

**PLACE ATTACHMENT IN UNIVERSITY STUDENTS: SOCIAL ANTECEDENTS AND
ACADEMIC MOTIVATIONS**

by

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University of Pittsburgh, 2011

Each year the university receives thousands of new students. Some students successfully attach to the school, while some don't. The thesis aims to study predictors and consequences of university students' place attachment to the university. It was hypothesized that positive social relations predict stronger attachment to university, which in turn predicts more positive academic motivations. Adult attachment and home attachment were added to the model for exploratory purpose. A total of 226 university students taking the Introductory Psychology course at the University of Pittsburgh were used to test the hypothesized model. Results confirmed the hypothesized model. The results yielded practical implications for understanding students' social and academic lives. The study also contributed to the validation of the place attachment measure being developed by the researcher.

TABLE OF CONTENTS

PREFACE.....	IX
1.0 INTRODUCTION.....	1
1.1 DEFINING AND MEASURING PLACE ATTACHMENT	1
1.2 PLACE ATTACHMENT TO THE UNIVERSITY	4
1.2.1 Predicting university place attachment from social factors	5
1.2.2 Consequences of place attachment to the university	8
1.3 HYPOTHESES.....	9
2.0 METHOD	11
2.1 SAMPLE.....	11
2.2 PROCEDURE	12
2.3 MEASURES	12
2.4 DATA ANALYSIS.....	15
3.0 RESULTS	17
3.1 TESTING HYPOTHESIZED MODEL	17
3.2 TESTING PLACE ATTACHMENT AS A MEDIATOR BETWEEN SOCIAL RELATIONS AND ACADEMIC MOTIVATIONS.....	19
4.0 DISCUSSION	20
APPENDIX A	24

APPENDIX B	30
APPENDIX C	31
APPENDIX D	33
APPENDIX E	34
APPENDIX F	35
BIBLIOGRAPHY	36

LIST OF TABLES

Table 1. Means of all tested variables.....	17
Table 2. Correlations of all tested variables.....	17
Table 3. Comparison of place attachment items in pilot study to items in the present study (Appendix C)	31
Table 4. Comparison between original and modified social relations items (Appendix D).....	33
Table 5. Comparison between original and modified items for efforts in study (Appendix E) ...	34
Table 6. Comparison between original and modified items for interests in study (Appendix F).	35

LIST OF FIGURES

Figure 1. Hypothesized Model.....	10
Figure 2. Testing hypothesized model	19

PREFACE

Acknowledgement

I would like to express my gratitude to my advisor, Professor Irene Frieze, for her continual support and guidance. I am also grateful for all the insightful comments and encouraging words from the thesis committee members, Professor Jeewon Cheong and Professor Tim Nokes. Lastly, I would also like to thank the undergraduate research assistant Kelly Creamer for her help.

1.0 INTRODUCTION

Every year, thousands and thousands students leave their home for the first time and move to their universities, starting a new life independently from their families. Moving away from their familiar home, some are able to develop attachment to their university, while some don't. This is known as place attachment, or bonding to a place (Chow & Healey, 2008). This place attachment to school (sometimes referred to as “belongingness”) is believed to be important for positive academic outcomes (C. Bergin and D. Bergin, 2009; Osterman, 2000). The present study looks at what social factors predict stronger place attachment to the university, and how academic motivation is being affected by stronger place attachment. This study also used a newly developed scale of place attachment to look at university students who were taking an introductory course at the University of Pittsburgh.

1.1 DEFINING AND MEASURING PLACE ATTACHMENT

There have been various debates on how to define place attachment, and different measures have been derived from these different definitions. Some treated the concept of place attachment as unidimensional (e.g. Lewicka, 2005), while others treated the concept as multidimensional (e.g. Williams & Roggenbuck, 1989; Scannell & Gifford, 2010). Because of

these varying definitions, there have not been consistent measures that are used by researchers to assess place attachment.

Two major definitions were employed in the history of place attachment research. One of them defined place attachment as place identity and place dependence (e.g. Kyle, Graefe, Manning & Bacon, 2004; Semken & Freeman, 2008; Todd and Anderson, 2006, Williams & Roggenbuck, 1989), while the other defined place attachment as emotional bonding (e.g. Hidalgo and Hernandez, 2001; Lewicka, 2005, 2008). Studies that adopted the first definition, place attachment as place identity and place dependence, defined place identity as “those dimensions of the self that define the individual’s personal identity in relation to the physical environment” (Proshansky, 1978, p. 155) and place dependence as “the importance an individual attaches to the use of a particular recreation resource” (Jacob & Schreyer, 1980, p.373). Other researchers accepted this two part definition and developed measures of place attachment based on this definition (e.g. Kyle, Graefe, Manning & Bacon, 2004; Semken & Freeman, 2008; Todd and Anderson, 2006). For example, Williams and Roggenbuck (1989) developed a scale with 11 place dependence and 16 place identity items rated on 5-point Likert scales. Sample items for place dependence were “I enjoy doing the type of things here more than in any other area” and “I wouldn’t substitute any other area for doing the type of things I did here.” Sample items for place identity were “I find that a lot of my life is organized around this place” and “I feel like this place is part of me”. However, a problem with the above definitions and measures lies in a lack of differentiation of place attachment as distinct from place identity. Although these definitions and measures were commonly used in earlier studies since the 1980s, recent literature raises doubts on whether place identity should be a sub-dimension of place attachment (e.g. Hernandez, Hidalgo, Salazar-Laplace & Hess, 2007; Rollero & Piccoli, 2010).

This leads to the other group of researchers defining place attachment as emotional bonding. In arguing that place attachment should be a distinct concept and should be separated from place identity, Lewicka (2008) suggested that place attachment is the emotional bonding between people and place, while identity is 'self categorization in terms of place' (Lewicka, 2008, pp. 212). In other words, Lewicka was suggesting that place attachment is positive feelings about a place; whereas place identity is the perception that the place is part of one's own self. Thus, someone growing up in Pittsburgh might feel that Pittsburghness is a fundamental part of his self, but he might also dislike this part of himself, and not feel a positive bonding toward Pittsburgh. Similarly, someone who just moves to Pittsburgh may develop a positive bonding toward Pittsburgh, but he might not perceive Pittsburgh as part of his self. To measure place attachment according to this definition, Lewicka (2004) developed a scale measuring place attachment using 12 negatively framed and 12 positively framed items tapping participants' feelings toward a place. This was later reduced to a scale describing 9 positive and 3 negative feeling items (Lewicka, 2006, 2008, 2010). Examples of positive items are 'I miss it when I am not here', and 'I know this place very well'. Examples of negative items are 'I don't like this place', and 'I leave this place with pleasure'. Negative items are reverse scored in this measure, as they are in other measures of place attachment. However, as I will mention in more detail below, I argue that place attachment does not only consist of affective, but also of behavioral and cognitive aspects. Focusing solely on the affective aspect of place attachment may not provide us with a measure that captures the full concept of place attachment.

