; among girls the third was sensual OE $M = 3.80$, and the girls' result was statistically significantly higher ($p < 0.05$) than that of boys $M = 3.20$. Among boys psychomotor OE was third ($M = 3.38$) while among girls it was in the fourth position ($M = 3.30$). In both groups imaginational OE was last with the lowest mean (3.15), girls $M = 3.29$ and boys $M = 3.05$ (Miller, 2018). In another study conducted with the OIP-II of three gifted teenagers, different profiles of OE were found (Guthrie, 2019).

The profiles of OEs found in children when evaluated by parents and teachers show sex-related differences that do not depend on the age of the subjects.

Methodology of the present study

Overexcitabilities belong to the first biological factor of DP in the TPD and thus, it can be expected that OE profiles will be more connected with sex than with the age of a child.

It may also be assumed that OE profiles of girls and boys randomly selected from a general school population in Poland will be different. According to our knowledge, a study on overexcitabilities in children aged 8 and 9 that

uses parents' perceptions and excludes the selective criterion of high abilities presents a new approach. It may allow the research on OEs to encompass issues related not only to the identification of gifted children, but also to facilitating the understanding of the development of young children. The OIP-II questionnaire was used, in which emotional OE was divided into two subgroups: emotional sensitivity and emotional empathy.

The following hypotheses were tested:

H1 Girls aged 8 and 9 would have the same OE profiles.

H2 Boys aged 8 and 9 would have the same OE profiles.

H3 Girls would obtain higher means than boys on sensual OE, emotional sensitivity, and emotional empathy.

H4 Boys would score higher than girls on psychomotor and intellectual OEs.

Participants and procedure

The study was conducted with parents of children attending regular, public schools in Warsaw in Poland and its environs. The children were randomly selected from a general school population and they were not identified as gifted or in a gifted programme.

The participants in the study were 116 parents of children aged 8 (13 girls, 29 boys) and 9 (37 girls, 37 boys). Parents submitted their written consent for the study and they were informed at every stage that they could withdraw from the study.

Measures

The Overexcitability Inventory for Parents (OIP-II): 28-item, six-factor version (Falk & Silverman, 2016) was used in the study. The questionnaire consisted of six sub-scales, including five with five items (psychomotor, sensual, imaginational, intellectual, and emotional sensitivity) and the emotional empathy sub-scale that contained three items. Parents rated each item on a Likert scale ranging from 1 (Not at All Like My Child) and 5 (Very Much Like My Child) or they could choose the Not Applicable (NA) option. On each subscale, the total of scores obtained from parents' rating was added up and divided by the number of items responded to (no response or NA decreased

that number). The alpha coefficients were: psychomotor = 0.89, sensual = 0.83, imaginational = 0.81, intellectual = 0.87, emotional sensitivity = 0.77, and emotional empathy = 0.89.

Results

The results were submitted for a statistical analysis in SPSS Statistics 25.0 programme. The multivariate analysis of variance (MANOVA) was used in an inter-group scheme 2 (sex: girl, boy) x 2 (age: 8 years, 9 years) where the level of forms of OEs was a dependent variable: psychomotor, sensual, imaginational, intellectual OEs, and emotional sensitivity and emotional empathy. The hypothesis of the equal covariance matrices in both groups, Box M = 63.51, F(63, 8308) = 0.88; ni. was confirmed and so was the hypothesis of the normal distribution of data. The values of skewness and kurtosis did not exceed <-2; 2>, showing slight deviations from the normal distribution (George & Mallery, 2010). The descriptive statistics of all the data are presented in Table 1 and Table 2. The assumed value of the statistical significance of the results was $\alpha = 0.05$.

Table 1. The descriptive statistics of the OIP-II results of girls

	Age	N	M	SD	SKE	K	Min	Max
Psychomotor P-OE	8 years	13	3.77	0.86	-0.22	-1.34	2.60	5.00
	9 years	37	3.62	0.92	-0.68	0.67	1.00	5.00
	general	50	3.66	0.90	-0.59	0.33	1.00	5.00
Sensual S-OE	8 years	13	3.00	0.45	0.50	-1.25	2.40	3.80
	9 years	37	3.78	0.72	-0.07	-0.61	2.20	5.00
	general	50	3.57	0.74	0.24	-0.77	2.20	5.00
Imaginational I-OE	8 years	13	2.78	0.62	0.05	-1.08	1.80	3.80
	9 years	37	3.16	0.75	0.03	-0.04	1.40	4.80
	general	50	3.06	0.74	0.13	-0.17	1.40	4.80
Intellectual T-OE	8 years	13	3.65	0.79	-0.72	-0.65	2.20	4.60
	9 years	37	3.80	0.73	-0.22	-0.60	2.20	5.00
	general	50	3.76	0.74	-0.36	-0.57	2.20	5.00

Table 1. (continued)

	Age	N	M	SD	SKE	K	Min	Max
Emotional sensitivity E1-OE	8 years	13	3.66	0.66	0.33	-0.66	2.60	4.80
	9 years	37	3.98	0.63	-0.58	0.37	2.20	5.00
	general	50	3.89	0.65	-0.33	-0.31	2.20	5.00
Emotional empathy E2-OE	8 years	13	4.38	0.72	-1.12	0.29	3.00	5.00
	9 years	37	4.14	0.59	-0.53	0.96	2.33	5.00
	general	50	4.20	0.62	-0.59	0.24	2.33	5.00

N – number, M – means, SD – standard deviation, SKE – skewness, K – kurtosis; Min/Max – minimum/maximum

Source: Authors' research.

