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A New Longitudinal Examination on the Relationship between Teaching Style and Adolescent Depression

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ABSTRACT

Guided by the theoretical framework of Baumrind's parenting style, this study aimed at providing a better understanding of the relationship between teaching style and adolescent depression. The panel data is from the Taiwan Educational Panel Survey (N=654). Findings showed that the effect of teaching style on adolescent depression had different pattern across junior and senior high school students. And there is interaction effects between teaching style in junior and senior high school. Authoritarian teaching style played a more significant role for junior high students, and this effect can last especially among those whose perception of teaching style is authoritarian and authoritative in high school. And permissive teaching style was more important in senior high stage, it could decrease the levels of depression especially for those who perceived teaching style is indifferent and authoritarian in junior high school. Implications for future research were discussed.

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Keywords:

adolescent depression; teaching style; longitudinal study; interaction effect

1. Introduction

Depression it is not limited to adults, actually adolescents have to deal with many changes that could have an influence on their mental health, and they are very vulnerable to depressive moods (Compas, Ey, & Grant, 1993). Based on research carried out by the John Tung Foundation (2011), 18.1% of 5056 adolescents from five cities in Taiwan experienced serious depression emotion. Therefore, it's important to devote more attention to adolescent depression.

Gender is one individual-level factor will influence adolescent depression. Previous literature has revealed that female adolescents tended to emphasize private self-consciousness and experience more stressful events, which in turn lead to an increase in depressive symptoms (Lewinsohn, et al., 1994; Kandel & Davies, 1982). However, Petersen et al. (1993) suggested that boys and girls have different patterns of change in depression in which the degree of depression is stable in the 8th grade for boys but is increased for girls. Therefore we wanted to figure out whether the impact of gender on depression is different across junior and senior high school.

As for external factors, one of the theories about depression is known as social support theory. Malecki and Demaray (2003) defined social support as "an individual's perceptions of general support or specific supportive behaviours (available or acted on) from people in their social network, which enhances their functioning or may buffer them from adverse outcomes". Holahan and Moos (1981) pointed out that there is

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a negative correlation between social support and psychological maladjustment, which means perceived social support may reduce psychological distress to some extent. In the classroom context, teachers are critical sources of social support, emotionally warm relationship between teachers and students (characterized by open communication, support, and involvement) provides students with a sense of security within school settings, which in turn promotes exploration and comfort, as well as social, emotional, and academic competence (Birch & Ladd, 1997; Pianta & Steinberg, 1992; Khamis, 2009; Cassidy & Shaver, 1999; Cappeliez et al, 1993; Richman, Rosenfeld, & Bowen, 1998; Pianta, 1999). The quality of interaction can be affected by teaching style directly and indirectly. Teaching style refers to the strategies and methods teachers use in order to achieve educational goals. It is a derivation of models of parenting styles from Baumrind and has been applied to classroom context. Baumrind (1978) first identified two dimensions of parenting style as responsiveness and control, responsiveness refers to the caring and warmth parents exhibit toward a child; control refers to the strictly rules or even criticism for misbehaviors. Baumrind developed this two dimensions to derive a four-fold classification of parenting styles: indifferent, permissive, authoritative and authoritarian. Results about the relationship between parenting style and adolescent were basically consistent, authoritative parenting style is best for children's psychological functioning and indifferent parenting style is the worst (Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Radziszewska, Richardson, Dent, & Flay, 1996; Pittman & Chase-Lansdale, 2001; Piko & Balazs, 2012; Milevsky, Schlechter, Netter, & Keehn, 2007). But with different culture and characteristic of adolescents, the result will be different. Steinberg, Blatt, and Cauffman (2006) found that the children under four kinds of parenting style did not differ with respect to reports of symptoms of depression in a sample of serious juvenile offenders, and Gracia and Gracia (2009) showed that in Spain the optimum style of parenting for adolescents' emotion and psychosocial adjustment is the permissive one.

