



Research article

Perceived parenting styles, thinking styles, and gender on the career decision self-efficacy of adolescents: how & why?

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ABSTRACT

Career decision self-efficacy (CDSE), i.e., the ability to successfully make important career-related decisions, is influenced by perceived parenting styles, thinking styles, and gender. Thus, this non-experimental study examined the effects of these factors on the CDSE of 617 high school students in Jakarta, Indonesia. According to the measuring instruments (CDSE Scale-Short Form, Parental Authority Questionnaire, and Thinking and Styles Inventory-Revised II), the adolescents' CDSE was influenced by the authoritative and permissive parenting styles, and three types of thinking styles. Moreover, the thinking styles mediated the relationship between the perceived parenting styles and CDSE, while gender acted as a homologizer.

1. Introduction

Graduating high school seniors are generally confronted with personal decisions significantly influencing their future. Such decisions are usually between entering the workforce and pursuing higher education. Previous studies have shown that many students experience both confusion and indecision regarding their career development (Albion and Fogarty 2002; Bolat and Odacı 2017; Fort and Murariu 2018; Meddour et al., 2016). In Indonesia, career indecision is prevalent among high school students (Sawitri 2009; Sawitri et al., 2015), which has created additional stress, unnecessary delays, and in some cases, avoidance. Conversely, success in determining a career can lead to increased self-esteem, improved well-being, and greater career satisfaction (Kunnen et al., 2008).

Numerous variables related to career indecision have been found, including perfectionism, self-consciousness, fear of commitment, anxiety, rational decision-making, and career decision self-efficacy (Guay et al., 2003). Among these antecedents, career indecision among high school students is primarily based on their career decision self-efficacy (CDSE), which is the ability to successfully make career-related decisions (Betz et al., 1996). According to Lewis (1981, in Gati and Saka 2001), if an individual's CDSE level is low, their career indecision will be high. Overall, CDSE includes the following categories: self-appraisal, occupational information, goal selection, planning, and problem-solving (Betz et al., 1996; Taylor and Betz 1983).

According to previous research on the social cognitive career theory, CDSE plays a key role in career planning and development (Chui et al., 2020; Gushue and Whitson 2006; Lent et al. 2001, 2003, 2005). In both Western and Eastern cultures, CDSE is also strongly influenced by parenting styles (Ginevra et al., 2015; Guan et al., 2016; Kiadarbandsari et al., 2016; Liu et al., 2015; Lustig et al., 2017; Roman et al., 2015; Wright et al., 2017). Fouad et al. (2010, in Sovet and Metz 2014) affirmed the family affects an individual's career-related decisions, through the provision of information and emotional and financial support. Thus, the following hypothesis is posited:

Hypothesis 1. *CDSE is strongly influenced by perceived parenting styles.*

Baumrind (1991) described three types of parenting styles: 1) authoritarian (high control and low warmth); 2) authoritative (high control and high warmth); and 3) permissive (low control and high warmth). Although parenting styles have been shown to influence CDSE, the results have been inconsistent (Lease and Dahlbeck 2009; Trusty 1998, in Sovet and Metz 2014; Vignoli et al., 2005). For example, gender differences were found between the three types of parenting styles and the CDSE of a sample of Greek teenagers (Koumoundourou et al., 2011). In particular, for the male students, the permissive and authoritarian parenting styles significantly correlated with difficulties in making career-related decisions. Conversely, for the female students, only the authoritarian parenting style was related to such difficulties. Similarly, Sovet and Metz (2014) found no significant gender effect of parenting

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styles on the CDSE of male and female Korean students, whereas there was a moderating effect among a sample of French male and female students.

Gender has a moderating effect on parenting styles and CDSE (Kou-moundourou et al., 2011; Sovet and Metz 2014; Trusty 1998; Vignoli et al., 2005; Williams and Ciarrochi, 2020). However, in various cultural backgrounds, parents exhibit different parenting styles to males and females (Uji et al., 2014). Regarding Indonesia, the influence of parents on an individual's career-related decisions, especially based on gender, is significant. This is motivated by the assumption that, in comparison to males, females do not require higher education (Colfer et al., 2015; Surjono et al., 2015). However, many Indonesian women actually pursue higher education and have relatively the same career opportunities as those of men (Babbitt et al., 2015). This cultural accommodation model in Asian culture in general that adheres to collectivists (Arulmani, 2014; Arulmani, 2016; Arulmani, 2019; Leong and Huang, 2008; Leong and Lee, 2006; Leong and Ow 2003; Situmorang, 2019). Hence, the following hypothesis is posited:

Hypothesis 2. *The relationship between perceived parenting styles and CDSE is moderated by gender* (gender differences based on both parent and young person gender are referred to this research, so both gender is being referred to in the hypothesis).

Based on the aforementioned literature review, it can be concluded that parenting styles (as external factors) determine the extent to which individuals make career-related decisions. However, Fan (2016) indicated that thinking styles (as internal factors) have a considerable impact on such decisions. Accordingly, the following hypothesis is posited:

Hypothesis 3. *Thinking styles mediate the relationship between perceived parenting styles and CDSE.*

Different parenting styles on males and females also indirectly affect their individual thinking styles (Fan and Zhang 2014; Fan 2016; Tonetto et al., 2020). In this regard, the following hypotheses are posited:

Hypothesis 4. *Perceived Parenting styles predict individual thinking styles.*

Hypothesis 5. *The relationship between these two variables is moderated by gender.*

Moreover, Fan and Zhang (2014) revealed that parenting styles have a strong influence on thinking styles, while Fan (2016) found that thinking styles have a significant effect on CDSE. For instance, Type I thinking styles (e.g., legislative, judicial, global, and liberal styles) have a positive and significant effect on CDSE, whereas Type II thinking styles (e.g., executive, local, monarchic, and conservative) are not significantly related to CDSE. This suggests that the effects of Type II thinking styles are not as strong as those of Type I thinking styles. Meanwhile, Type III thinking styles (e.g., anarchic, oligarchic, internal, and external) have a partial and positive effect on CDSE. Thus, the following hypotheses are posited:

Hypothesis 6. *Thinking styles are predictors of CDSE.*

Hypothesis 7. *Gender has a moderating effect on the relationship between thinking styles and CDSE.*

2. Method

2.1. Research design and participants

This study used a non-experimental quantitative approach to examine the relationship between CDSE, perceived parenting styles, thinking styles, and gender. The purposive sampling technique was used to select the participants, which consisted of 617 students (11th and 12th grades) from three leading schools in Jakarta (211 males, 406 females; age range 15–17 years; $M = 16.40$, $SD = 0.650$). The authors indicate that purposive sampling was used. It was based on certain criteria based on which

the purposiveness was defined. These schools were chosen by some specific characteristics: leading schools, where they are high achieving students.

2.2. Research instruments

Overall, the following instruments were used for data collection: 1) Career Decision Self-Efficacy Scale-Short Form; 2) Parental Authority Questionnaire; and 3) Thinking Style Inventory-Revised II. Those were adapted for use in the context of this Indonesian study (based on Beaton et al., 2000).

2.2.1. Career decision self-efficacy Scale-Short Form

This instrument, adapted by Betz et al. (1996) from the original Career Decision-Making Self-Efficacy Scale (Taylor and Betz 1983), includes 25 items (five items for each of the five subscales). The scoring is based on a five-point Likert scale, ranging from 1 (no confidence) to 5 (very confident). The five subsets include: self-appraisal, occupational information, goal selection, planning, and problem-solving. For the purpose of this study, four items were excluded, after which the instrument demonstrated excellent internal consistency and reliability (i.e., Cronbach's alpha coefficient was 0.901 for the 21 valid items). Moreover, to prevent the participants from selecting the mid-point, this study adapted a six-point Likert scale, ranging from 1 (no confidence) to 6 (very confident). Example of items: "I use the internet to find information about the interesting careers"; "I made a plan to reach my goal in the next 5 years"; and "I can choose one career type out of several other careers that I have considered."