Table 2. The descriptive statistics of the OIP-II results of boys

	Age	N	M	SD	SKE	K	Min	Max
Psychomotor P-OE:	8 years	29	3.99	0.81	-0.44	-1.11	2.60	5.00
	9 years	37	3.99	0.87	-1.37	1.56	1.40	5.00
	general	66	3.99	0.84	-1.00	0.51	1.40	5.00
Sensual S-OE	8 years	29	3.12	0.72	-0.15	-0.22	1.50	4.40
	9 years	37	3.10	0.72	0.14	-0.63	1.80	4.60
	general	66	3.11	0.71	0.01	-0.52	1.50	4.60
Imaginational I-OE	8 years	29	3.05	0.92	-0.30	-0.04	1.20	5.00
	9 years	37	3.07	0.80	0.09	-0.36	1.60	5.00
	general	66	3.06	0.85	-0.12	-0.20	1.20	5.00
Intellectual T-OE	8 years	29	3.75	0.63	0.17	-0.64	2.60	5.00
	9 years	37	3.82	0.71	-0.51	0.01	2.20	5.00
	general	66	3.79	0.67	-0.25	-0.31	2.20	5.00
Emotional sensitivity E1-OE	8 years	29	3.59	0.72	-0.05	-0.87	2.20	4.80
	9 years	37	3.67	0.85	-0.43	-0.60	2.00	5.00
	general	66	3.64	0.79	-0.28	-0.69	2.00	5.00
Emotional empathy E2-OE	8 years	29	3.83	0.74	-1.03	1.39	1.67	5.00
	9 years	37	3.70	0.95	-0.77	0.23	1.00	5.00
	general	66	3.76	0.86	-0.88	0.61	1.00	5.00

N – number, M – means, SD – standard deviation, SKE – skewness, K – kurtosis; Min/Max – minimum/maximum

Source: Authors' research.

The multivariate analysis of variance (MANOVA) revealed a statistically significant multivariate effect of sex, λ Wilks = 0.87, $F(6, 107) = 2.77$, $p < 0.01$; $\eta 2 = 0.134$ and age, λ Wilks = 0.89, $F(6, 107) = 2.33$, $p < 0.05$; $\eta 2 = 0.115$. It means that children of different sexes and different ages differ considerably in terms of overexcitability. The analyses showed a statistically significant effect of sex on the levels of sensual OE $F(1, 112) = 3.84$, $p < 0.05$; $\eta 2 = 0.033$ and emotional – empathy, $F(1, 112) = 10.04$, $p < 0.001$; $\eta 2 = 0.115$. Compared to boys, girls achieved higher levels of sensual OE ($M = 3.39$; vs. $M = 3.11$; $p < 0.05$) and emotional empathy ($M = 4.26$ vs. $M = 3.76$; $p < 0.01$). No effect of sex was found on the remaining forms of OE.

It turned out that age was important in the case of sensual OE, $F(1, 112) = 6.96$, $p < 0.01$; $\eta 2 = 0.059$. In comparison to 9-year-olds, pupils aged 8 showed a lower level of sensual OE ($M = 3.06$; $M = 3.44$; $p < 0.01$). No effect of age was found on the remaining forms of OE.

A statistically significant interaction effect between age and sex on the level of sensual OE, $F(1, 112) = 8.05$, $p < 0.01$; $\eta 2 = 0.067$ was found. In comparison to 9-year-old boys, 9-year-old girls showed a higher level of sensual OE ($M = 3.78$; vs. $M = 3.10$; $p < 0.001$). The analyses did not reveal any significant sex-related differences in sensual OE in children aged 8. What is more, in comparison to 9-year-old girls, 8-year-old girls showed a lower level of sensual OE ($M = 3.00$; vs. $M = 3.78$; $p < 0.001$). No differences were found in sensual OE among boys of different ages. No interaction effect on the remaining OE forms was found either.

Discussion

The aim of the study was to investigate the differences in the OE profiles between girls and boys from a general school population aged 8 and 9. The OIP-II questionnaire examining parents' perceptions was employed for the study. The first hypothesis, in which it was assumed that girls aged 8 and 9 would obtain similar OE profiles was partially confirmed. Among girls the same OE profile consisting of sensual OE and emotional empathy was found, but it was incongruent with the expectations in terms of the age structure. Girls aged 9 obtained higher means ($M = 3.78$) on sensual OE than girls aged 8 ($M = 3.00$). A reverse relationship was found on emotional empathy

where younger girls obtained higher means than older girls (M = 4.38 and M = 4.14, respectively). The result is consistent with the study on intensity in young children using the QP. Older children obtained lower scores in comparison with younger children (Kitano, 1990). Perhaps emotional empathy is connected with the age of girls. Hoffman (1977) believes that empathy has a biological basis and manifests itself very early because already at the child's crawling stage. According to Dąbrowski (Dabrowski, 1970), in very young children one can notice syntony, i.e., they spontaneously feel what others feel, which on a higher level of development changes into empathy.