As an analogue of parenting style, these four kinds of teaching styles were used in this study. Roan-Belle (2013) pointed out that indifferent teachers (low control, low responsiveness) were detached from the classroom, they were neither demanding nor responsive. Permissive teachers (low control, high responsiveness) created very supportive and nurturing educational environment for students, however, they often had low demandingness. Authoritarian teachers (high control, low responsiveness) believed that compliance was more important than developing student competence, and they tended to minimize the importance of emotional connections with students and place higher value on respect and obedience. Finally, authoritative teachers (high control, high responsiveness) focused on building students' discipline and competence, and they also recognized the importance of establishing strong emotional connection with students.

Since Pellerin (2005) applied Baumrind's typology of parenting style to high school, a few researchers have investigated the effect of teaching style on student outcomes (e.g. Walker, 2008; Dever & Karabenick, 2011). Walker (2008) explored the motivation of students in classrooms with three teachers of different styles: authoritative, authoritarian, and permissive, and the best student outcomes (high motivation and achievement) were associated with an authoritative teaching style. Dever and Karabenick (2011) examined the effects of the two facets of authoritative teaching—high academic pressure and caring for students—on interest in mathematics for middle and high school students, and the results suggested students' ethnicity is a moderator variable, the authoritative teaching style predicted higher levels of interest in the case of Hispanic students, but authoritarian teaching (high pressure and low caring) was positively related to interest for Vietnamese students. However, to our knowledge, no previous research investigating the effect of teaching style on students' depression. Therefore, the present study was aimed at providing a better understanding of the effect of teaching style on adolescent depression, the current study used panel data across junior and senior high schools to investigate:

- (a) Whether the effect of teaching style in senior high schools has the same pattern as has been exhibited in junior high schools.
- (b) What's the unique effect of teaching style in junior and senior high school on depression?
- (c) Whether there is aggregate effect of junior and senior high stage teaching style on senior high students' depression.

2. Method

2.1. Participants

This study made use of data from the Taiwan Educational Panel Survey (Chang, 2005; 2008) for Wave 2 (2003) Junior High School and Wave 4 (2007) Senior (Vocational) High School. The same students are being followed in both 2003 and 2007. The Taiwan Education Panel Survey is a national longitudinal project initiated by Academia Sinica and jointly funded by the Ministry of Education, the National Science Council, and Academia Sinica. A multistage stratified sampling method was used, and three classes from each school were sampled, with 15 students selected in each class at random. The dataset contained a sample of 9th graders in junior high school and 12th graders in senior high school as track samples. The sample size in this study was 654; the number of boys was 320 (48.9%), and the number of girls was 334 (51.1%).

2.2. Instruments

2.2.1. Depression

Depression as the dependent variable was measured by 6 items. Participants were asked: "In this semester, did these following things happen to you?" Items included, "felt depressed", "felt lonely", "didn't want to interact with others," "wanted to scream, fight, and quarrel", "couldn't sleep well", "head numb." These 6 items assessed the self-reported frequency of depression experienced over the semester on a four-point Likert scale: never (assigned 1), sometimes (assigned 2), frequently (assigned 3), very frequently (assigned 4). The scores for each item were added to form a new variable called depression. The higher the scores were, the more severe the depression was considered to be. Factor loadings for the items in 2003 were all greater than .606, and Cronbach's alpha was .780. The factor loadings for the items in 2007 were all greater than .625, and the Cronbach's alpha was .806.

2.2.2. Perceived Teaching Style

There were four items self-assessed by asking how many teachers behaved in a certain manner since the student started junior (senior) high school. Two of these items were averaged to measure "responsiveness" on the part of teachers: "When I express my ideas, the teacher will listen and try to understand." and "The teacher will praise me when I work hard." Another two items were averaged to measure "control": "The teacher may hurt my self-esteem when he or she tutors me.", and "The teacher always tells me not to do things that will embarrass him or her." Each item was measured on a five point Likert scale: none (assigned 1), 1-2 (assigned 2), 3-4 (assigned 3), 5-6 (assigned 4), more than 6 (assigned 5). Finally, responsiveness and control were split by the median, respectively, where scores greater than the medians were considered high responsiveness and high control, and scores lower than the median were labelled as low responsiveness and low control. Therefore, a new variable called teaching style was formed: low responsiveness and low control represented the indifferent teaching style; high responsiveness and low control represented the permissive teaching style; low responsiveness and high control represented the authoritarian teaching style, and high responsiveness and high control represented the authoritative teaching style. Students whose scores were exactly equal to the median were then eliminated, resulting in 654 students (320 boys and 334 girls).