2.2.2. Parental Authority Questionnaire

This instrument, developed by Buri (1991) and based on Baumrind's (1978, 1991) three types of parenting styles, includes 30 items (10 items for each parenting style). The scoring is based on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). However, in this study, to prevent the participants from choosing the mid-point, the instrument was adapted for cross-cultural purposes and modified by using a six-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

After the adaptation process, field trials with 188 students were conducted, after which the results were analyzed through confirmatory factor analysis (CFA) to ensure that each item's t-value was above 1.96 and the load factor was above 0.40 (Anderson and Gerbing 1984; Marsh et al., 1988). Consequently, 20 valid items were identified for the paternal parenting styles, while 21 valid items were identified for the maternal parenting styles. All of the valid items included load factors ranging from 0.40 to 0.88. Moreover, this instrument showed good internal consistency and reliability, with Cronbach's alpha coefficient of 0.885 for the paternal authoritative parenting style, 0.710 for the paternal authoritarian parenting style, 0.648 for the paternal permissive parenting style, 0.842 for the maternal authoritative parenting style, 0.802 for the maternal authoritarian parenting style, and 0.749 for the maternal permissive parenting style. Example of items: "As I grew older, my father directed the activities and decisions of his children through reasoning and applying discipline"; My father always felt that parents should use more force to get their children to behave as they should; "My mother has always felt that children need to be given the freedom to think and do what they want, even if it is not what their parents want; and "My mother felt that wise parents should teach their children from an early age who is in charge of the family".

2.2.3. Thinking Style Inventory-Revised II

This instrument, originally developed by Sternberg and Wagner (1992), includes 104 items (eight items for each of the 13 thinking styles). The first revision (TSI-R) by Sternberg et al. (2003) has been used in several studies, with good validity. The second and most recent

revision (Sternberg et al., 2007) reduced the inventory to 65 items, with five items for each of the 13 thinking styles. In this study, the instrument was adapted for cross-cultural purposes and modified by using a six-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Again, field trials with 188 students were conducted and the results were analyzed by using CFA to ensure that each item's t-value was above 1.96 and the load factors were between 0.40 and 0.81. Overall, this measurement showed varying internal consistency and reliability. For instance, the anarchic thinking style showed poor internal consistency, with Cronbach's alpha coefficient of 0.538, whereas the liberal thinking style had the best internal consistency, with Cronbach's alpha coefficient of 0.756. Example of items: "I prefer to face problems that require me to pay attention to detail"; "I like to prioritize what needs to be done before I do"; and "I love figuring out how to solve a problem based on a certain rule."

2.3. Research procedure and analysis

The sampled students were required to complete all three instruments and provide their demographic information. For their participation, all the students received a report regarding their test results along with some stationary supplies. The results were analyzed by conducting linear regression and multiple regression analyses with Hayes's Model 59 and SPSS IBM 23 software (Hayes 2013). Moreover, descriptive statistics and correlation analysis were performed to reveal the relationships between the variables. Finally, the Ethics Committee in the Faculty of Psychology at the University of Indonesia found that this study was in accordance with the ethical standards of the psychology discipline (Research Ethics Code Universitas Indonesia and Ethics Code Indonesian Psychology Association [No. 096/FPsi.Komite Etik/PDP.04.00/2018]).

Although the age of the participants were under 18 years old, the authors got parental consent/permission from their principal. In Indonesia, the principal is the representative of parents in schools. In addition, because this research is non-experimental and there is no special treatment, the principal's decision is the main reference. As additional information, in this study all participants decided to participate. The participants were given an informed consent sheet at the beginning, the demographic data used was kept confidential and not used for other purposes, and the participants given the option of opting out of the study. So that, the study's methods comply with standard COPE ethical guidelines and has proper approval and consent been acquired as outlined in Heliyon Editorial Policies.

3. Results

3.1. Preliminary analyses

Table 1 presents the descriptive statistics for all of the variables in this study and their correlations. Based on Pearson's correlation analysis, there were some significant associations between CDSE and each thinking style and between each perceived parenting style. More specifically, the CDSE variables were positively correlated with the authoritarian paternal style, the permissive paternal style, the authoritarian maternal style, the permissive maternal style, and the following thinking styles: legislative, executive, judicial, monarchic, hierarchical, anarchic, global, local, internal, external, and liberal. Only the gender variables had a negative correlation with the other variables.

3.2. Hypotheses testing

Table 2 includes a summary of the hypotheses testing results based on Hayes's Model 59 (see Figures 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18) and Hayes's (2013) Macro PROCESS model.

3.2.1. Perceived parenting styles and CDSE (Path c')

According to the regression analyses of the paternal parenting styles, CDSE was significantly and positively influenced by the authoritative paternal style ($F(5.611) = 34.82, p < .01, R^2 = .22; F(5.611) = 19.20, p < .01, R^2 = .13; F(5.611) = 32.70, p < .01, R^2 = .21; F(5.611) = 15.92, p < .01, R^2 = .11; F(5.611) = 17.17, p < .01, R^2 = .12$). Regarding the maternal parenting styles, CDSE was significantly and positively influenced by the authoritative maternal style ($F(5.611) = 34.96, p < .01, R^2 = .22; F(5.611) = 18.97, p < .01, R^2 = .13; F(5.611) = 20.90, p < .01, R^2 = .14$) and the permissive maternal style ($F(5.611) = 32.80, p < .01, R^2 = .21; F(5.611) = 16.16, p < .01, R^2 = .11; F(5.611) = 17.23, p < .01, R^2 = .12$). As for the authoritarian parenting style, neither parent showed significant results for predicting CDSE.

3.2.2. Perceived parenting styles and thinking styles (Path a)

Based on the regression analyses, Type I thinking styles were significantly and positively influenced by the authoritative paternal style ($F(3.613) = 22.05, p < .01, R^2 = .09$) and the authoritative maternal style ($F(3.613) = 19.68, p < .01, R^2 = .08$). Moreover, Type II thinking styles were significantly and positively influenced by the authoritative paternal style ($F(3.613) = 20.95, p < .01, R^2 = .09$), the authoritative maternal style ($F(3.613) = 19.09, p < .01, R^2 = .08$), and the authoritarian maternal style ($F(3.613) = 16.00, p < .01, R^2 = .07$), while Type III thinking styles were significantly and positively influenced by the authoritative paternal style ($F(3.613) = 22.46, p < .01, R^2 = .09$), the permissive paternal style ($F(3.613) = 19.35, p < .01, R^2 = .08$), the authoritative maternal style ($F(3.613) = 16.16, p < .01, R^2 = .07$), and the authoritarian maternal style ($F(3.613) = 14.94, p < .01, R^2 = .06$).

3.2.3. Thinking styles and CDSE (Path b)

According to the multiple linear regression analyses, CDSE was significantly and positively influenced by Type I thinking styles ($F(5.607) = 35.32, p < .01, R^2 = .22$), Type II thinking styles ($F(5.607) = 19.61, p < .01, R^2 = .13$), and Type III thinking styles ($F(5.607) = 20.64, p < .01, R^2 = .14$).

3.3. Thinking styles as mediators between perceived parenting styles and CDSE

From the four main variables and their respective dimensions (i.e., perceived parenting styles, thinking styles, and gender), 18 models were used to examine the effect of thinking styles, as the mediators between perceived parenting styles and CDSE. Based on Model 1 (see Figure 1), Path a, Path b, and Path c' were all significant. Moreover, as Table 2 show, the coefficient of Path c' decreased, indicating that the variable x decreases when predicting the variable y, and that the mediation variable has a greater effect. Thus, Type I thinking styles partially mediated the effect of the authoritative paternal style on the students' CDSE.

Similarly, the following results were obtained: Type II thinking styles partially mediated the effect of the authoritative paternal style on the students' CDSE in Model 2 (see Figure 2); Type III thinking styles partially mediated the effect of the authoritative paternal style on the students' CDSE in Model 3 (see Figure 3); Type I thinking styles partially mediated the effect of the authoritative maternal style on the students' CDSE in Model 11 (see Figure 11); Type III thinking styles partially mediated the effect of the authoritative maternal style on the students' CDSE in Model 12 (see Figure 12); and Type II thinking styles partially mediated the effect of the permissive maternal style on the students' CDSE in Model 17 (see Figure 17).

According to Model 4 (see Figure 4), both Path a and Path b were significant. However, Path c' was not significant among the male and female students. This means that Type I thinking styles did not mediate the effect of the authoritarian paternal style on the students' CDSE. Similar findings were found in Models 6, 13, 14, and 15 (see Figures 6, 13, 14, and 15). As for Model 5 (see Figure 5), both Path a and Path b

were significant, whereas Path *c'* was not significant among the male students. This indicates that the variable *x* no longer predicts the variable *y*, and that the mediator variable has a greater effect. Hence, it can be concluded that Type II thinking styles fully mediated the effect of the authoritarian paternal style on the male students' CDSE.