The drawbacks of the two major definitions reviewed above may have affected the validity of the measures that have been developed. A better definition is, thus, needed to develop a clearer measure. In a recent paper, Scannell and Gifford (2010) defined place attachment in a different

and more complete way. They suggested that there is a psychological process behind place attachment. It is argued that this psychological process of place attachment involves not only affect, but also behaviors and cognitions. It is suggested that these three aspects altogether contribute to the concept of psychological place attachment and that all are part of the basic concept of *psychological* place attachment. Scannell and Gifford (2010) suggested that future researchers should use their more fully developed framework to guide development of quantitative measures for the concept of place attachment. The present study adopts Scannell and Gifford's (2010) more complete definition to further develop a new place attachment scale. Particularly, the present study focuses on the development of a psychological place attachment scale. The scale will be applied to test the relationships among social factors, place attachment to the university and academic consequences.

1.2 PLACE ATTACHMENT TO THE UNIVERSITY

Researchers have used various terms to represent the concept of place attachment to university. It is sometimes referred to with terms such as “belongingness” or “sense of belonging” to school (Baskin, Wampold, Quintana, & Enright, 2010; Freeman, Anderman & Jensen, 2007; Pittman & Richmond, 2008), and school or university attachment (France, Finney & Swerdzewski, 2010). These terms, although different, are used interchangeably among researchers. For example, France, Finney and Swerdzewski (2010) equated attachment and belongingness and measured “university attachment” through items, such as ‘how important is belonging to JMU (the targeted university) to you?’, ‘how attached do you feel to JMU?’, and ‘when you first meet people, how likely are you to mention JMU’.

One exception to equating the two terms, “belonging” and “attachment” is the way Goodenow (1993) defined belonging to school. In their study, they defined belonging to school as ‘sense of being accepted, valued, included, and encouraged by others’ (Goodenow, 1993, pp. 25), focusing on the social relations students have with the people in the university. Using this definition, Goodenow (1993) developed a Psychological Sense of School Membership (PSSM) scale to measure school belonging in middle school students. Later, Pittman and Richmond (2008) applied this scale to a university sample and measured students’ perceptions of belonging to the university with items related to students’ perception of social acceptance and teachers’ warmth. Items included: ‘most professors in this school are interested in me’ and ‘people at this school are friendly to me’. However, this definition and measurement could be problematic. As I will argue below, these social factors might function as *predictors* for university attachment, instead of being included as a central part of the concept of place attachment. Cemalcilar (2009) also pointed out this problem and argued that school belonging and social relations should be independent constructs, and questions related to social relations in the scale should be removed from being part of the measurement of school belonging.

1.2.1 Predicting university place attachment from social factors

Using a variety of measures, researchers have found a number of factors that predict place attachment to a particular location. These include length of residence in that place (e.g. Kelly & Hosking, 2008; Pretty, Chipuer, & Bramston, 2003; Tartaglia, 2006; Rollero and Piccoli, 2010), social relations with other people living in that place (e.g. Pretty et al., 2003; Sampson, 1988), and family roots in the place, such as whether they have ancestors living in the

place before (e.g. Lewicka, 2005). Some of these are more relevant than others to the development of attachment to a new university.

In the context of the present study, social-related factors might be the most relevant predictors in predicting school attachment. Social factors are usually identified as one of the major factors affecting students' adjustment to university life (e.g. Pancer, Hunsberger, Pratt, & Alisat, 2000). Research evidence also supported the conclusion that better social relations in the university relate to stronger school attachment. For example, Chow and Healey (2008), in their interview study of first year university students moving from home to the university, found that students' establishment of social relationships allowed students to feel more settled or feel at home. This feeling of being at home or settled can also be understood as place attachment. Using a quantitative method, Freeman et al. (2007) found that the perception of being accepted in the university was associated with higher levels of students' attachment to the university. In another study, France et al. (2010) also found that more positive relationships with others significantly related to higher university attachment. These studies add support to the argument that having more social contacts with people in the university may relate to stronger development of place attachment to the university.

Place attachment research outside of the university context has also supported the idea that positive social relations were related to stronger attachment to the neighborhood. For example, Pretty et al. (2003) asked participants' the level of perceived friendship in their neighborhood and found that those who experienced more friendship had significantly higher attachment to the neighborhood. Bonaiuto et al. (1999), measuring social relations by asking participants' about the quality of relationships with neighbors and friends, found that social relations significantly predicted higher place attachment. Using a single item "where do your

close friends live” to see if participants’ close friends are in the target place, Rollero and Piccoli (2010) also found a positive significant relationship between friendships in a place and attachment to the place. Therefore, in the present study, it is hypothesized that more positive social relations and friendships experienced in the university will predict stronger attachment to the university.

Another interesting question is whether one’s secure attachment in important relationships, such as attachment to romantic partners and close friends, helps him or her attach to a place or not. According to Bowlby (1988), it is human tendency to want to explore new environment. This exploration behavior depends on one’s attachment quality. Bowlby (1988) believes that when children have secured attachment to their parents, they feel confident that they can retrieve back to their attachment figures if there are dangers in the environment. This feeling of security thus forms the secure base for individuals to explore new environment. If Bowlby’s theory is to be extended to adult attachment to place, one can argue that having a secure attachment to one’s attachment figures in adulthood, which are usually romantic partners or close friends, should provide people with comfort in exploring new place. Being able to explore new places should then enable an individual to form social relations. Social relations, as suggested above, can help people form attachment to new places. Therefore, applying this argument to the present study, students with more secure adult attachment should have better social relations, which, in turn, have higher attachment to the university.

Another possible factor affecting students’ university place attachment could be their place attachment to the hometown they have now moved away from. Leaving a familiar home is suggested to bring grief, especially for people with high place attachment to their hometown (Stroebe, Vliet, Hewstone and Willis, 2002). However, because of the limited research in

studying people's change in place attachment patterns as they move, it is unclear whether this negative emotional response associated with leaving the hometown reinforces or inhibits attachment to a new place. One possibility is that attachment to one place inhibits formation of attachment to a new place. Another possibility is that, similar to having secure interpersonal attachment (Bowlby, 1969), attachment to home may allow people have a 'safe haven' to explore new environment around them and thus better attach to the new place. For exploratory purposes, a measure of attachment to the hometown will be added to see if there is any relationship of this variable to university attachment.