3. Results

A chi-square analysis suggested that there were differences in the number of students across four perceived teaching style condition (indifferent/permissive/authoritarian/authoritative) in junior high school, $\chi^2(3,654)=123.81, p<.001$, and senior high school, $\chi^2(3,654)=62.91, p<.001$, see Table 1.

Table 1. Numbers of students across four perceived teaching style condition

Teaching style	Indifferent	permissive	authoritarian	authoritative	χ^2
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Junior high	111	91	179	273	123.81**
Senior high	124	190	107	233	62.91**

More students perceived the authoritative teaching style in junior and senior high school. And compared with junior high stage, there were more students perceived permissive teaching and less perceived authoritarian teaching style in senior high school, which suggested senior high students felt more responsiveness and less control from teachers.

To investigate the differences in depression among the four groups of teaching styles, we considered each age stage (junior high stage in 2003/ senior high stage in 2007) in separate two-way ANOVAs, with sex (boy/girl) and perceived teaching style (indifferent / permissive / authoritarian /authoritative) as between-subjects factors. For junior high school students, the results showed significant main effect for teaching style, $F(3,646)=6.431$, $p=.000$, $\eta^2=.029$, but the main effect for sex and interaction effect between sex and teaching style were not significant, $F(1,646)=3.14$, $p=.077$; and $F(3,646)=1.32$, $p=.267$. Post hoc comparisons (Tukey's HSD, $p<.05$) showed that junior high students who perceived teaching styles as authoritarian ($M=12.92$, $SD=4$) were more depressed than those who perceived their teachers were indifferent ($M=11.23$, $SD=3.5$), permissive ($M=11.41$, $SD=3.03$) and authoritative ($M=11.91$, $SD=3.6$). As for those students in senior high stage, the interaction effect between sex and teaching style was also not significant, $F(3,646)=.024$, $p=.995$, but the main effects for both sex and teaching style were significant, $F(1,646)=16.04$, $p<.001$, $\eta^2=.024$; and $F(3,646)=21.644$, $p<.001$, $\eta^2=.091$, girls ($M=12.15$, $SD=3.5$) felt more depression than boys ($M=11.24$, $SD=3.72$) in senior high school, $F(1,652)=10.488$, $p=.001$, $\eta^2=.016$. Post hoc comparisons (Tukey's HSD, $p<.05$) showed that senior high students who perceived teaching styles as permissive ($M=10.19$, $SD=2.77$) were less depressed than those who perceived their teachers to be indifferent ($M=12.1694$, $SD=4.19$), authoritarian ($M=13.16$, $SD=4.15$) and authoritative ($M=12.03$, $SD=3.28$). The different result of Post hoc comparison from junior high stage and senior high stage suggested that the role of teaching style was varied across different age groups, junior high students were more sensitive to authoritarian teaching style which was more likely to increase the level of depression, and the role of permissive teaching style became more important in senior high stage, students who under it reported less depression, see Table 2.

Table 2. ANOVA Results and Descriptive Statistics for Adolescent Depression by Teaching Style

Teaching Style	Depression $M(SD)$			
	Authoritarian	Authoritative	Permissive	indifferent
Junior high students	12.92(4)	11.91(3.6)	11.41 (3.03)	11.23(3.5)
Source	<i>df</i>	<i>F</i>	η^2	<i>p</i>
Teaching style	3	6.431	0.029	.000
Sex	1	3.14	0.000	0.077
Teaching style×Sex	3	1.32	0.000	0.267
Senior high students	13.16(4.15)	12.03(3.28)	10.19(2.77)	12.17(4.19)
Source	<i>df</i>	<i>F</i>	η^2	<i>p</i>
Teaching style	3	21.644	0.091	.000
Sex	1	16.04	0.024	0.000
Teaching style×Sex	3	0.024	0.000	0.995