Finally, in Model 7 (see Figure 7), Path *a*, Path *b*, and Path *c'* were all significant. Regarding Path *c'*, it was especially significant among the female students. This means that the variable *x* no longer predicts the variable *y*, and that the mediator variable has a greater effect. Therefore, it can be concluded that Type I thinking styles fully mediated the effect of the permissive paternal style on the female students' CDSE. Similar

results were found in Models 8, 9, 10, 17, and 18 (see Figures 8 and 9, 10, 17, and 18).

3.4. Gender as a moderator between perceived parenting styles and CDSE

Regarding gender as a moderator between perceived parenting styles and CDSE, this study used the classification proposed by Solimun et al. (2017) in which gender is expressed as either a pure moderator (if *b*2 is non-significant and *b*3 is significant), a quasi-moderator (if *b*2 and *b*3 are significant), a homologizer moderator (if *b*2 and *b*3 are non-significant) or a predictor moderator (if *b*2 is significant and *b*3 is non-significant).

Table 1. Correlations between CDSE, parenting styles, thinking styles, and gender.

	M	SD	1	2	3	4	5	6	7	8	9	10
1 CDSE	97.06	11.64	-									
2 AVE PATERNAL	40.30	7.74	.260**	-								
3 AN PATERNAL	21.85	5.31	.104**	.058	-							
4 PM PATERNAL	21.43	3.99	.165**	.503**	-.179**	-						
5 AVE MATERNAL	37.72	5.71	.255**	.438**	.114**	.213**	-					
6 AN MATERNAL	30.15	6.85	.069	.129**	.483**	.021	-.100*	-				
7 PM MATERNAL	22.45	3.88	.161	.174**	.000	.425**	.552**	-.292**	-			
8 LEG	22.30	3.28	.307**	.222**	.131**	.148**	.187**	.150**	.138**	-		
9 JDC	17.97	2.65	.295**	.185**	.044	.123**	.175**	.123**	.122**	.521**	-	
10 LBL	21.05	3.55	.336**	.254**	.122**	.175**	.171**	.134**	.115**	.601**	.513**	-
11 GBL	17.28	2.35	.294**	.198**	.048	.133**	.201**	.155**	.106**	.390**	.326**	.342**
12 HRC	22.22	3.14	.437**	.278**	.143**	.141**	.287**	.190**	.133**	.477**	.508**	.434**
13 EXE	23.09	2.78	.309**	.251**	.163**	.168**	.270**	.219**	.145**	.240**	.330**	.188**
14 CNS	8.22	1.78	.115**	.144**	.154**	.142**	.086*	.200**	.066	-.032	.047	-.026
15 LCL	17.11	2.76	.251**	.256**	.206**	.186**	.220**	.172**	.143**	.362**	4.27**	.361**
16 MON	13.51	2.32	.208**	.179**	.119**	.079	.208**	.168**	.072	.213**	.220**	.194**
17 OLG	21.90	3.09	.232**	.212**	.136**	.194**	.233**	.213**	.145**	.134**	.225**	.213**
18 ANC	12.38	2.22	.213**	.226**	.119**	.214**	.200**	.124**	.145**	.260**	.211**	.300**
19 ITL	15.40	3.40	0.27	.016	.142**	.091*	-.010	.158**	.073	.480**	.192**	.311**
20 ETL	18.54	2.96	.334**	.317**	.019	.193**	.227**	.084*	1.87**	.228**	.371**	.328**
21 GR	0.66	0.47	-.018	0.76	-.098*	.047	.053	.059	-.003	-.050	.003	-.086*

	M	SD	11	12	13	14	15	16	17	18	19	20	21
1 CDSE	97.06	11.64											
2 AVE PATERNAL	40.30	7.74											
3 AN PATERNAL	21.85	5.31											
4 PM PATERNAL	21.43	3.99											
5 AVE MATERNAL	37.72	5.71											
6 AN MATERNAL	30.15	6.85											
7 PM MATERNAL	22.45	3.88											
8 LEG	22.30	3.28											
9 JDC	17.97	2.65											
10 LBL	21.05	3.55											
11 GBL	17.28	2.35	-										
12 HRC	22.22	3.14	.334**	-									
13 EXE	23.09	2.78	.271**	.462**	-								
14 CNS	8.22	1.78	.065	.206**	.581**	-							
15 LCL	17.11	2.76	.037	.433**	.400**	.262**	-						
16 MON	13.51	2.32	.250**	.328**	.354**	.193**	.274**	-					
17 OLG	21.90	3.09	.308**	.274**	.428**	.370**	.247**	.189**	-				
18 ANC	12.38	2.22	.266**	.289**	.326**	.273**	.250**	.095*	.349**	-			
19 ITL	15.40	3.40	.130**	.167**	.121**	.099*	.248**	.207**	-.048	.100*	-		
20 ETL	18.54	2.96	.344**	.386**	.283**	.092*	.232**	.103*	.430**	.312**	-.272**	-	
21 GR	0.66	0.47	-.018	.045	.060	.009	-.097*	-.024	.024	.083*	-.042	0.24	-

Note: CDSE = Career Decision Self-Efficacy; AVE = Authoritative; AN = Authoritarian; PM = Permissive; LEG = Legislative; JDC = Judicial; LBL = Liberal; GBL = Global; HRC = Hierarchical; EXE = Executive; CNS = Conservative; LCL = Local; MON = Monarchic; OLG = Oligarchic; ANC = Anarchic; ITL = Internal; ETL = External; GR = Gender. **p* < .05. ***p* < .01.

Table 2. Hypothesis testing for mediation using Hayes's Model 59.

Series of Models	c' path Models	c' path				a path				b path			
		b	p	LLCI	ULCI	b	p	LLCI	ULCI	b	p	LLCI	ULCI
Model 1	X: AVE PATERNAL M: TYPE 1 Y: CDSE	0.21	0.01**	0.1011	0.3243	0.45	0.01**	0.3449	0.5662	0.41	0.01**	0.3373	0.4896
Model 2	X: AVE PATERNAL M: TYPE 2 Y: CDSE	0.28	0.01**	0.1631	0.3982	0.27	0.01**	0.2062	0.3425	0.44	0.01**	0.3158	0.5763
Model 3	X: AVE PATERNAL M: TYPE 3 Y: CDSE	0.27	0.01**	0.1550	0.3892	0.27	0.01**	0.2106	0.3444	0.46	0.01**	0.3365	0.6006
Model 4	X: AN PATERNAL M: TYPE 1 Y: CDSE	0.08	0.30	-0.0750	0.2419	0.28	0.01**	0.1206	0.4532	0.44	0.01**	0.3750	0.5236
Model 5	X: AN PATERNAL M: TYPE 2 Y: CDSE	0.07	0.38	-0.0949	0.2447	0.29	0.01**	0.1954	0.3973	0.51	0.01**	0.3889	0.6482
Model 6	X: AN PATERNAL M: TYPE 3 Y: CDSE	0.08	0.30	-0.803	0.2547	0.23	0.01**	0.1354	0.3358	0.54	0.01**	0.4141	0.6737
Model 7	X: PM PATERNAL M: TYPE 1 Y: CDSE	0.25	0.01**	0.0435	0.4656	0.56	0.01**	0.3402	0.7798	0.43	0.01**	0.3646	0.5139
Model 8	X: PM PATERNAL M: TYPE 2 Y: CDSE	0.30	0.01**	0.0840	0.5306	0.35	0.01**	0.2245	0.4945	0.50	0.01**	0.3762	0.6328
Model 9	X: PM PATERNAL M: TYPE 3 Y: CDSE	0.24	0.03*	0.0185	0.4741	0.49	0.01**	0.3635	0.6234	0.51	0.01**	0.3858	0.6518
Model 10	X: AVE MATERNAL M: TYPE 1 Y: CDSE	0.28	0.01**	0.1304	0.4319	0.56	0.01**	0.4115	0.7126	0.42	0.01**	0.3454	0.4967
Model 11	X: AVE MATERNAL M: TYPE 2 Y: CDSE	0.37	0.01**	0.2121	0.5292	0.35	0.01**	0.2633	0.4485	0.45	0.01**	0.3225	0.5822
Model 12	X: AVE MATERNAL M: TYPE 3 Y: CDSE	0.36	0.01**	0.2118	0.5246	0.32	0.01**	0.2297	0.4133	0.48	0.01**	0.3527	0.6127
Model 13	X: AN MATERNAL M: TYPE 1 Y: CDSE	-0.03	0.60	-0.1562	0.0909	0.33	0.01**	0.2075	0.4646	0.46	0.01**	0.3876	0.5371
Model 14	X: AN MATERNAL M: TYPE 2 Y: CDSE	-0.02	0.71	-0.1584	0.1084	0.27	0.01**	0.1952	0.3506	0.54	0.01**	0.4159	0.6782
Model 15	X: AN MATERNAL M: TYPE 3 Y: CDSE	-0.03	0.65	-0.1623	0.1020	0.25	0.01**	0.1791	0.3325	0.57	0.01**	0.4397	0.7034
Model 16	X: PM MATERNAL M: TYPE 1 Y: CDSE	0.26	0.01**	0.0465	0.4771	0.48	0.01**	0.2590	0.7148	0.44	0.01**	0.3696	0.5175
Model 17	X: PM MATERNAL M: TYPE 2 Y: CDSE	0.33	0.01**	0.1121	0.5673	0.28	0.01**	0.1428	0.4234	0.51	0.01**	0.3847	0.6387
Model 18	X: PM MATERNAL M: TYPE 3 Y: CDSE	0.26	0.02*	0.0315	0.4916	0.40	0.01**	0.2738	0.5460	0.52	0.01**	0.3990	0.6599