1.2.2 Consequences of place attachment to the university

Place attachment has been found to impact people's behaviors and attitudes, such as willingness to engage in local activities and organizations in the future (Rollero and Piccoli, 2010). Other studies have found that those with the desire to migrate to another location have lower levels of place attachment to the place they now live (Kelly and Hosking, 2008). Higher levels of place attachment have been found to be correlated with higher levels of concern about the environment in that place (Vorkinn and Riese's, 2001). These studies mainly focused on natural resources or on attachment to a certain town or city, but not on university students. Little understanding has been developed on how attachment to the university will predict academic consequences.

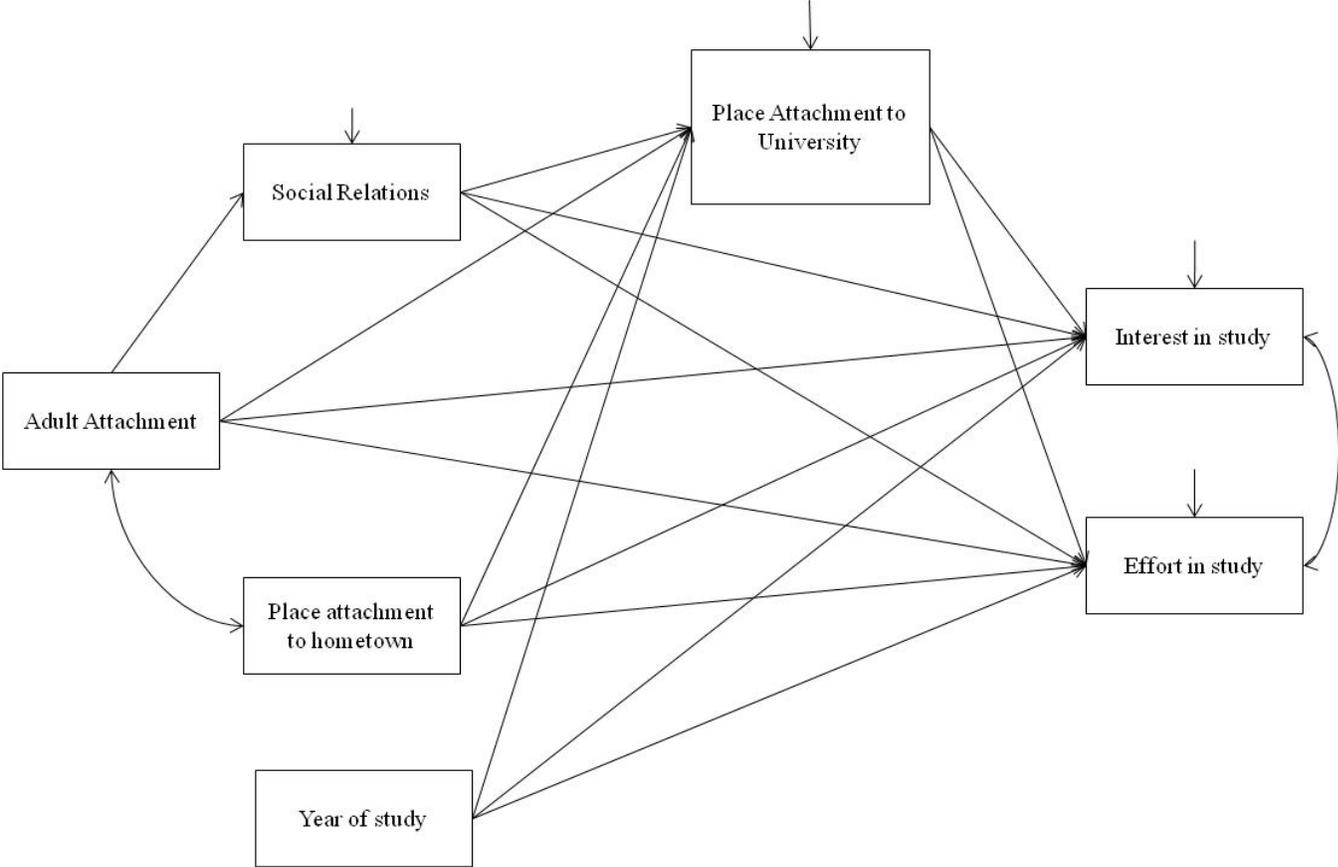
In the limited research done on school attachment, place attachment to the university seems to be related to more positive academic motivations. Freeman et al. (2007) conducted a study on place attachment to the university by surveying more than 200 freshmen on their attachment to university using items such as "Sometimes I feel as if I don't belong to this

university (reverse coded)". Freshmen's university attachment was found to correlate with students' intrinsic motivation for academic study. Other studies have examined the relationship of school attachment to academic outcomes in younger students. Using different kinds of measures, research that tested the effects of school attachment or school belongingness on middle to high school has shown that students' attachment to their school was significantly related to their academic motivation and attitudes (e.g. Goodenow & Grady, 1993; Solomon, Watson, Battistich, Schaps, & Delucchi, 1996). However, the limited findings of research in university sample may not allow us to draw clear conclusions on the effect of place attachment on students' academic consequences. Therefore, in the present study, I will further investigate the relationship between attachment to university and academic consequences. It is predicted that, from the result of Freeman et al. (2007), place attachment to university will predict to better academic motivations, including interest and effort in study.

1.3 HYPOTHESES.

It was hypothesized that adult attachment would predict higher social relations and students' social relations would positively predict higher place attachment. Place attachment, in turn, would predict higher effort and interest in study. Attachment to hometown was added as a predicting variable for place attachment as exploratory purpose. Year of study was added as a control variable. Direct effects on academic interests and effort were also added to the hypothesized model, as shown in Figure 1.

Figure 1. Hypothesized Model



2.0 METHOD

2.1 SAMPLE

Original Sample. A total of 295 students taking an Introduction to Psychology class at the University of Pittsburgh were recruited through the subject pool of the department of psychology. For the purpose of the current study, only participants who are 1) not native to Pittsburgh and 2) living on campus were included in the analyses. Only participants of age 18-22 were included.

