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1 Running head: Gratitude and Life Satisfaction

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3 **Why Grateful Adolescent Athletes are More Satisfied with Their Lives:**

4 **The Mediating Role of Perceived Team Cohesion**

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22

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## 1                   **Why Grateful Adolescent Athletes are More Satisfied with Their Life:**

### 2                                   **The Mediating Role of Perceived Team Cohesion**

3 Life satisfaction is an important indicator of well-being. It refers to one's cognitive judgment of  
4 life whereby individual compares life circumstances with a self-imposed standard (Busseri &  
5 Sadava, 2011). As such, individuals report high life satisfaction if they perceived their life  
6 circumstances are in line with their own standards (Diener, Emmons, Larsen, & Griffin, 1985).  
7 Research found that life satisfaction correlated with diverse optimal psychological functions like  
8 physical health and self-esteem across different populations ranging from children, adolescents  
9 to older adults (Chow, Au, & Chiu, 2008; Gana et al., 2013; Gilligan & Huebner, 2007; Hoy,  
10 Suldo, & Mendez, 2013; Huebner, 1994; Leversen, Danielsen, Birkeland, & Samdal, 2012). Of  
11 which, adolescents' life satisfaction has attracted researcher's attention (Proctor, Linley, &  
12 Maltby, 2009a, 2009b) because they are in a critical stage of life in terms of their overall  
13 development (Arnett, 1999). Similarly, adolescent athletes' life satisfaction can not be ignored  
14 because they are a special population which faces both academic stress and competitive pressure,  
15 and is worthy of our attention (Chen & Wu, 2014).

16 Sport psychologists usually put their attention on pushing athletes to their limitations rather  
17 than placing considerations on athlete's mental health (Reinboth & Duda, 2006). This may  
18 aggravate athletes' psychological functioning to the point that maladjustments such as burnout  
19 (Eklund & Cresswell, 2007; Goodger, Gorely, Lavalley, & Harwood, 2007), eating disorder  
20 (Blaydon, Lindner, & Kerr, 2002; Engel et al., 2003), and depression (Armstrong & Oomen-  
21 Early, 2009) are developed.

22 A better understanding of antecedents that lead to adolescent athlete's life satisfaction is  
23 important for counteracting the effects of ill-being. As research on positive psychology gained

1 momentum (Seligman, 2008; Seligman & Csikszentmihalyi, 2000; Sheldon & King, 2001), it  
2 has been found that positive traits, emotions, and behaviors serves to contribute to individual's  
3 well-being, including life satisfaction. Of which, gratitude – a generalized tendency to recognize  
4 and respond with grateful emotion to the roles of other people's benevolence in the positive  
5 experiences and outcomes that one obtains (McCullough, Emmons, & Tsang, 2002, p. 112) –  
6 was found to promote life satisfaction reliably (Chan, 2013; Froh, Bono, & Emmons, 2010;  
7 Kaczmarek et al., 2013), and is the construct of interest in the current study.

8       One obvious gap that remains in the literature is the lack of complete understanding of the  
9 mechanisms between gratitude and life satisfaction. Earlier research such as those conducted by  
10 Toussaint and Friedman (2009) found that affect is a potential mediator. Lambert, Fincham,  
11 Stillman, and Dean (2009) indicated that gratitude leads to lower materialism and thereby  
12 enhancing life satisfaction. Since investigating mediators would contribute to our knowledge of  
13 how gratitude might exert its effect on life satisfaction, we undertook a study to examine a  
14 potential mediators based on theory of gratitude (Emmons & Mishra, 2010); specifically,  
15 perceived team cohesion which is a dynamic process that reflects the tendency for a group to  
16 stick together and remain united in the pursuit of its instrumental objectives and/or for the  
17 satisfaction of member affective needs (Carron & Brawley, 2000, p. 94). According to this  
18 definition, perceived team cohesion can be divided into task-oriented and social-oriented  
19 cohesion. The former emphasize on team members consociating to pursue their instrumental  
20 goals while the later focus on individual cognitively evaluate how strong they are affectively  
21 connected with members. In the current study, we focused only on the social aspects of cohesion  
22 because of gratitude as a construct is more relevant to be examined with reciprocally-altruistic  
23 relationships than with goal attainment. In the subsequent paragraphs, we reviewed literature on

1 gratitude and then proposed reasons to explain why perceived team cohesion would be a  
2 mediator.