Note: CDSE = Career Decision Self-Efficacy; AVE = Authoritative; AN = Authoritarian; PM = Permissive. * $p < .05$. ** $p < .01$.

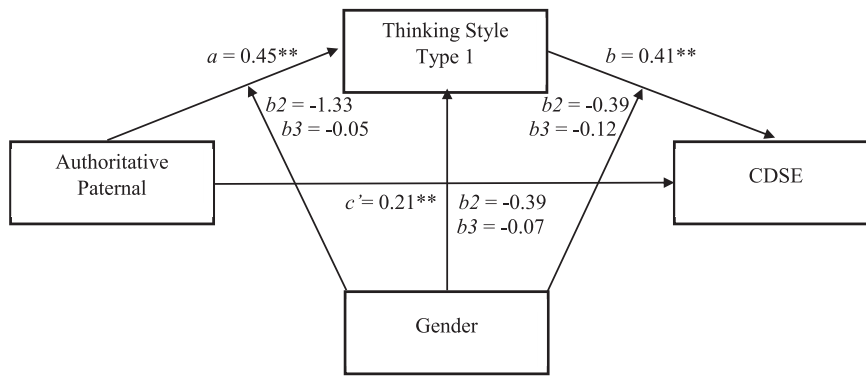


Figure 1. Model 1.

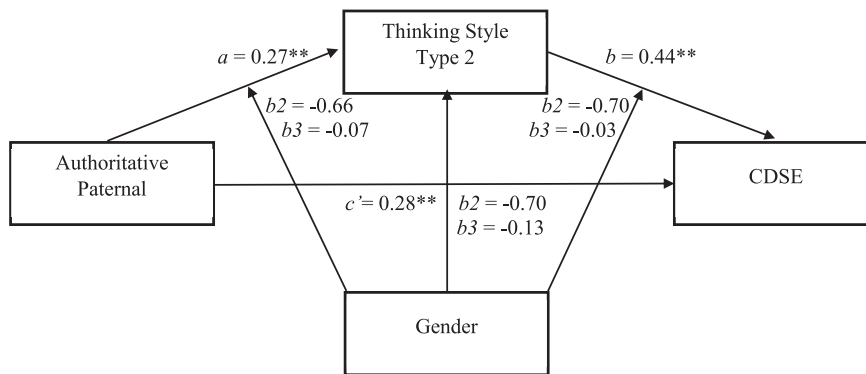


Figure 2. Model 2.

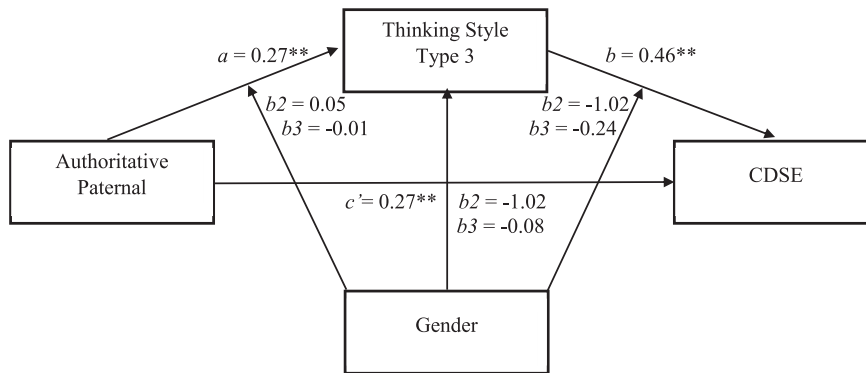


Figure 3. Model 3.

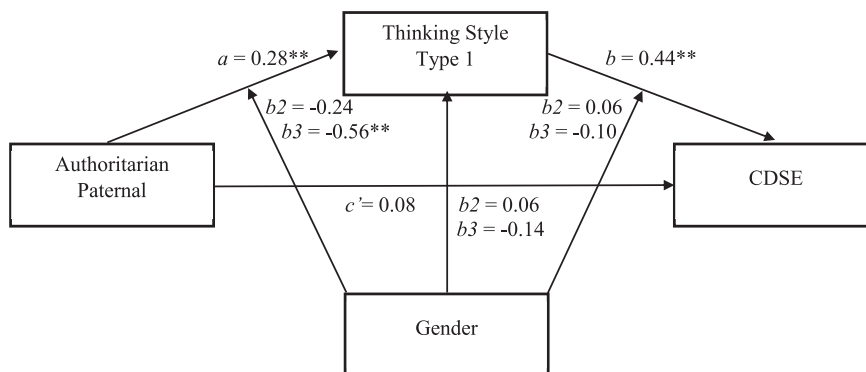


Figure 4. Model 4.

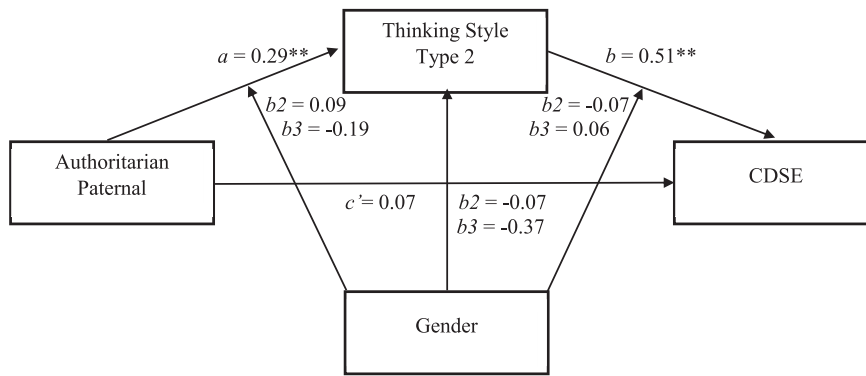


Figure 5. Model 5.

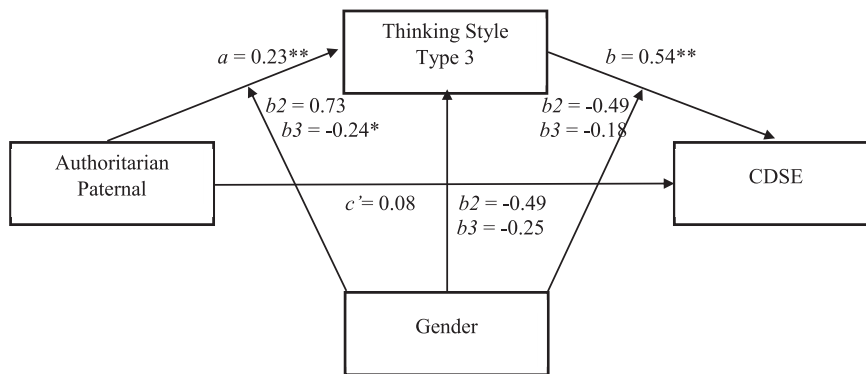


Figure 6. Model 6.