The second hypothesis was verified. The OE profiles of boys aged 8 and 9 were similar. The means of sensual OE in younger and older boys were M = 3.12 and M = 3.10, respectively.

The third hypothesis was partially verified. Girls aged 9 scored statistically significantly higher on sensual OE than boys of the same age and on emotional empathy, irrespective of age. No differences were found on emotional sensitivity. The results are congruent with the aforementioned studies of elementary school children (Yoon & Moon, 2009; Miller, 2018; Sandhu & Prashar, 2018), indicating the existence of sensual and emotional OEs in girls, irrespective of age and abilities (Yoon & Moon, 2009). It may be related to traditional socialization and stereotypical social perception of boys and girls (Miller et al., 1995). It may specifically concern empathy because pro-social behaviour and expression of emotions are encouraged in girls while suppressed in boys. The hypothesis regarding emotional sensitivity was not verified. To the best of our knowledge, our study is one of the first using parents' perception of OE profiles in children randomly selected from a general school population. There are studies carried out by the ISAD using the OIP-II, but only few findings have been published so far (Falk et al., 2018; Miller, 2018). The specific nature of emotional development may account for the lack of confirmation of our expectations regarding emotional sensitivity. Child's emotional development is biologically conditioned, but its course is shaped by parenting as well as social and cultural experiences. The OE profile of girls found in this study may be related to the early development of empathy based on biological factors (Hoffman, 1977) and the lack of emotional competence at this age. The development of emotional competence depends on many factors, including awareness of one's own emotional state,

skills in using the vocabulary of emotion, and the understanding that inner emotional states do not always correspond to their external expressions, both in oneself and in others (Dabrowski, 1970; Saarni, 1999; Mendaglio, 2008). Another reason for the partial lack of the verification of the hypothesis might be the possibility of parents identifying specific emotions in children. Perhaps a response It makes my child sad to see a lonely person in a group is more obvious that My child takes everything to heart. Both items have been taken from the OIP-II, the former from the emotional empathy scale and the latter from the emotional sensitivity one. The partial confirmation of the third hypothesis may mean that for girls emotional empathy is more specific than emotional sensitivity. This result is a hypothesis that should be verified in further studies.

The fourth hypothesis was not verified. Boys did not score higher than girls on psychomotor and intellectual OEs. Slight differences on psychomotor OE between boys and girls and no differences on intellectual OE may be connected with the study group (non-gifted) and the children's developmental stage. The hypothesis had been formulated on the basis of the data from the literature connected with the research on the gifted where it was found that boys scored higher on intellectual OE (Sandhu & Prashar, 2018). The stage of the development of the children in the study may account for the lack of differences between boys and girls on psychomotor OE. The period of the peak physical activity, irrespective of sex, is exactly at the ages of 8 and 9. The lack of sex-related differences in the case of intellectual OE can be similarly interpreted. The children in our study had been randomly selected from the general population and the result may indicate a similar cognitive development of boys and girls (Blume & Zembar, 2007).

Limitations and future directions

The interpretation of the findings should take into account the limitations of this study. First, the studies on OE profiles have so far been conducted mainly in terms of high abilities. The novel approach in our study was a random selection of children from the general population, excluding the criterion of high abilities. It could be worth examining if the children in our study have specific abilities and interests, which are part of the developmental potential

in Dąbrowski's theory. Second, despite a slight age difference of the subjects, we have found differences between OE profiles of boys and girls, and a precise profile of girls. Further studies should include age groups of younger and older children, for example from preschool through primary to secondary school ages. Third, the size of the subject sample was limited and the sex ratio was not balanced. Further studies should include a bigger size of the subject group and the number of boys and girls should be the same.

Conclusion

In the study of the OE profile of children from the parents' points of view, an OE profile of girls was found to consist of sensual OE and emotional empathy. However, no OE profile emerged in boys. Such a result may be connected, as already mentioned, with social stereotypes and encouragement of pro-social and emotional behaviour in girls and suppressing and hiding of experiences and emotions in boys (Limont et al., 2014). The profile of girls may also indicate artistic abilities as well as emotional and personal development that are manifested in the early life of an individual.

Forms, profiles and levels of OE are important for the quality of experience as well as for the intensity and depth of experiencing happiness and sadness, and are related to mental health that is understood in accordance with the TDP (Dąbrowski, 1964b; Dabrowski, 1970). Our study shows that there is the possibility of using OIP-II and parents' perceptions not only for detecting abilities, but also toward understanding a wider aspect of child's development.

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