3 Gratitude is originally defined as a general tendency to response to people's benevolence  
4 with positive emotions (McCullough, Kilpatrick, Emmons, & Larson, 2001). More recently,  
5 Wood, Froh, and Geraghty (2010) extended the scope of gratitude as a life orientation toward  
6 noticing and appreciating the positive in the world (p. 891). This definition is broader than the  
7 original definition because it covers fuller sources of gratitude, such as towards nature and spirit  
8 which emphasize the cognitive aspects of gratitude. It has been suggested that grateful people  
9 have several remarkable characteristics, such as they are more sensitive to the benefits received  
10 from another moral agent, especially when the cost is high for the benefactor. Grateful people  
11 also more likely to behave prosocially to the benefactor or a third party which increased the  
12 likelihood of receiving support from the benefactor and becoming a social resource that can be  
13 used when needed (McCullough et al., 2001).

14 Previous research indicated a reliable relationship between gratitude and life satisfaction  
15 (e.g., Chen & Kee, 2008; Sun & Kong, 2013; Wood, Joseph, & Maltby, 2008). One possible  
16 explanation is that be that grateful people possess a have focus (Wood, Maltby, Stewart, &  
17 Joseph, 2008) that direct them to concern on what they already have rather than what they do not  
18 have. In this regard, gratitude would reduce the discrepancy between self-imposed standard and  
19 real environment which sustain and promote people's life satisfaction over time (McCullough et  
20 al., 2002).

21 Although the direct link between gratitude and life satisfaction was evidenced in the  
22 literature, the mechanisms underline the relationship was relatively less investigated (Sun &  
23 Kong, 2013; Tsang, Carpenter, Roberts, Frisch, & Carlisle, 2014; Watkins, 2004). One of the

1 perspectives to explain this link is that gratitude promotes altruistic behaviors that built and  
2 maintain positive relationship with others which becoming social resources (Emmons & Mishra,  
3 2010). For example, Bartlett, Condon, Cruz, Baumann, and Desteno (2012) found that  
4 manipulating gratitude would facilitate inclusive behaviours (Study 2) indexed by showing a  
5 greater preference for throwing to the benefactor even though it would cost the beneficiary. In  
6 this regard, the chain of reciprocity established by gratitude might be an antecedent for  
7 individual's well-being.

8       Following this perspective, we proposed that perceived team cohesion could be a potential  
9 mediator between gratitude and well-being. Team cohesion refers to a dynamic process in which  
10 individual subjectively stick to the team and the degree to which team members united (Carron  
11 & Brawley, 2000). High perceived team cohesion means that individuals perceive themselves to  
12 be in a supportive, warm, and united atmosphere psychologically (Terry et al., 2000; Uruk,  
13 Sayger, & Cogdal, 2007).

14       One key contribution we hope to make is to extend the understanding on the effects of  
15 gratitude on perceived team cohesion beyond dyadic associations. Previous studies mainly focus  
16 on dyadic associations (e.g., Algoe, Gable, & Maisel, 2010; Lambert, Clark, Durtschi, Fincham,  
17 & Graham, 2010 ). By investigating perceived team cohesion, our knowledge of the effects of  
18 dispositional gratitude could be extended beyond what we already knew about effects of  
19 gratitude on diet associations, partly because contexts like family or sports team emphasize on  
20 how one interacts with members that goes beyond a particular dyad While it is known that  
21 gratitude stimulates reciprocally-altruistic behaviors (Chang, Lin, & Chen, 2012), this study  
22 would provide additional evidence to show that gratitude also lead individual's sense of  
23 connection with team members subjectively. More specifically, perceived team cohesion

1 involves two kind of social interactions in one's perception at the same time: how strong one  
2 feels attached to his/her team, and how well one interacts with each other. Perceived team  
3 cohesion can be regarded as specific form of social bond among members that is not directed to a  
4 single person, and that had not been examined within the gratitude literature.