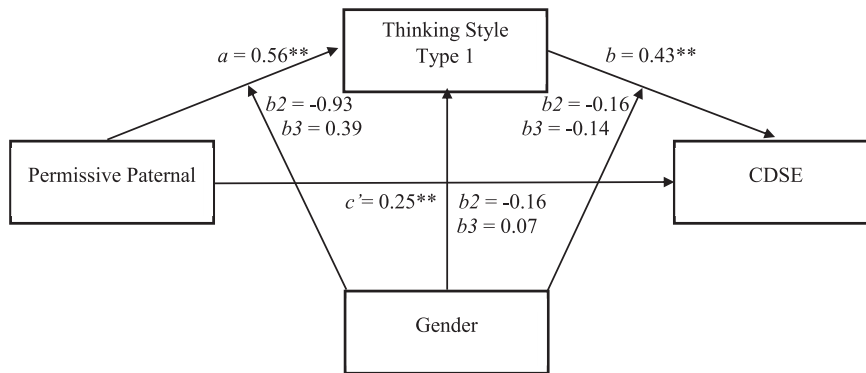


Figure 7. Model 7.

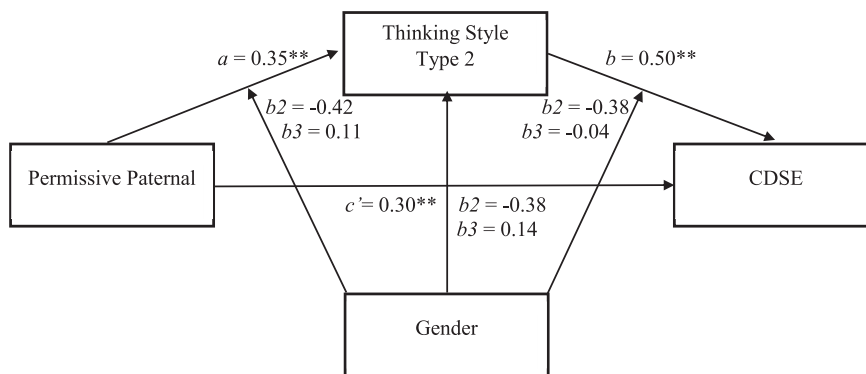


Figure 8. Model 8.

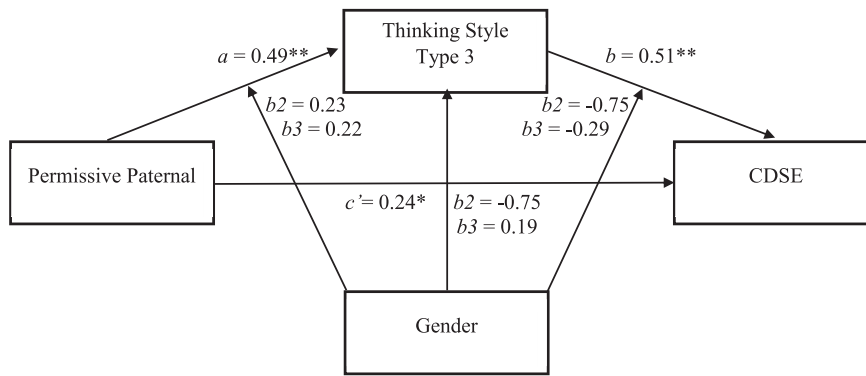


Figure 9. Model 9.

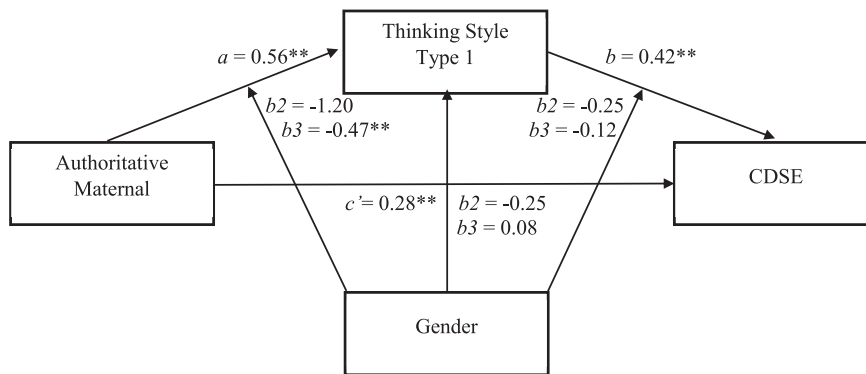


Figure 10. Model 10.

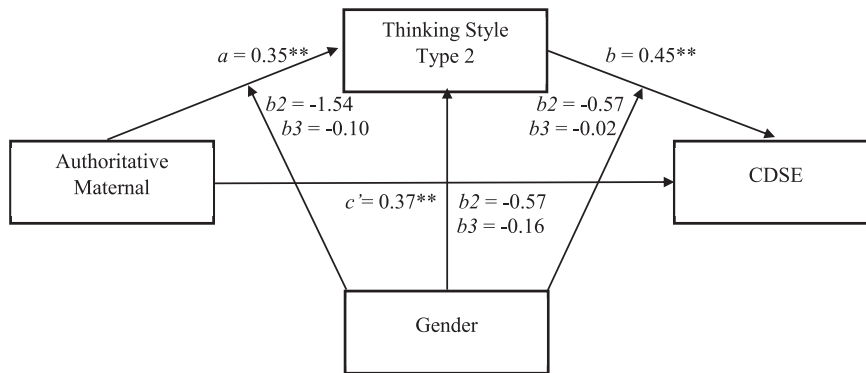


Figure 11. Model 11.

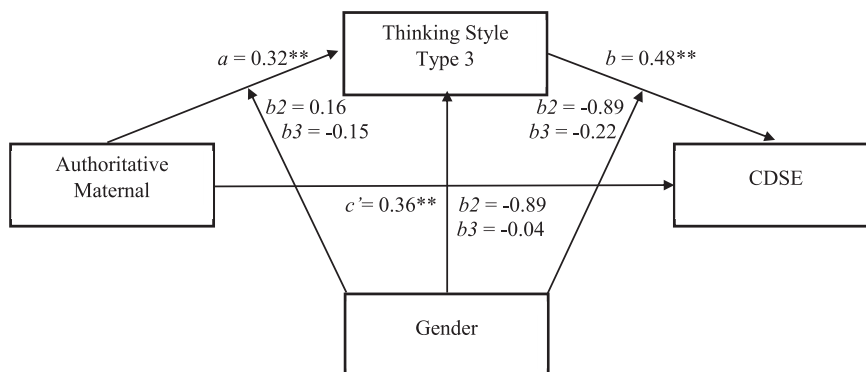


Figure 12. Model 12.

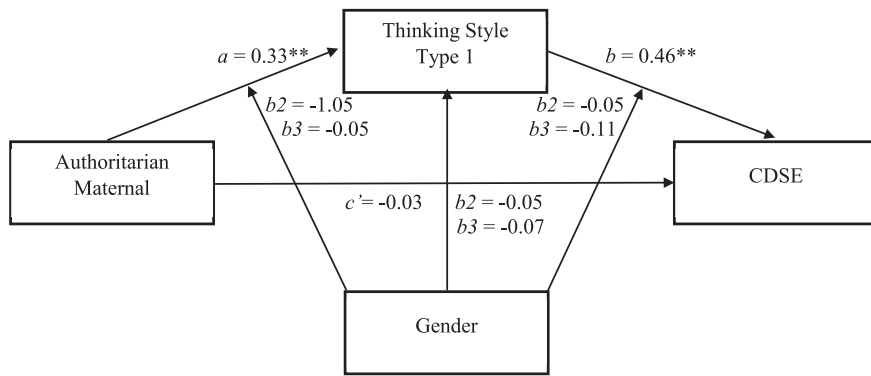


Figure 13. Model 13.