Final Sample. Thirteen participants who answered the survey with errors were excluded. To restrain the age range to 18-22, participants with age under 18 and age over 22 were excluded. This reduced the number of participants to 271. Then participants who lived with their parents in Pittsburgh (N=10) and/or whose hometown is Pittsburgh (N=41) were excluded. There were 3 participants who did not indicate whether they live with their parents, so they were excluded. One participant who did not indicate year of study and one participant who did not indicate gender were excluded. Final sample consists of 228 university students. Among them, about half were female (52%) and half were male (48%). About 80% were freshman (N=180), 11% were sophomore (N=25), 6% were junior (N=13) and 3% were senior (N=8).

2.2 PROCEDURE

Announcements were posted on the online system for recruiting introduction to psychology students. Students were free to choose which studies they wish to participate in. Participants were given a survey upon their arrival in the experimental room (see Appendix A). The survey was described as ‘university life survey’. Participants had one hour to finish. After participants finished, a feedback sheet with a debriefing (See Appendix B) about the purpose of the study was given to each.

2.3 MEASURES

Social relations. Social relations were measured by six items adopted from Cemalcilar’s (2009) peer relationships subscale of the Scale for Measuring Schools’ Social Climate. The items were modified to refer in particular to social relations in the university, namely, ‘at Pitt’. For example, ‘I feel close to my classmates’ was modified as ‘I feel close to my classmates at Pitt’, and ‘we usually have a good time with my friends’ was modified as ‘we usually have a good time with my friends at Pitt’. Two items measuring participants’ relations with friends were added, including ‘I feel close to my friends at Pitt’ and ‘I can share my problems with my friends at Pitt’. Participants rated these items based on a 5-point Likert scale from 1 (Strongly disagree) to 5 (Strongly agree). Cronbach’s Alpha was .88. Appendix C shows the comparison between items from the original scale and modified items to be used in the present study. The modified items were averaged to create a mean score.

Adult Attachment. Adult attachment was measured by Brennan, Clark, Shaver's (1998) Adult Attachment Scale. Before participants started answering the questions, they were given an instruction asking them to 'please take a moment to think about how you generally feel in important relationships in your life. Think about your past and present relationships with people who have been especially important to you, such as romantic partners and close friends. Using the scale below, respond to each statement in terms of how you generally feel in these relationships'. The scale consists of 36 items, each rated on a 5-point Likert Scale from 1 (Strongly disagree) to 5 (Strongly agree). Cronbach's Alpha for the scale was .90. The items were averaged to create a mean score.

Place attachment to hometown and place attachment to university scale. Attachment to university was measured using a 30-item Psychological Place Attachment Scale (PPAS) developed based on a previous pilot data using a 24-item version. Pilot data showed good overall reliability (Cronbach's Alpha .94), and the scale items fell into one major factor. After the pilot study, 4 items were deleted and 13 items were added to the scale to better fit the context of university attachment. A detailed list of comparing the two versions is shown in Appendix D. Among the 30 items used in the present study, 10 of them measured people's affective attachment, 10 items measured behavioral attachment and 10 items measured cognitive attachment to university. The target of attachment was referred to Pitt, which was the abbreviated form of University of Pittsburgh. Sample items were 'I feel happy when I am at Pitt (affective)', 'I don't care about what happens at Pitt (behavioral, reverse coded), and 'I have significant memories of Pitt (cognitive)'. Also, items were modified to fit the context of university. Particularly, instead of 'I know all the best places to go in (target place)'. It was modified as 'I know all the buildings and areas at Pitt'. Similar modification was applied on 'I don't enjoy

showing people important buildings or areas (instead of ‘places’) at Pitt. Participants were asked to rate on a scale from 1 (strongly disagree) to 5 (strongly agree). Cronbach’s alpha for this scale was .94. Exploratory factor analysis (EFA) was conducted to examine the number of factors existed within the scale. One major factor was found, suggesting using the scale as one factor. Therefore, items were averaged to create a mean score.

A parallel scale was employed to measure students’ attachment to hometown. Participants answered from the same 5-point Likert scale as the one in attachment to hometown scale. EFA showed one major factor, suggesting the use of the scale as one factor. Items were averaged to create a mean score. The Cronbach’s alpha for this scale was .95. The place attachment to university scale was placed in the beginning of the survey and the place attachment to hometown scale was placed near the end of the survey to avoid carry-over effect.

Academic Motivations. Academic motivations were measured with two scales assessing effort and interest in study. Effort in study was measured by a combined scale consisting of 4 items taken from the effort subscale in Ryan’s (1982) Intrinsic Motivation Inventory (IMI) and 4 items taken from the subscale of effort regulation in Pintrich, Smith, Garcia and McKeachie’s (1991) Motivated Strategies for Learning Questionnaire (MSLQ). The items were modified by adding ‘at Pitt’ or ‘classes I take at Pitt’ to refer in particular to their effort in studying at Pitt. Sample items were ‘I put a lot of effort into the classes I take at Pitt’ and ‘when class work at Pitt is difficult, I give up or only study the easy parts (Reversed coded)’. Appendix E shows the modified items compared to the original items. The items were rated on a 5-point Likert scale from 1 (Strongly disagree) to 5 (strongly agree).

Interest in study was measured using Harackiewicz, Durik, Barron, and Garcia’s (2008) Initial Interest Scale. The scale was originally used to measure students’ interest in psychology.

Items were thus modified to reflect students' general interests toward the classes they are taking by replacing 'psychology' or 'this class' to 'the classes I am taking now at Pitt'. Sample items were 'I have always been fascinated by the classes I am taking now at Pitt', and 'I think the classes I am taking now at Pitt will be important for me to know.' Participants rated the items on a 5-point Likert scale from 1 (Strongly disagree) to 5 (Strongly agree).

The effort and interest scales were found to be highly correlated ($r=.42$). Their mean scores fell on one single factor in an EFA. Therefore, in the main analysis, interest and effort were combined to measure students' academic motivations. Cronbach's Alpha for the combined academic motivation scale was .89.

Demographic Information. Lastly, participants will be asked to report their age, year in college, and gender. Whether Pittsburgh is their hometown, area of where participants are living and whether they are living with their parents were included to filter participants who may not be qualified for our study's purpose.

2.4 DATA ANALYSIS

To test the hypothesized model, structural equation modeling (SEM) were employed using Amos 18.0 software program (Arbuckle, 2009) to see if social relations and hometown attachment predict university attachment, which in turn predict interests and efforts in study. Year of study was added to control for the effect. The fit of the models were assessed with various fit indices, including χ^2 statistics, comparative fit index (CFI; Bentler, 1990) and root mean square error of approximation (RMSEA; Browne & Cudeck, 1993). Insignificant χ^2

statistic, CFI higher than .95, and RMSEA less than .08 are used as determinants of whether the data fit the proposed model.