5 We hypothesize a positive link between gratitude and perceived team cohesion because  
6 psychological functions of moral barometer and moral motive are rooted in gratitude  
7 (McCullough et al., 2001). Both heightened moral barometer and moral motive supports  
8 prosocial behaviour that can be beneficial for perceived team cohesion. First, moral barometer  
9 entails that grateful individual are more sensitive to change in one's social relationship. In other  
10 words, grateful individuals tend to notice the provision of benefits by another moral agent more  
11 easily. Furthermore, a review of literature by Emmons and Mishra (2010) suggests that gratitude  
12 enhances the retrievability of positive autobiographical memories. When those provisions of  
13 benefits and positive autobiographical memories stimulated by gratitude are retrieved repeatedly,  
14 a sense of unity would be enhanced. In addition to effects at the perception level, gratitude could  
15 also lead to behavioral change, and that may strengthen the link with perceived team cohesion.  
16 Secondly, there is also the effect related to moral motives. Here moral motive refers to the notion  
17 that gratitude leads people to behave prosocially to the benefactor or even towards an unrelated  
18 third party (McCullough et al., 2001). Supporting this view, Chang et al. 2012 used social  
19 network analysis to demonstrate that gratitude generates upstream reciprocity. That is, the notion  
20 of helping an unrelated third party after being helped. In other words, gratitude leads to a  
21 chain/network of upstream reciprocity and strengthen the structure of organization (Chang et al.,  
22 2012). Since moral barometer and moral motive are associated with gratitude, it is hypothesized  
23 that the relationship between gratitude and perceived team cohesion exists.

1       As higher perceived team cohesion indexed a positive interpersonal relationship which can  
2 be considered as social resource, theories like conservation of resources theory (Hobfoll, 1989)  
3 and broaden-and-build theory of positive emotions (Fredrickson, 1998, 2004a) can be used to  
4 explain the link between perceived team cohesion and life satisfaction. Those theories  
5 emphasized on possessing resources would help people resist difficulties, thereby increasing  
6 well-being. Conservation of resources theory suggests that when threats of resource loss become  
7 a stressor for the individual, psychological distress will be resulted. In contrast, an individual  
8 who retains more resources would cope with challenges better. Similarly, broaden-and-build  
9 theory also suggests that certain positive emotional experiences would further build a specific  
10 resource. For example, gratitude stimulates reciprocally-altruistic behaviors which build social  
11 resources that can be drawn upon in the future (Fredrickson, 2004b). Therefore, perceived  
12 higher team cohesion might lead athletes to believe that they have reliable resources to be  
13 mobilized in general situations and in hardships. Systematic research also provided relevant  
14 evidences to support social oriented cohesion related to low depression and low tension while  
15 had a opposite relationship with vigor (Terry et al., 2000).

16       Based on the reviewed relationships above, we proposed a process model to investigate why  
17 grateful athletes are more satisfied with their life. We speculate that gratitude firstly relates to  
18 perceived team cohesion because grateful athletes are cognitively and behaviorally cohesive with  
19 their team members, which in turn contributes to overall life satisfaction. In sum, we expected  
20 gratitude would positively related to perceived team cohesion and life satisfaction. In addition,  
21 athlete perceived team cohesion was hypothesized to positively linked with life satisfaction  
22 which supported a mediated model.

23

## Method

## 1 **Participants and Procedures**

2 Convenience sampling was used in this study and three hundred adolescent athletes (male  
3 = 197; female = 103) involved in diverse sports (e.g., track and field = 157, taekwondo = 50,  
4 handball = 32, badminton = 32, cycling = 9, swimming = 7, sailing = 6, tennis = 2, table tennis =  
5 2, judo = 1, pool = 1, and soccer = 1) were recruited from high schools in Taiwan with a mean  
6 age of 16.8 years old ( $SD = .88$ ). Athletes trained more than five times a week and competed at  
7 the national level. Self-report questionnaires were administered to the athletes in a quiet  
8 classroom setting. They returned the completed questionnaires to the administrator in the  
9 envelopes provided. Confidentiality and anonymity were assured. One research assistant served  
10 as the survey administrator and answered questions raised by athletes. Participation in the study  
11 was on a voluntary basis and each participant received 50 NTD (approximately USD 1.6) as a  
12 token of appreciation.