To examine the aggregate effect of perceived teaching style on depression, we performed an analysis of covariance (ANCOVA) with sex, perceived teaching style of 2003 and 2007, as independent variables, with score on depression of 2003 as covariate, and with score on depression of 2007 as dependent measure, see Table 3. The results indicated that there was a significant effect of sex, $F(1,622)=5.94$, $p=.015$, $\eta^2=.009$. And the main effects for both perceived teaching style 2003 and perceived teaching style 2007 were conditioned by a interaction of them, $F(9,622)=1.96$, $p=.042$, $\eta^2=.028$. There was no significant interaction between Sex and

Perceived teaching style2003, $F(3,622)=.80$, $p=.49$, nor the interaction between Sex and Perceived teaching style2007, $F(3,622)=.45$, $p=.72$, nor the three-way interaction with Sex, Perceived teaching style2003, and Perceived teaching style2007, $F(8,622)=.49$, $p=.86$. For the simple effect of senior high school teaching style, pairwise comparisons showed that for students who under indifferent teaching style in junior high school, after they entered senior high school, those who felt permissive teacher style were less depressive than those who felt indifferent ($p=.002$) and authoritarian ($p=.011$) teaching style. And for students under authoritarian teaching style in junior high school, after they entered senior high school, those who perceived teaching style is permissive felt less depression than those whose perception of teaching style is authoritative ($p=.006$) and authoritarian ($p=.003$). No other pairwise comparisons differed significantly among students who perceived teaching style as permissive and authoritative in junior high school. For the simple effect of junior high teaching style, pairwise comparisons showed that for students whose perception of teaching style was authoritarian in senior high school, among them whose perception of teaching style used to be authoritarian in junior high stage felt more depression than those under authoritative ($p=.045$) teaching style. Students whose perception of teaching style was authoritative in senior high school, among them whose perception of teaching style used to be authoritarian in junior high stage felt more depression than those under indifferent ($p=.001$) and authoritative ($p=.015$) teaching style. According to the results of simple effect, we suggested that permissive teaching style of senior high stage played a more significant role among students who under the indifferent and authoritarian teaching style in junior high school, and authoritarian teaching style of junior high stage had a long negative effect on students whose perception of teaching style were authoritarian and authoritative in high school.

Table 3. ANCOVA Results of Senior High students' Depression using Their Depression Score in Junior High as the Covariate

Predictor	Sum of Squares	df	Mean Square	F	p
(Intercept)	2156.06	1	2156.06	226.79	.000
Junior Dep	1375.52	1	1375.52	144.686	.000
Sex	56.43	1	56.43	5.94	.015
Junior TS	83.28	3	27.76	2.92	.033
Senior TS	244.241	3	81.41	8.56	.000
Sex*Junior TS	22.84	3	7.62	.80	.494
Sex*Senior TS	12.74	3	4.25	.45	.72
JuniorTS*SeniorTS	167.64	9	18.63	1.96	.042
Sex*JuniorTS*Senior TS	37.41	8	4.68	.49	.86
Error	5913.3	622	9.51		

Nots: Junior Dep = Junior high school students' depression; Junior TS = Teaching style in Junior high school; Senior TS = Teaching style in Senior high school

4. Conclusions and Discussion

This study contributed to a growing body of literature empirically demonstrating the effect of teaching style on students' outcome (Dever & Karabenich, 2011; Pellerin, 2005; Walker, 2008). One of this study's unique contributions was the finding that the effect of teaching style in senior high schools had different pattern with its effect on junior high schools. Junior high students who perceived teaching styles as authoritarian were more depressed than those who perceived their teachers were indifferent, permissive and authoritative. Senior high students who perceived teaching styles as permissive were less depressed than those who perceived their teachers to be indifferent, authoritarian and authoritative. However, this is inconsistent with the results of parenting style which suggested that authoritative parenting style was best

for children's psychological functioning and indifferent parenting style has the worst result (Lambom, Mounts, Steinberg, & Dornbusch, 1991; Radziszewska, Richardson, Dent, & Flay, 1996; Pittman & Chase-Lansdale, 2001; Piko & Balazs, 2012; Milevsky, Schlechter, Netter, & Keehn, 2007). One possible explanation for this difference is that relationship between parents and children is much closer than the relationship between teachers and students. That is to say, when parents make demands on their children, children will tend to accept their parents' advice or criticism, but if teachers do the same thing, it is likely to create conflict between teachers and students. Another potential is that the measurement of parenting style has been focused on mother or father in previous studies, but this study measured the perceived teaching style of the whole school, the aggregate effect of teaching style from many teachers may play a different role from the single one.