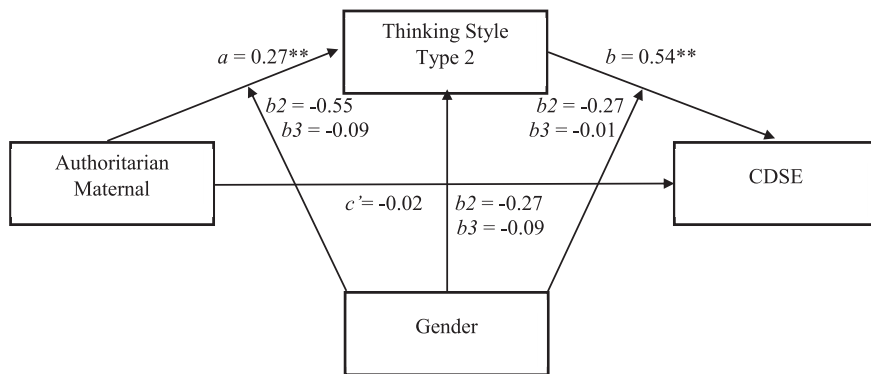


Figure 14. Model 14.

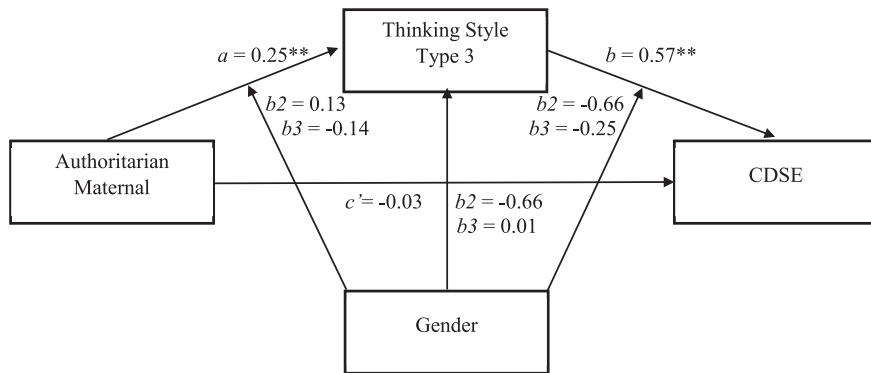


Figure 15. Model 15.

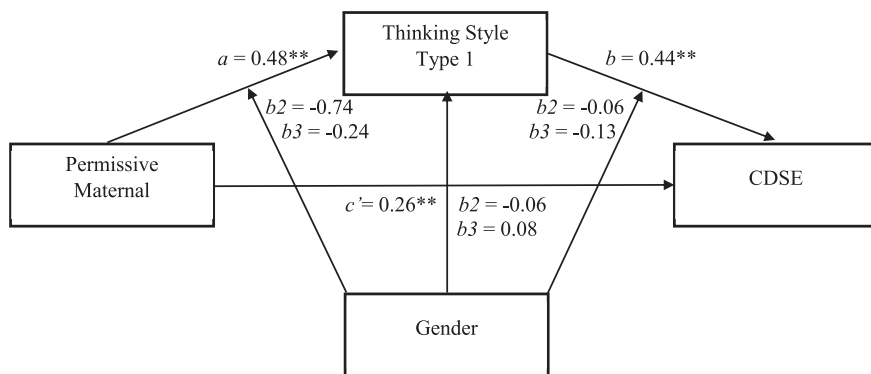


Figure 16. Model 16.

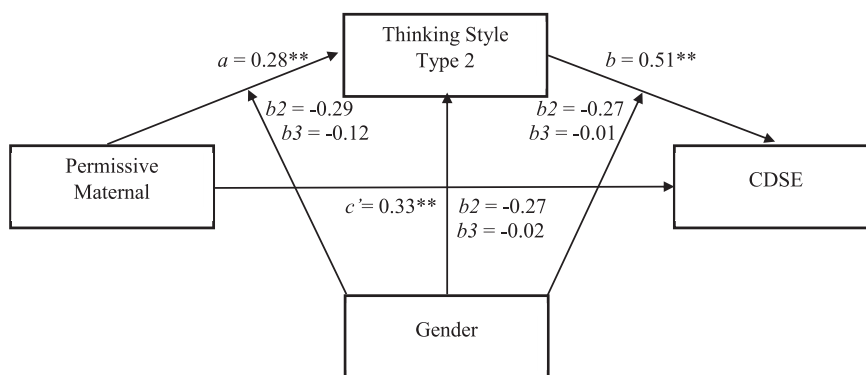


Figure 17. Model 17.

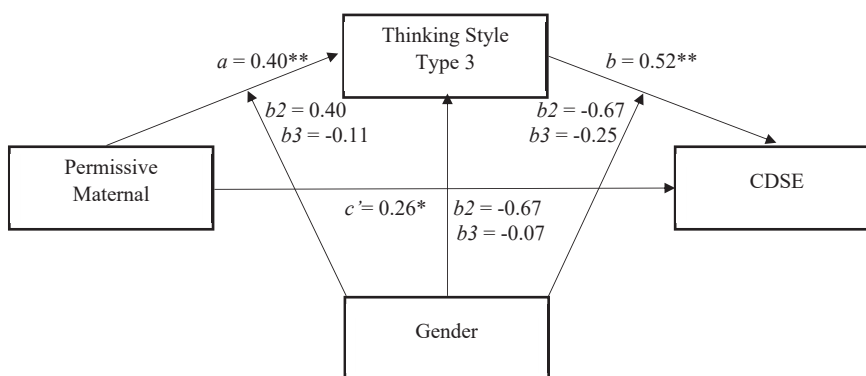


Figure 18. Model 18.

As Table 3 shows, gender acts as a homologizer moderator that weakens the relationship between the authoritative paternal style and CDSE (see Models 1, 2, and 3 in Figures 1, 2, and 3). Similar results are found for the authoritative paternal style (see Models 4 and 6 in Figures 4 and 6), the authoritative maternal style (see Models 11 and 12 in Figures 11 and 12), the authoritarian maternal style (see Models 13 and 14 in Figures 13 and 14), and the permissive maternal style (see Model 17 in Figure 17). Furthermore, gender acts as a pure moderator that weakens the relationship between the authoritarian paternal style and CDSE (see Model 5 in Figure 5). Finally, gender acts as a homologizer moderator that reinforces the relationship between CDSE and the permissive paternal style (see Models 7, 8, and 9 in Figures 7, 8, and 9), the authoritative maternal style (see Model 10 in Figure 10), the authoritarian maternal style (see Model 15 in Figure 15), and the permissive maternal style (see Models 16 and 18 in Figures 16 and 18).

3.5. Gender as a moderator between perceived parenting styles and thinking styles

According to Table 3, gender acts as a homologizer moderator that weakens the relationship between the authoritative paternal style and thinking styles (see Models 1, 2, and 3 in Figures 1, 2, and 3). Similar results are found for the authoritative paternal style (see Model 5), the authoritative maternal style (see Models 10, 11, and 12 in Figures 10, 11, and 12), the authoritarian maternal style (Models 13, 14, and 15 in Figures 13, 14, and 15), and the permissive maternal style (Models 16, 17, and 18 in Figures 16, 17, and 18). Moreover, gender acts as a pure moderator that weakens the relationship between the authoritarian paternal style and thinking styles (see Models 4 and 6 in Figures 4 and 6), whereas it acts as a homologizer moderator that reinforces the relationship between the permissive paternal style and thinking styles (see Models 7, 8, and 9 in Figures 7, 8, and 9).

3.6. Gender as a moderator between thinking styles and CDSE

As Table 3 shows, gender acts as a homologizer moderator that weakens the relationship between Type I thinking styles and CDSE (see Models 1, 4, 7, 10, 13, and 16 in Figures 1, 4, and 7, 10, 13, and 16). Similar findings are found for Type II thinking styles (see Models 8, 11, 14, and 17 in Figures 8, 11, 14, and 17) and Type III thinking styles (see Models 3, 6, 12, 15, and 18 in Figures 3 and 6, 12, 15, and 18). Also, gender acts as a pure moderator that weakens the relationship between Type III thinking styles and CDSE (see Model 9 in Figure 9), whereas it acts as a homologizer moderator that reinforces the relationship between CDSE and the authoritative paternal style (see Model 2 in Figure 2) and the authoritarian paternal style (see Model 5 in Figure 5).