## 13 **Measurements**

14 ***Dispositional gratitude.*** The Gratitude Questionnaire (GQ) was developed by  
15 McCullough et al. (2002) to assess an dispositional gratitude. The GQ contains six items and its  
16 reliability and validity has been well-established. For the Chinese version, Chen, Chen, Kee, and  
17 Tsai (2009) translated the GQ into the Taiwanese version and examined the reliability and  
18 validity. The GQ-T contains only five items because one item in GQ-T was dropped due to non-  
19 significant factor loading. Chen et al. also reported that GQ-T was positively correlated with  
20 optimism, happiness, extraversion, agreeableness, and negatively correlated with neuroticism. In  
21 addition, GQ-T had been used in athlete samples (Chen & Kee, 2008). In the current study,  
22 adolescent athletes indicated their responses on a 6-point Likert scale, with responses ranging  
23 from *strongly disagree* (1) to *strongly agree* (6). Cronbach's alpha in this study was .80.



1 the correlations were as expected. However, it should be noted that coefficients less than .13 are  
2 not significantly correlated.

3 Structural equation modeling with maximum likelihood (ML) estimation was used to  
4 estimate the fit of each model using the LISREL 8.80 statistical package. The fit indexes used in  
5 this study are non-normal fit index (NNFI), comparative fit index (CFI), and standardized root  
6 mean square residual (SRMR), and root mean square error of approximation (RMSEA)  
7 recommended by Hu and Bentler (1999). The general cutoffs for accepting a model for NNFI  
8 and CFI were equal to or greater than 0.95, and equal to or less than 0.08 for the SRMR, and less  
9 than 0.05 for the RMSEA (Hu & Bentler, 1999). Hu and Bentler (1999) emphasized that model  
10 fit evaluation should be based on the above criteria and not be over-generalized. Therefore, in the  
11 current study, rules proposed by them were used for reference.

12 A nested-model approach was used to examine the mediated models (Mossholder, Bennet,  
13 Kemery, & Wesolowski, 1998). The partially mediated model included all potential paths  
14 between latent variables while the fully mediated effect model is nested in partially mediated  
15 model (see Figure 1). Chi-square difference test ( $\Delta\chi^2$ ) and Akaike Information Criterion (AIC), a  
16 measure of model fit adjusted for parsimony (Burnham & Anderson, 2002) were used to  
17 determine which model was preferred. If the models comparison was significant then the model  
18 with smaller chi-square value is to be preferred (MacCallum, Browne, & Sugawara, 1996).  
19 Regarding the AIC, Burnham and Anderson (2002) suggested that AIC differences of 0 to 2  
20 show little difference between the competing models, whereas differences of 4 to 7 show more  
21 support for the model with the lowest AIC.

22 We first built a measurement model using structural equation modeling (SEM) with  
23 maximum likelihood estimators, in which: (1) gratitude was indicated by its five items, (2)

1 perceived team cohesion was indicated by nine items, and (3) life satisfaction was represented by  
2 five items. More specifically, we specified athlete's gratitude to predict perceived team cohesion  
3 and life satisfaction; and perceived team cohesion to predict life satisfaction, which is a partially  
4 mediated model. Results indicated the fit of this partially mediated model was all above Hu and  
5 Bentler's (1999) recommendations ( $\chi^2 = 378.07$ ,  $df = 149$ ; NNFI = 0.97; CFI = 0.97; SRMR =  
6 0.043; RMSEA = 0.072; AIC = 460.07) and all standardized factor loadings were significant at  $p$   
7  $< .001$  and higher than .51 at least. In this partially mediated model, gratitude had a positive  
8 effect on perceived team cohesion ( $\beta = .51$ ) and life satisfaction ( $\beta = .17$ ), whereas perceived  
9 team cohesion had a positive effect on life satisfaction ( $\gamma = .32$ ).

10 We also examined the fully mediated model, in which athlete's gratitude predicted life  
11 satisfaction through perceived team cohesion. Results indicated that the fit of this fully mediated  
12 model also reached Hu and Bentler's (1999) suggestions ( $\chi^2 = 383.71$ ,  $df = 150$ ; NNFI = 0.97;  
13 CFI = 0.97; SRMR = 0.049; RMSEA = 0.072; AIC = 463.71) and all standardized factor  
14 loadings were significant at  $p < .001$  and higher than .51 at least. In the fully mediated model,  
15 gratitude also had a positive effect on perceived team cohesion ( $\beta = .51$ ) and perceived team  
16 cohesion had a positive effect on life satisfaction ( $\gamma = .40$ ).