3.0 RESULTS

3.1 TESTING HYPOTHESIZED MODEL

Before model testing, means (as shown in Table 1) and correlations (as shown in Table 2) for all tested variables were obtained.

Table 1. Means of all tested variables.

Tested Variables	Means (S.D.)
Social Relations	3.88 (.73)
Adult Attachment	2.67 (.47)
Place attachment to home	3.92 (.61)
Place attachment to university	3.91 (.56)
Academic Motivations	3.80 (.58)

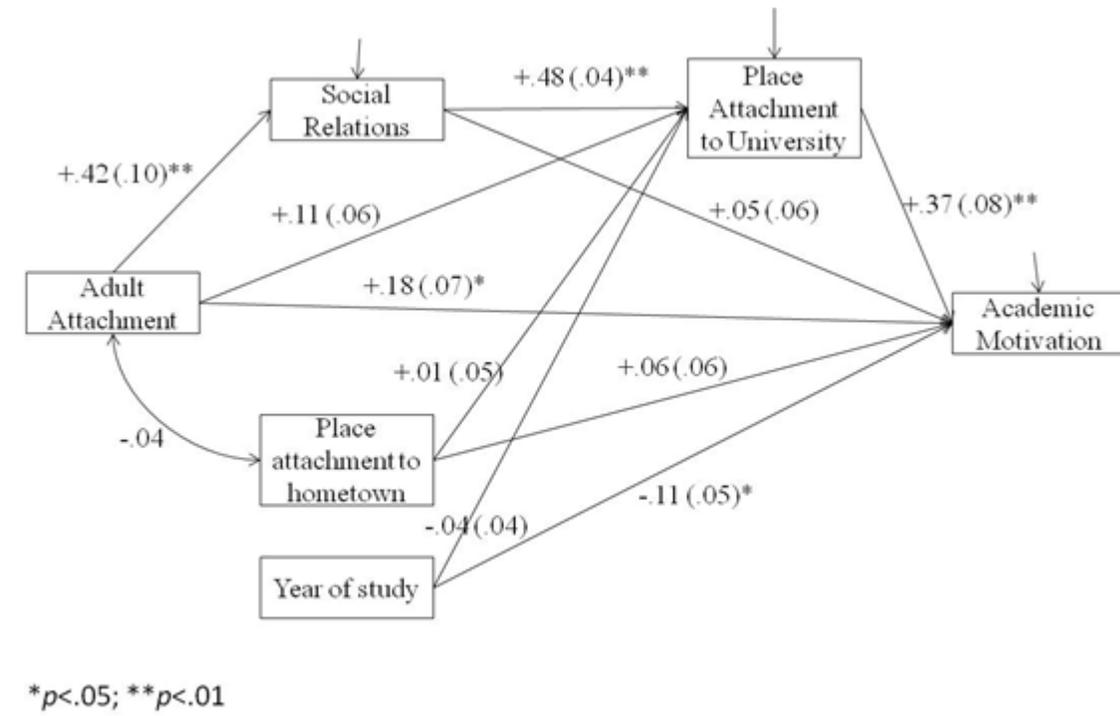
Table 2. Correlations of all tested variables

	1	2	3	4
Social Relations				
Adult Attachment	.28**			
Place attachment to home	-.03	.13 [#]		
Place attachment to university	.66**	.27**	.02	
Academic Motivations	.34**	.27**	.10	.44**

*p<.05, **p<.01, [#]p=.051

The Initial model was tested and standardized regression weights are shown in Figure 2. As hypothesized, adult attachment significantly predicted higher social relations ($B=.42$, $S.E.=.10$, $p<.01$), social relations significantly predict higher place attachment to the university ($B=.48$, $S.E.=.04$, $p<.01$), and secure adult attachment was marginally predictive of higher university place attachment ($B=.11$, $S.E.=.06$, $p=.058$). Place attachment to the university significantly predicted higher academic motivations ($B=.37$, $S.E.=.08$, $p<.01$). The direct effect between social relations and academic motivations were not significant. However, the direct effect between adult attachment and academic motivations ($B=.18$, $S.E.=.07$, $p<.05$), and between year of study and academic motivations were significant ($B=-.11$, $S.E.=.05$, $p<.05$). Participants with better adult attachment were found to predict higher academic motivation ($B=.18$, $S.E.=.07$, $p<.05$), but participants in upper years of study predicted lower academic motivation ($B=-.11$, $S.E.=.05$, $p<.05$). Overall, the model in Figure 1 fit the data well; $\chi^2=4.41$, $df=4$, $p=.353$, $CFI=1.00$ and $RMSEA=.02$. The whole set of predictors explained 46% ($R^2=.46$) of variance of place attachment, 24% ($R^2=.24$) of variance of academic motivations, and 7% ($R^2=.07$) of variance of social relations. Significant residual variances were found in social relations ($B=.49$, $SE=.05$, $p<.05$), place attachment ($B=0.17$, $SE=.02$, $p<.05$) and academic motivations ($B=0.26$, $SE=.02$, $p<.05$).

Figure 2. Testing hypothesized model



3.2 TESTING PLACE ATTACHMENT AS A MEDIATOR BETWEEN SOCIAL RELATIONS AND ACADEMIC MOTIVATIONS

Sobel test (1982) was done to examine the mediating role of place attachment on the relations between social relations and academic motivations. Significant Sobel Test Statistics, $z=4.19, p < .01$ were obtained, suggesting a significant mediated effect. Therefore, place attachment is a complete mediator in predicting academic motivations from social relations.

4.0 DISCUSSION

The data confirmed the hypothesized model. Particularly, adult attachment significantly predicted better social relations. Having good social relations at the university significantly predicted higher place attachment, which in turn predicted higher academic motivations. The variable added for exploratory purpose, namely, place attachment to home, was not a significant predictor of place attachment to the university or academic motivations, suggesting that how one attaches to a place might not influence their attachment to another place. Adult attachment and years of study were significant predictors to academic motivations. Years of study were unrelated to place attachment to university. However, upper year students were found to have lower academic motivations.