4. Discussion

Based on the first hypothesis test, both the paternal and maternal authoritative and permissive parenting styles significantly predicted CDSE. These results are in line with those of previous studies (White, 2009) in which the authoritative parental style had a greater effect on CDSE, due to its balance between warmth and control (Baumrind, 1991). In other words, authoritative parents generally establish clear rules and limits, but allow democratic discussions within the family. Meanwhile, permissive parents tend to be freer in their approach with their children (Situmorang and Salim, 2020).

According to the second hypothesis test, gender acted as a homologizer moderator, which weakened the relationship between the authoritative paternal style and CDSE (see Models 1, 2, and 3 in Figures 1, 2, and 3). Similar results were found for the authoritative paternal style (see Models 4 and 6 in Figures 4 and 6), the authoritative maternal style (see Models 11 and 12 in Figures 11 and 12), the authoritarian maternal style (see Models 13 and 14 in Figures 13 and 14), and the permissive maternal style (see Model 17 in Figure 17). Thus, it can be concluded that gender is

Table 3. Hypothesis testing for moderation using Hayes's Model 59.

Number of Models	Models	X*W (c' path)				X*W (a path)				M*W (b path)			
		b2	b3	p2	p3	b2	b3	p2	p3	b2	b3	p2	p3
Model 1	X: AVE PATERNAL M: TYPE 1 Y: CDSE W: GR	-0.39	-0.07	0.65	0.51	-1.33	-0.05	0.14	0.67	-0.39	-0.12	0.65	0.13
Model 2	X: AVE PATERNAL M: TYPE 2 Y: CDSE W: GR	-0.70	-0.13	0.44	0.30	-0.66	-0.07	0.23	0.32	-0.70	0.03	0.44	0.81
Model 3	X: AVE PATERNAL M: TYPE 3 Y: CDSE W: GR	-1.02	-0.08	0.26	0.49	0.05	-0.01	0.92	0.93	-1.02	-0.24	0.26	0.08
Model 4	X: AN PATERNAL M: TYPE 1 Y: CDSE W: GR	0.06	-0.14	0.93	0.39	-0.24	-0.56	0.79	0.01**	0.06	-0.10	0.93	0.18
Model 5	X: AN PATERNAL M: TYPE 2 Y: CDSE W: GR	-0.07	-0.37	0.93	0.04*	0.09	-0.19	0.87	0.07	-0.07	0.06	0.93	0.64
Model 6	X: AN PATERNAL M: TYPE 3 Y: CDSE W: GR	-0.49	-0.25	0.59	0.15	0.73	-0.24	0.19	0.02*	-0.49	-0.18	0.59	0.17
Model 7	X: PM PATERNAL M: TYPE 1 Y: CDSE W: GR	-0.16	0.07	0.85	0.73	-0.93	0.39	0.32	0.08	-0.16	-0.14	0.85	0.06
Model 8	X: PM PATERNAL M: TYPE 2 Y: CDSE W: GR	-0.38	0.14	0.67	0.53	-0.42	0.11	0.45	0.42	-0.38	-0.04	0.67	0.73
Model 9	X: PM PATERNAL M: TYPE 3 Y: CDSE W: GR	-0.75	0.19	0.41	0.41	0.23	0.22	0.68	0.10	-0.75	-0.29	0.41	0.03*
Model 10	X: AVE MATERNAL M: TYPE 1 Y: CDSE W: GR	-0.25	0.08	0.77	0.59	-1.20	-0.47	0.18	0.01**	-0.25	-0.12	0.77	0.13
Model 11	X: AVE MATERNAL M: TYPE 2 Y: CDSE W: GR	-0.57	-0.16	0.53	0.35	-0.54	-0.10	0.33	0.31	-0.57	-0.02	0.53	0.84
Model 12	X: AVE MATERNAL M: TYPE 3 Y: CDSE W: GR	-0.89	-0.04	0.32	0.80	0.16	-0.15	0.77	0.13	-0.89	-0.22	0.32	0.11
Model 13	X: AN MATERNAL M: TYPE 1 Y: CDSE W: GR	-0.05	-0.07	0.95	0.58	-1.05	-0.05	0.26	0.68	-0.05	-0.11	0.95	0.13
Model 14	X: AN MATERNAL M: TYPE 2 Y: CDSE W: GR	-0.27	-0.09	0.76	0.53	-0.55	-0.09	0.32	0.27	-0.27	-0.01	0.76	0.99
Model 15	X: AN MATERNAL	-0.66	0.01	0.47	0.91	0.13	-0.14	0.80	0.08	-0.66	-0.25	0.47	0.07

(continued on next page)

Table 3 (continued)

Number of Models	Models	X*W (c' path)				X*W (a path)				M*W (b path)			
		b2	b3	p2	p3	b2	b3	p2	p3	b2	b3	p2	p3
	M: TYPE 3												
	Y: CDSE												
	W: GR												
Model 16	X: PM MATERNAL	-0.06	0.08	0.93	0.72	-0.74	-0.24	0.43	0.33	-0.06	-0.13	0.93	0.95
	M: TYPE 1												
	Y: CDSE												
	W: GR												
Model 17	X: PM MATERNAL	-0.27	-0.02	0.76	0.90	-0.29	-0.12	0.61	0.42	-0.27	-0.01	0.76	0.93
	M: TYPE 2												
	Y: CDSE												
	W: GR												
Model 18	X: PM MATERNAL	-0.67	0.07	0.46	0.76	0.40	-0.11	0.47	0.46	-0.67	-0.25	0.46	0.06
	M: TYPE 3												
	Y: CDSE												
	W: GR												

Note: CDSE = Career Decision Self-Efficacy; AVE = Authoritative; AN = Authoritarian; PM = Permissive; GR: Gender. **p* < .05. ***p* < .01.

a potential moderating variable that influences the relationship between the predictor variables (parenting styles) and the dependent variable (CDSE). Gender also acted as a pure moderator that weakened the relationship between the authoritarian paternal style and CDSE (see Model 5 in Figure 5). This indicates that gender moderates the relationship between the predictor and dependent variables, whereas pure moderation variables interact with the predictor variables without actually becoming predictor variables. Furthermore, gender acted as a homologizer moderator that reinforced the relationship between CDSE and the permissive paternal style (see Models 7, 8, and 9 in Figures 7, 8, and 9), the authoritative maternal style (see Model 10 in Figure 10), the authoritarian maternal style (see Model 15 in Figure 15), and the permissive maternal style (see Models 16 and 18 in Figures 16 and 18). The findings of this study are in accordance with the research of Trusty (1998), Vignoli et al. (2005), Koumoundourou et al. (2011), and Sovet and Metz (2014), that gender has a moderating effect on parenting styles and CDSE. However, in various cultural backgrounds, parents exhibit different parenting styles to boys and girls (Uji et al., 2014). Regarding Indonesia, the influence of parents on an individual's career-related choices, especially based on gender, is significant. This is motivated by the assumption that, in comparison to boys, girls do not need higher education (Surjono et al., 2015; Colfer et al., 2015). However, many Indonesian women continue on to higher education and they have relatively the same career opportunities as those of men (Babbitt et al., 2015).

Based on the third hypothesis test, the findings are as follows: Type I thinking styles partially mediated the effect of the authoritative paternal style on the students' CDSE in Model 1 (see Figure 1); Type II thinking styles partially mediated the effect of the authoritative paternal style on the students' CDSE in Model 2 (see Figure 2); Type III thinking styles partially mediated the effect of the authoritative paternal style on the students' CDSE in Model 3 (see Figure 3); Type I thinking styles partially mediated the effect of the authoritative maternal style on the students' CDSE in Model 11 (see Figure 11); Type III thinking styles partially mediated the effect of the authoritative maternal style on the students' CDSE in Model 12 (see Figure 12); and Type II thinking styles partially mediated the effect of the permissive maternal style on the students' CDSE in Model 17 (see Figure 17). Conversely, Type I thinking styles did not mediate the effect of the authoritarian paternal style on the students' CDSE (see Models 6, 13, 14, and 15 in Figures 6, 13, 14, and 15). Meanwhile, Type II thinking styles fully mediated the effect of the authoritarian paternal style on the CDSE of the male students, whereas Type I thinking styles fully mediated the effect of the permissive paternal style on the CDSE of the female students (see Models 8, 9, 10, 17, and 18

in Figures 8 and 9, 10, 17, and 18). These findings are in line with those of Fan and Zhang (2014) and Fan (2016) in which parenting styles have a significant influence on thinking styles as well as career planning and development. Based on these findings, it can be concluded that the third hypothesis in this study is that the thinking style mediates the relationship between parenting styles and CDSE is proved. It is related to the research from Fan and Zhang (2014) and Fan (2016) that provides a new insight, that there are internal factors that greatly affect an individual in determining their career in the future, the internal factor is thinking styles.