17 To determine the most preferred model, we performed the Chi-square and AIC differences  
18 test. The chi-square difference test indicated a significant difference ( $\Delta\chi^2 (1) = 5.64$ ,  $p < .05$ ),  
19 which suggests that the model with smaller chi-square value is preferred, that is, the partially  
20 mediated model. In addition, the AIC differences test was 3.64 which also supported that the  
21 partially mediated model is preferred. In sum, we presented the detail information of partially  
22 mediated model in Figure 2.

### 23 **Supplementary Analysis**



1 preferred, supporting the notion that gratitude improves perceived team cohesion, and in turn  
2 promotes life satisfaction. In addition, this study would have several crucial implications for the  
3 literature and was discussed as below.

4         As previously alluded to, the promotion of adolescent athletes' well-being is important  
5 because the youth athlete population faces both academic stress and competitive pressures.  
6 Failing to cope with such pressures could lead to burnout and premature curtailment of their  
7 athletic career (Gould, Tuffey, Udry, & Loehr, 1996, 1997; Gould, Udry, Tuffey, & Loehr, 1996).  
8 We suggest that gratitude to be developed among adolescent athletes to inoculate against the  
9 maladaptive consequence of academic and competitive pressures. In particular, our  
10 demonstration of perceived team cohesion as a mediator within the gratitude-life satisfaction  
11 relationship points to the possibility that heightened sense of gratitude, could lead to improved  
12 perceived team cohesion, thereby improving one's life satisfaction. Since the promotion of team  
13 cohesion has always been much valued by coaches and sport psychologists (Carron & Brawley,  
14 2000), the potential for enhanced sense of gratitude to lead to both perceived team cohesion and  
15 overall well-being provides practitioners another avenue to build cohesive and psychologically  
16 healthy sports teams. Currently, research on the impact of gratitude on athletes' psychological  
17 health and peak performance is lacking. The demonstration of improved team cohesion as an  
18 explanation for life satisfaction with its origin in gratitude should hopefully spur more research  
19 in this area.

20         Another contribution arising from this study is that we showed the effects of gratitude at  
21 the levels of team cohesion rather than between dyads. As the questions on team cohesion was  
22 asked based on their perception of their group getting close together emotionally, and the extent  
23 to which the activities helped to foster a sense of group cohesion, it was an assessment of their

1 perception of team cohesion and not towards a particular individual (Glass & Benshoff, 2002).  
2 The distinction between one's perception towards dyads and team cohesion is that the  
3 interactions in the former tends to be more intimate compared to the latter. The effects of  
4 gratitude on the relationship between dyads has been well-established in other research (Algoe &  
5 Stanton, 2012; Chang, Li, Teng, Berki, & Chen, 2013; Joel, Gordon, Impett, MacDonald, &  
6 Keltner, 2013; Kubacka, Finkenauer, Rusbult, & Keijsers, 2011; Lambert et al., 2010 ). In the  
7 study, we further demonstrate that the effects of dispositional gratitude could be extended to  
8 one's perception towards the more global team climate. Our result provided additional evidence  
9 to support the claim that dispositional gratitude would exert its effect at the group level both  
10 behaviorally (Chang et al., 2012) and perceptually. This is a non-trivial observation because it  
11 serves to suggest that one's dispositional gratitude could help bring about general appreciation of  
12 the team's collective emotionality, even without evidence of fulfilling intimate relations at the  
13 dyad level. Simply put, a team of athletes with a heightened sense of gratitude at the  
14 dispositional level could be more receptive of team members' contributions in general compared  
15 to a team of athletes with a lower sense of gratitude.