One contribution of the present data is that it identified an important role of place attachment in predicting academic motivations from social relations. The insignificant direct effect suggested that place attachment is mediating the relations between social relations and academic achievement. Research studying younger student samples has already shown evidence that students' social relations predicted higher interests in school and higher goal orientations (e.g. Ryan & Patrick, 2001, Wentzel, 1998). These findings were attributed to effects of social support or positive emotions (Wentzel, 1998). However, the present data made a step forward, not only in replicating this result in university students sample, but also in suggesting that feeling bonded to the place, or place attachment, could be a reason explaining the relations. The reason

why place attachment can have an impact on academic motivations may be due to the emotions and behaviors relating to the attachment. For example, with higher place attachment, students may more likely have positive emotions with the school and classroom environment, more likely to keep track of information or news of the school, and thus more likely to have better knowledge and understanding of school-related information. These attaching behaviors are all beneficial for students as a learner in the environment. Also, previous studies suggested that when people are attached to a place, they are more likely to contribute to that place (e.g. Lewicka, 2005; Payton, Fulton & Anderson, 2005). Therefore, students may feel more responsible for school-related activities, including academic studies, when they feel more attached to school.

Understanding students' academic motivations is crucial, especially in the university context. University is a critical period contributing to students' independent and critical thinking, which are important skills throughout their lives (McMillan, 1987). Such skills require students to be highly motivated active learners (Facione, P.A., Facione, N. C. & Giancarlo, 1996; Garcia & Pintrich, 1992). However, students' lack of motivation is common in today's college. Educators and researchers tried to develop ways to organize and present materials to raise students' motivations (e.g. Bidwell, 1990; Van Voorhis, 1995). The present study offers an additional option. The present data identified relations with people and relations with place as major factors influencing students' academic motivations. This suggests that educators may suggest the unmotivated students to start with building healthy social relations in school and developing sense of attachment to school. School counselors may also use the same way in dealing with students lacking interest or effort in study.

The present study is one of the first studies that analyze the relationship between adult attachment styles in romantic relationships and close friendships as it relates to place attachment. The present data identified a path model suggesting that adult attachment predicts place attachment through social relations. The non-significant direct effect in the initial model suggests that social relation is mediating the relations between adult attachment and place attachment. This may also explain why adult attachment predicts academic motivations. However, another possible explanation is that people with more secure attachment may spend less time and energy to concern about relations, thus giving them better focus on academics. Their outlook of life and human relations may also be more positive, leading to an overall better wellbeing. This wellbeing is related to having higher motivations to their life (Ryan & Deci, 2000).

The present study also contributes to an improved measure of place attachment. The scale has highly reliability and items fell onto one major factor. Because of EFA suggesting one major factor and because of the limited sample size, analyses in the present study did not look at the possible sub-facets of place attachment, namely, affective, behavioral and cognitive place attachment. However, regardless of the scale factors, as a first step, the present study still contributes to the understanding of place attachment in university context, but further studies with larger sample should be conducted to look at the factor structure of the scales and the effect of different place attachment sub-facets.

Another measurement-related problem lies in the academic motivation scale. Initially, interest and effort were thought to be separate factors. However, the data suggest combining them as one. Although the factor was then identified as academic motivations, the measure might not be complete in measuring different aspects of academic motivations. Future studies should develop measures to disseminate the two distinct types of academic motivations, interest and

effort. Future studies may also further look at different kinds of motivations, such as intrinsic versus extrinsic motivations.

The present study is also limited to attachment to a specific university taking introductory psychology course. This may limit the generalizability of the current findings. However, as a general requirement to most of the students in the university, the introduction to psychology courses in the university consists of students from many different majors. Also, statistics from 2010 school admission (University of Pittsburgh, 2011) suggests that one third of the students are from out of the state of Pennsylvania. This may suggest that our sample was drawn from a diverse student sample coming from different majors and backgrounds.

In conclusion, the present work, despite some limitations, contributes to better understanding of human relations to people and human relations to place in a school context, highlighting the importance of school attachment and social relations on academic motivations. The present study untangled the relations between social relations and academic motivations by identifying the mediating role of place attachment to university. It also extends to give possible explanations to the relations between adult attachment and place attachment and between adult attachment and academic motivations. More place attachment studies are needed to expand the current context to unfold human relations with place and its influences on human motivations and behaviors.

APPENDIX A

SURVEY

University Life Survey

Thank you for participating in this study. This study is about your school life. You will be asked questions relating to your background [e.g., age, gender], as well as about your school life. A number of psychological scales are included. There are no foreseeable risks associated with this project, nor are there any direct benefits to you. Your participation is voluntary. You are free to withdraw at any time. Since you need to be 18 to participate in this study, please notify the monitor if under 18.

This is an anonymous survey. Please do not write your name anywhere on the forms. Your personal responses will not be identified in any way. Feel free to skip any items you do not wish to respond to.

Please indicate your response on the scantron provided.

(Place Attachment Scale)

Some people have strong feelings toward one place, such as their school, places they have visited before, or even places they have never been to. Below are statements concerning your feelings toward the **University of Pittsburgh (Pitt)**. There are no right or wrong answers. Please rate how much you agree to each statement.

Strongly disagree – disagree – neither agree/disagree – agree – strongly agree
<-- 1 -----2-----3-----4-----5-->

1. I feel happy when I am at Pitt.

2. I have significant memories of Pitt.
3. I don't care about what happens at Pitt.
4. I feel secure when I am at Pitt.
5. Pitt has a special meaning for me.
6. I keep up with the news about Pitt no matter where I am.
7. I would not feel sad if I had to leave Pitt.
8. I call my Pitt friends in order to know what is happening in Pitt when away.
9. I don't feel I belong at Pitt.
10. I know all the buildings and areas at Pitt.
11. I have had bad experiences at Pitt.
12. I suggest to others that they should visit Pitt.
13. I like Pitt.
14. I will forget about Pitt if I move away.
15. I feel bored at Pitt.
16. Pitt is not a comfortable place for me.
17. I don't enjoy showing people important buildings or areas in Pitt.
18. I put things around me to remind me of Pitt.
19. Pitt seems unfamiliar to me.
20. I know how to show people around at Pitt.
21. When I am not in Pitt, I lose track of things happening at Pitt.
22. I tell people about things that happened to me at Pitt.
23. I don't know much about Pitt.
24. I am proud of Pitt.
25. It feels good to come back to Pitt after I have been away.
26. I am always glad to meet people from Pitt if out of town.
27. I feel relaxed at Pitt.
28. Pitt is very special to me.
29. Pitt means a lot to me.
30. I cheer for at least one Pitt sports teams.

(Social Relations Scale)

31. I feel close to my classmates at Pitt.
32. I can share my problems with my classmates at Pitt.
33. We usually have a good time with my friends at Pitt
34. I feel lonely at Pitt
35. My classmates and I help each other at Pitt.
36. I feel close to my friends at Pitt.
37. I can share my problems with my friends at Pitt.