Regarding the fourth hypothesis test, the finding that the authoritative parenting style significantly predicted Type I thinking styles is consistent with previous results (Fan and Zhang 2014). Based on the correlation analysis, the paternal and maternal authoritative styles were positively associated with the legislative, judicial, hierarchical, global, and liberal thinking styles. This indicates that parents who are supportive and democratic tend to produce children with Type I thinking styles in which they are willing to deal with new situations. Type II thinking styles were also significantly and positively predicted by the authoritative paternal style and the authoritative/authoritative maternal styles. The results of the correlation analysis also showed that the authoritative paternal style and the authoritative/authoritative maternal styles were positively associated with the executive, monarchic, local, and conservative styles that characterize Type II thinking styles. This suggests that children raised by authoritative/authoritarian parents generally follow the rules and focus on one task at a time.

As for the fifth hypothesis test, gender acted as a homologizer moderator that weakened the relationship between the authoritative paternal style and thinking styles (see Models 1, 2, and 3 in Figures 1, 2, and 3). Similar results were found for the authoritative paternal style (see Model 5 in Figure 5), the authoritative maternal style (see Models 10, 11, and 12 in Figures 10, 11, and 12), the authoritarian maternal style (see Models 13, 14, and 15 in Figures 13, 14, and 15), and the permissive maternal style (see Models 16, 17, and 18 in Figures 16, 17, and 18). Hence, it can be concluded that gender is a potential moderating variable that influences the relationship between the predictor variables (parenting styles) and the dependent variables (thinking styles). Furthermore, gender acted as a pure moderator that undermined the relationship between the authoritarian paternal style and thinking styles (see Models 4 and 6 in Figures 4 and 6), whereas it acted as a homologizer moderator that reinforced the relationship between the permissive parenting style and thinking styles (see Models 7, 8, and 9 in Figures 7, 8, and 9). The findings of this study are in accordance with the influence of different parenting styles on girls and boys indirectly has a different

impact on individual thinking styles (Fan and Zhang, 2014) in determining his career in the future (Fan, 2016). It can be concluded that the fifth hypothesis in this study is proved because the two relationships between variables are moderated by gender.

Regarding the sixth hypothesis test, the results indicated that Type I thinking styles significantly predicted CDSE, which is consistent with previous research (Fan 2016). Although Type II thinking styles also predicted CDSE, the effect was not as significant. Regarding Type III thinking styles, they significantly predicted CDSE. This finding is in line with Fan and Zhang (2014) point out that parenting styles have a very strong influence in shaping one's thinking styles, and Fan (2016) adds that the process of determining career planning and development, an individual heavily influenced by their thinking styles. Different thinking styles will cause individuals to choose different career choices. Fan (2016) found that one's thinking styles have a significant effect on CDSE. Thinking styles owned by an individual determine a career choice and a college subject after graduating from high school. The results of this study identify the unique role of thinking styles on CDSE of students. The results (Fan, 2016) prove that thinking styles play a contributive role to CDSE, where Type I thinking styles show positive values in terms of student CDSE. Meanwhile, the thinking styles Type II are not significantly related to the student CDSE, whereas two thinking styles in Type III (e.g. internal and external) partially and positively contribute to CDSE.

According to the seventh hypothesis test, gender acted as a homologizer moderator that weakened the relationship between Type I thinking styles and CDSE (see Models 1, 4, 7, 10, 13, and 16 in Figures 1, 4, and 7, 10, 13, and 16). Similar results were found for Type II thinking styles (see Models 8, 11, 14, and 17 in Figures 8, 11, 14, and 17) and Type III thinking styles (see Models 3, 6, 12, 15, and 18 in Figures 3 and 6, 12, 15, and 18). Thus, it can be concluded that gender is a potential moderating variable that influences the relationship between the predictor variables (thinking styles) and the dependent variable (CDSE).

Finally, gender acted as a pure moderator that undermined the relationship between the authoritarian paternal style and thinking styles (see Models 4 and 6 in Figures 4 and 6), and weakened the relationship between Type I thinking styles and CDSE (see Models 1, 4, 7, 10, 13, and 16 in Figures 1, 4, 7, 10, 13, and 16). Similar results were found for Type II thinking styles (see Models 8, 11, 14, and 17 in Figures 8, 11, 14, and 17) and Type III thinking styles (see Models 3, 6, 12, 15, and 18 in Figures 3 and 6, 12, 15, and 18). Moreover, gender served as a pure moderator that weakened the relationship between Type III thinking styles and CDSE (see Model 9 in Figure 9), whereas it acted as a homologizer moderator that reinforced the relationship between CDSE and the authoritative paternal style (see Model 2 in Figure 2) and the authoritarian paternal style (see Model 5 in Figure 5). In relation to these findings, we can relate them to the results of research conducted by Fan (2016), that shows students who have Type I thinking styles, i.e. individuals prefer to deal with unstructured tasks (legislative), who enjoy the evaluation of a thing and others (judicial), more likes to pay attention to the overall situation or issue (global), who likes to get involved in the something new (liberal), and who tend to manage many tasks efficiently (hierarchical); more confident in collecting job information, making accurate self-assessment, choosing career goals, planning career development, and solving problems around career selection compared with their peers. This means that there is a positive relationship between the Type I thinking styles with CDSE of the student. The study also explains that gender provides a moderate effect on the type of thinking styles on individual CDSEs.

5. Conclusion and limitations

This study focused on the relationship between CDSE, perceived parenting styles, thinking styles, and gender among a sample of high school students in Jakarta, Indonesia. According to the measuring instruments (the CDSE Scale - Short Form, the Parental Authority Questionnaire, and the Thinking and Styles Inventory - Revised II), the students' CDSE was significantly influenced by the authoritative and

permissive parenting styles, and by all three thinking styles (Types I, II, and III). Moreover, the thinking style variables significantly mediated the relationship between the perceived parenting styles and CDSE, while gender acted as a homologizer moderator in the relationship between the variables.

Overall, the findings of this study not only add to the literature but also form the basis for developing future CDSE interventions for male and female students. However, this study includes two limitations that should be noted. First, in two out of the three schools, the researchers collected data during the final hour of the school day, when the students were tired and lacked focus. Consequently, some of the answers were unable to be applied. Second, the answers based on a Likert-type scale were possibly inaccurate. Therefore, future research should ensure that data collection is performed in the morning (i.e., when the students are refreshed) and that other methods are applied (e.g., interviews and/or observations) to obtain more accurate results.

6. Implications

In terms of practice, this research has the implication that the right parenting styles in Indonesia context can produce the best thinking styles and the CDSE is quite good too, in this case specifically for authoritative parenting styles. It is hoped that this research can become a reference source for all families in Indonesia. Through authoritative parenting, it is proven that students have high CDSE, which means that students have high aspects in terms of: self-appraisal, occupational information, goal selection, planning, and problem-solving. These aspects help them greatly in determining the future that is most suitable for them.

Based on the other findings that show that all types of thinking styles Type I and II have a very significant positive effect on student's CDSE (especially for authoritative parenting styles), it is hoped that parents, teachers, and counselors in Indonesia can provide the same support to children, namely through the provision of career information, and career guidance, so that each student can have high confidence in making career decisions in the future.

In addition, the researchers provide suggestions for students who still have anxiety in making decisions about their future careers, namely by providing motivation and counseling through music therapy. As research has been conducted in Indonesia, it is proven that music therapy can reduce anxiety (Situmorang, 2018, 2020a, 2020b; Situmorang et al., 2018). This research can serve as a basis for new ideas to further investigate the relationship between these variables.

In terms of research, this study can be a reference for future researchers to consider the shortcomings of this study, so as to produce research results that can strengthen the results of this study.

Declarations

Author contribution statement

Dominikus David Biondi Situmorang: Conceived and designed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Rose Mini Agoes Salim: Conceived and designed the experiments; Performed the experiments; Contributed reagents, materials, analysis tools or data.

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Data availability statement

Data included in article/supplementary material/referenced in article.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

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