One question raised by the present study is why the effect of authoritarian teaching style on depression was strong for junior high students, whereas permissive teaching style became more salient for senior high students? This is an open question and definitely an area for future research. One possible explain is that, for early adolescents in junior high school, caring and learning may represent a sign of weakness, they want to be on their own and get rid of the control from significant adults (Finders, 1997), and seeking adult approval could be viewed by other students as a means of compensating for a lack of ability or inability to be autonomous (Davis, 2010). Thus, students at this stage are more sensitive to teachers' control rather than responsiveness. As late adolescents in senior high school moving into pursuing prosocial and responsible goals, they tend to make and keep friends, to be helpful to students and teachers, also make efforts to be dependable, responsible, and successful. Therefore, the encouragement and appreciation from teachers are very valuable at this stage, and the effect of permissive teaching style become more salient.

Another important finding was that perceived teaching style had an influence on depression over time. The effect of authoritarian teaching style on depression was powerful for junior high students and the effect would be maintained after students entered into high school, especially for those whose perception of teaching style was authoritarian and authoritative in high school. It illustrated the critical and continued role of authoritarian teaching style in adolescents' depression throughout development. Besides, based on the result of simple effect, permissive teaching style in senior high school played a more significant role among students who under the indifferent and authoritarian teaching style in junior high school. These results can be explained by the aggregate effect of teaching style, the permissive teaching style (high responsiveness and low control) in senior high school can decrease the levels of depression for students who lack the responsiveness from junior high teachers, and authoritarian teaching style (high control and low responsiveness) in junior high still has a positive effect to the levels of depression for students who continue receive the high control from teachers in senior high school. Therefore, to decrease to levels of depression, teachers should give more responsiveness and less control to students no matter in junior or senior high school.

To our knowledge, this is the first study used longitudinal data to investigate the influence of teaching style on adolescent depression. Thus, these results had several implications for theory and research, which were discussed below. (a) Although we included four kinds teaching style and explored different patterns contributing to depression, there are other predictors, mediators, and identity outcomes that should be studied in the future. For example, we focused on the role of teachers because it is a source of social support in classroom (Pianta & Steinberg, 1992; Birch & Ladd, 1997). However, it is also important to understand how other forms of social support (e.g. parents and peers) may influence adolescents' depression. Besides, the effect of perceived teaching style may prove more robust as it take into account both ecological variables and child characteristics that may impact the effect of teaching style. (b) Like parenting style, teaching style are culturally embedded. A useful next step for research would be determine whether adolescents in other cultures share the same patterns in our Taiwanese samples. Contrasting more family oriented or collectivistic cultures would be informative. (c) Given that the current results demonstrated the permissive teaching style is the best for psychological functioning, but other research suggested that authoritative teaching style benefits for student motivation and achievement (Pellerin, 2005; Walker, 2008), what is the best recommendation for teaching style? It is important to note that many students with high GPA experienced high pressure and negative emotion, an additional and essential extension of this work should examine what kind of teaching style is benefit for students' mental health and achievement.

Together, these results shed light on the development of adolescents' interpretation of four-fold teaching style, these four kind teaching style may play a somewhat different role in junior and senior high students' depression. We found that perceived authoritarian teaching style played a more significant role for junior high students, and this effect can last especially among those whose perception of teaching style is authoritarian and authoritative in high school. And perceived permissive teaching style was more important in senior high stage, it could decrease the levels of depression especially for those who perceived teaching style is indifferent and authoritarian in junior high school.

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