(Effort in Study)

Below are questions relating to your study habits. There are no right or wrong answers to these question. Please rate how much statement below describes you.

Never -----rarely ----- sometimes -----often -----Always
<-- 1 -----2-----3-----4-----5-->

- 38. I put a lot of effort into the classes I take at Pitt.
- 39. I don't try very hard to do well at the classes I take at Pitt.
- 40. I try very hard on the classes I take at Pitt.
- 41. I don't put much energy into the classes I take at Pitt.
- 42. I often feel so lazy or bored when I do homework for the classes I take at Pitt that I quit before I finish what I planned to do.
- 43. I work hard to do well in the classes I take at Pitt even if I don't like what we are doing.
- 44. When class work at Pitt is difficult, I give up or only study the easy parts.
- 45. Even when class materials are dull and uninteresting, I manage to keep working until I finish.

(Interests in study)

- 46. I have always been fascinated by the classes I am taking now at Pitt.
- 47. I'm really excited about the classes I am taking now at Pitt.
- 48. I'm really looking forward to learning more about the classes I am taking now at Pitt
- 49. I think the classes I am taking now at Pitt are important disciplines.
- 50. I think the classes I am taking now at Pitt will be important for me to know.
- 51. I think the classes I am taking now at Pitt will be worthwhile to know.

(Place attachment to hometown scale)

Now think about your hometown. Rate the following statements according to your feelings about your hometown. . There are no right or wrong answers. Please rate how much you agree to each statement using the ratings below.

Strongly disagree – disagree – neither agree/disagree – agree – strongly agree
<-- 1 -----2-----3-----4-----5-->

- 52. I feel happy when I am in my hometown.
- 53. I have significant memories of my hometown.
- 54. I don't care about what happens in my hometown.
- 55. I feel secure when I am in my hometown.
- 56. My hometown has a special meaning for me.
- 57. I keep up with the news about my hometown no matter where I am.
- 58. I would not feel sad if I had to leave my hometown.
- 59. I get involved in activities in my hometown.
- 60. I call my hometown friends/family in order to know what is happening in my hometown when away.
- 61. I don't feel I belong in my hometown.
- 62. I know all the best places to go in my hometown.
- 63. I have had bad experiences in my hometown.
- 64. I suggest to others that they should visit my hometown.
- 65. I like my hometown

66. I will forget about my hometown if I move away.
67. I feel bored in my hometown.
68. My hometown is not a comfortable place for me.
69. I don't enjoy showing people important places in my hometown.
70. I put things around me to remind me of my hometown.
71. My hometown seems unfamiliar to me.
72. I know how to show people around in my hometown.
73. When I am not in my hometown, I lose track of things happening in my hometown.
74. I tell people about things that happened to me in my hometown.
75. I don't know much about my hometown.
76. I am proud of my hometown.
77. It feels good to come back to my hometown after I have been away.
78. I am always glad to meet people from my hometown if out of town.
79. I feel relaxed in my hometown.
80. My hometown is very special to me.
81. My hometown means a lot to me.
82. I cheer for my hometown's sports team.

(Adult Attachment Scale)

Please take a moment to think about how you GENERALLY feel in IMPORTANT RELATIONSHIPS in your life. Think about your past and present relationships with people who have been especially important to you, such as romantic partners and close friends. Using the scale below, respond to each statement in terms of how you GENERALLY feel in these relationships.

Strongly disagree – disagree – neither agree/disagree – agree – strongly agree

<-- 1 -----2-----3-----4-----5-->

83. I prefer not to show people how I feel deep down.
84. I worry about being abandoned.
85. I am very comfortable being close to people.
86. I worry a lot about my relationships.
87. Just when people start to get close to me, I find myself pulling away.
88. I worry that people won't care about me as much as I care about them.
89. I get uncomfortable when people want to be very close to me.
90. I worry a fair amount about losing close relationships.
91. I don't feel comfortable opening up to others.
92. I often wish that other people's feelings for me were as strong as my feelings for them.

93. I want to get close to people, but I keep pulling back.
94. I often want to merge completely with people, and this sometimes scares them away.
95. I am nervous when people get too close to me.
96. I worry about being alone.
97. I feel comfortable sharing my private thoughts and feelings with others.
98. My desire to be very close sometimes scares people away.
99. I try to avoid getting too close to people.
100. I need a lot of reassurance that I am loved by others.
101. I find it relatively easy to get close to others.
102. Sometimes I feel that I force people to show more feeling and more commitment.
103. I find it difficult to allow myself to depend on others.
104. I do not often worry about being abandoned.
105. I prefer not to be too close to others.
106. If I can't get others to show interest in me, I get upset or angry.
107. I tell close others just about everything.
108. I find that people don't want to get as close as I would like.
109. I usually discuss my problems and concerns with others.
110. When I'm not involved in a relationship, I feel somewhat anxious and insecure.
111. I feel comfortable depending on others.
112. I get frustrated when people are not around as much as I would like.
113. I don't mind asking others for comfort, advice, or help.
114. I get frustrated if close others are not available when I need them
115. It helps to turn to others in times of need.
116. When others disapprove of me, I feel really bad about myself.
117. I turn to others for many things, including comfort and reassurance.
118. I resent it when close others spend time away from me.

(Demographic)

119. What is your age?
 - a. Under 18
 - b. 18-22
 - c. 23-25
 - d. 26-30
 - e. Above 30
120. Which year are you in?
 - a. Freshman
 - b. Sophomore
 - c. Junior
 - d. Senior
 - e. Fifth year or above
121. What is your gender?
 - a. Male
 - b. Female
122. Where is your hometown located?

- a. Pittsburgh
- b. Within 50 miles of Pittsburgh
- c. Other regions in Pennsylvania (if not a or b)
- d. Other regions in the US (if not a, b or c)
- e. Outside US

Please also indicate the name and state (or country if outside the US) of your hometown in the separate answer sheet.

123. What area do you live?
- a. On campus
 - b. Oakland (off campus living)
 - c. Shadyside
 - d. Squirrel Hill
 - e. Others
124. Do you live with your parents while you study at Pitt?
- a. Yes
 - b. No

APPENDIX B

FEEDBACK SHEET WITH DEBRIEFING

University attachment study

Feedback Information for Study Participants

First, we would like to thank you for participating in this study. We would also like to tell you more about the purpose of this research.