16       There are some future directions worthy of further investigated. For example, does gratitude  
17 also stimulate members to be united across different types of group such as family and  
18 organization? This is a important issue because most people do not live alone and heavily rely on  
19 the supports from their social groups (Baumeister & Leary, 1995). Therefore, a cross-validation  
20 of current results would contribute to literature as influential antecedent of cohesion are further  
21 identified. In addition, the pursuit of a richer understanding of the concept of team cohesion  
22 could be another way to enhance our knowledge. According to its definition (Carron & Brawley,  
23 2000), team cohesion can be further distinguished into two components. One is on how

1 individual subjectively stick to the team, and the other is the degree to which team members stay  
2 united. Investigating whether the two pathways have the same importance by linking gratitude  
3 and life satisfaction is a worthy research direction because that could lead to the development of  
4 more precise intervention that enhance people's well-being more effectively.

5       When referring our results, there are limitations in the present study that should be noted.  
6 First, this being a cross-sectional study could be limited in its establishment of causal effects.  
7 Secondly, the participants in this study are drawn from a predominantly collectivistic Asian  
8 society. There may be cultural effects of collectivism in play affecting both gratitude and  
9 perceived team cohesion in this sample. The applicability of this model in the individualistic  
10 culture needs to be further verified. Third, the current study only focuses on the social aspect of  
11 cohesion. However, does dispositional gratitude also exerts its effect on task oriented cohesion  
12 and what is the consequence it may be? Those questions are worthy further investigated in the  
13 future study.

14       Despite the highlighted weaknesses, the present study serves as important contribution to  
15 the literature as a better understanding of the effects of gratitude on well-being among the  
16 sporting population is warranted. The current study demonstrated that the process by which  
17 gratitude predicts life satisfaction among adolescent athletes is through heightened perceived  
18 team cohesion. As team cohesion is in itself much valued, researchers and practitioners should  
19 consider the potential of gratitude to be a precursor to both perceived team cohesion and  
20 psychological well-being in the future.

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6

7

1 Table 1

2 *Descriptive statistics and correlation matrix*

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. GQ-T1	5.04	1.03																		
2. GQ-T2	4.75	1.20	.37																	
3. GQ-T3	5.22	0.95	.54	.46																
4. GQ-T4	4.68	1.07	.46	.33	.59															
5. GQ-T5	5.28	0.93	.43	.33	.58	.48														
6. Cohesion1	4.95	1.00	.34	.16	.35	.29	.29													
7. Cohesion2	4.64	1.08	.27	.13	.24	.29	.18	.61												
8. Cohesion3	4.69	1.07	.30	.18	.30	.30	.18	.68	.67											
9. Cohesion4	4.91	1.05	.31	.18	.34	.34	.29	.59	.59	.77										
10. Cohesion5	4.55	1.15	.27	.17	.27	.34	.21	.67	.61	.71	.72									
11. Cohesion6	5.13	0.97	.28	.19	.34	.30	.28	.60	.50	.67	.68	.63								
12. Cohesion7	4.78	1.03	.33	.16	.36	.33	.31	.65	.51	.63	.61	.72	.65							
13. Cohesion8	5.20	0.97	.29	.20	.39	.37	.36	.57	.43	.57	.64	.61	.63	.70						
14. Cohesion9	5.07	1.06	.26	.19	.38	.41	.31	.58	.51	.68	.68	.68	.72	.68	.73					
15. LS1	3.51	1.07	.22	.02	.14	.17	.08	.22	.17	.26	.19	.19	.19	.29	.23	.22				
16. LS2	3.60	1.41	.17	.11	.20	.15	.16	.11	.09	.14	.20	.15	.16	.22	.14	.10	.46			
17. LS3	3.89	1.20	.23	.11	.28	.21	.19	.29	.23	.29	.30	.32	.23	.37	.30	.30	.59	.46		
18. LS4	4.04	1.17	.23	.15	.24	.13	.14	.29	.17	.28	.28	.33	.24	.33	.27	.24	.52	.40	.82	
19. LS5	4.03	1.15	.21	.06	.23	.17	.17	.22	.21	.26	.29	.28	.20	.35	.28	.28	.50	.44	.67	.69

3 Note: Coefficients greater than .13 are significant at least  $p < .05$ . LS = life satisfaction

## Figure Captions

1

2 Figure 1. Hypothesized partially (up) and fully (down) mediated model.

3

4 Figure 2. Standardized parameters for the final model.

5 Note: For the sake of clarity, the values for the residual errors were not reported. All parentheses

6 are standardized coefficients and significant at  $p < .01$ .