This study is part of a continuing project to study people's attachment to a place. The purpose of this study is to see what psychological factors predict students' attachment to the university, and what academic outcomes (such as effort and interest) will be predicted by high attachment. Based on previous studies, we expect social relations experienced in school will predict higher attachment, and higher attachment will relate to better academic outcomes.

We would like to thank you for your participation in this research. We ask that you do not discuss the nature of this study with your classmates. We want their experience in this research to be as unbiased as your own. If you have questions about this research, please contact Manyu Li at 412-383-5046 or MAL109@pitt.edu.

If you want to read more about this topic, you may read the following paper:

Scannell, L., & Gifford, R. (2010). Defining place attachment: A tripartite organizing framework. *Journal of Environmental Psychology, 30*, 1-10.

APPENDIX C

COMPARISON OF PLACE ATTACHMENT ITEMS IN PILOT STUDY TO ITEMS IN THE PRESENT STUDY

Table 3. Comparison of place attachment items in pilot study to items in the present study

	Pilot study	Present study
A1	I feel happy when I am in Pittsburgh	I feel happy when I am at Pitt
A2	I feel secure when I am in Pittsburgh	I feel secure when I am at Pitt
A3*	I would not feel sad if I have to leave Pittsburgh	I would not feel sad if I have to leave Pitt
A4*	I don't feel I belong in Pittsburgh	I don't feel I belong at Pitt
A5	I like Pittsburgh	I like Pitt
A6*	Pittsburgh is not a comfortable place for me.	Pitt is not a comfortable place for me.
A7	I am loyal to Pittsburgh	
A8*	I can easily replace another place with Pittsburgh.	
A9*		I feel bored at Pitt.
A10		I am proud of Pitt.
A11		It feels good to come back to Pitt after I have been away.
A12		I feel relaxed at Pitt.
C1	I have significant memories in Pittsburgh	I have significant memories at Pitt
C2	Pittsburgh has a special meaning for me	Pitt has a special meaning for me
C3	I consider Pittsburgh as my home base.	
C4	I know all the best places to go in Pittsburgh.	I know all the buildings and areas at Pitt.
C5*	I will forget about Pittsburgh after I leave.	I will forget about Pitt after I leave.
C6	When people ask me where I am from, I would say Pittsburgh.	
C7	I know how to show people around in Pittsburgh.	I know how to show people around at Pitt.
C8*	I don't know much about Pittsburgh	I don't know much about Pitt.
C9*		I have had bad experiences in Pitt.

C10*		Pitt seems unfamiliar to me.
C11		Pitt is very special to me.
C12		Pitt means a lot to me.
C18		I know all the buildings and areas at Pitt.
B1*	I don't care about what happens in Pittsburgh.	I don't care about what happens at Pitt .
B2	I keep up with the news about Pittsburgh no matter where I am	I keep up with the news about Pitt no matter where I am
B3	I call my Pittsburgh friends/family in order to know what is happening in Pittsburgh.	I call my Pitt friends in order to know what is happening at Pitt .
B4	When I am out of Pittsburgh, I try to find Pittsburgh food.	
B5	I seek out people from Pittsburgh when I am away from Pittsburgh.	
B6	I put things around me to remind me of Pittsburgh.	I put things around me to remind me of Pitt.
B7*	When I am not in Pittsburgh, I lose track of things happening in Pittsburgh.	When I am not at Pitt, I lose track of things happening at Pitt.
B8	I cheer for Pittsburgh sports team.	I cheer for at least one Pitt sports team.
B9		I suggest to others that they should visit Pitt.
B10*		I don't enjoy showing people important places at Pitt.
B11		I tell people about things that happened to me at Pitt.
B12		I am always glad to meet people from Pitt if out of town.

APPENDIX D

COMPARISON BETWEEN ORIGINAL AND MODIFIED SOCIAL RELATIONS ITEMS

Table 4. Comparison between original and modified social relations items

Items from Cemalcilar's (2009) study	Modified items for the present study
1. I feel close to my classmates.	I feel close to my classmates at Pitt.
2. I can share my problems with my classmates.	I can share my problems with my classmates at Pitt.
3. We usually have a good time with my friends.	We usually have a good time with my friends at Pitt.
4. I feel lonely in my class.	I feel lonely at Pitt.
5. We often help each other in class.	We often help each other at Pitt.
6.	I feel close to my friends at Pitt.
7.	I can share my problems with my friends at Pitt.

APPENDIX E

COMPARISON BETWEEN ORIGINAL AND MODIFIED ITEMS FOR EFFORTS IN STUDY

Table 5. Comparison between original and modified items for efforts in study

Original items (1-4 are from Ryan's 1982; 5-8 are from Pintrich et al., 1991)	Modified items for the present study
1. I put a lot of effort into this.	I put a lot of effort into the classes I take at Pitt.
2. I didn't try very hard to do well at this activity.	I don't try very hard to do well at the classes I take at Pitt.
3. I tried very hard on this activity	I try very hard on the classes I take at Pitt.
4. I didn't put much energy into this.	I don't put much energy into the classes I take at Pitt.
5. I often feel so lazy or bored when I study for this class that I quit before I finish what I planned to do.	I often feel so lazy or bored when I do homework for the classes I take at Pitt that I quit before I finish what I planned to do.
6. I work hard to do well in this class even if I don't like what we are doing.	I work hard to do well in the classes I take at Pitt even if I don't like what we are doing.
7. When course work is difficult, I give up or only study the easy parts.	When class work at Pitt is difficult, I give up or only study the easy parts.
8. Even when course materials are dull and uninteresting, I manage to keep working until I finish.	Even when class materials are dull and uninteresting, I manage to keep working until I finish.

APPENDIX F

COMPARISON BETWEEN ORIGINAL AND MODIFIED ITEMS FOR INTERESTS IN STUDY

Table 6. Comparison between original and modified items for interests in study

Original items from Harackiewicz et al. (2007)	Modified items for the present study.
1. I have always been fascinated by <i>psychology</i> .	I have always been fascinated by the classes I am taking now at Pitt.
2. I'm really excited about <i>taking this class</i>	I'm really excited about the classes I am taking now at Pitt.
3. I'm really looking forward to learning more about <i>psychology</i>	I'm really looking forward to learning more about the classes I am taking now at Pitt at Pitt
4. I think <i>the field of psychology is an important discipline</i> .	I think the classes I am taking now at Pitt are important disciplines.
5. I think what <i>we will study in introductory psychology</i> will be important for me to know.	I think the classes I am taking now at Pitt will be important for me to know.
6. I think <i>what we will study in introductory psychology</i> will be worthwhile to know.	I think the classes I am taking now at Pitt will be worthwhile to know.

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