

# 3<sup>rd</sup> Year Report

Spring 2013



**For more information regarding this report contact:**

Aubrey Kent, Ph.D.  
Sport Industry Research Center  
School of Tourism and Hospitality Management  
Temple University  
111C Speakman Hall  
1810 N. 13<sup>th</sup> St.  
Philadelphia, PA 19122  
Phone: 215-204-3810  
Email: [aubkent@temple.edu](mailto:aubkent@temple.edu)

**This information and the content provided in this report are governed by a mutual confidentiality agreement between Zhang Sah Martial Arts and SIRC.**



**Sport Industry Research Center**  
TEMPLE UNIVERSITY

# Table of Contents

<b>Page</b>	<b>Item</b>
3-4	<b>Assessment Criteria</b>
5	<b>Executive Summary</b>
<b>6-21</b>	<b>Basic Results</b>
6-7	Involvement
8	Commitment
9	Satisfaction
10-11	Character
12-13	Connection
14	Caring
15-16	Competence
17-18	Confidence
19	Resiliency
20-21	Fitness Results
<b>22-41</b>	<b>Advanced Analysis</b>
20	Paired Sample T-Test
23-28	Cohort 1 (Fall 2010-Spring 2012)
29-34	Cohort 2 (Fall 2011-Spring 2012)
35	OLS Regression
36-37	Activity Involvement as Moderator
38	Organizational Involvement as Moderator
39-41	Resiliency as Moderator
42-46	Individual Tracking
<b>47-49</b>	<b>Appendix – Overview of Research</b>

# Assessment Criteria

The following measures have been adapted for this assessment.

Dimension	Definition
<b>Competence</b>	Positive view of one's actions in domain specific areas including social, academic, cognitive, and vocational. Social competence pertains to interpersonal skills (e.g., conflict resolution). Cognitive competence pertains to cognitive abilities (e.g., decision making). School grades, attendance, and test scores are part of academic competence.
Academic	Pertains to perceived competence in school performance.
Social	Pertains to interpersonal skills (i.e. conflict resolution) and perceived popularity among peers.
Physical	Pertains to cognitive skills related to athletic activities and self-perceived ability in sports and outdoor games.
<b>Confidence</b>	An internal sense of overall positive self-worth and self-efficacy; one's global self-regard, as opposed to domain specific beliefs.
Appearance	Emphasis on how comfortable one is with their physical appearance (i.e. looks and body image).
Positive Identification	Emphasis on how much one likes them self, their sense of pride, and outlook on their future.
Self-Worth	Emphasis on how comfortable one is with whom they are.
<b>Connection</b>	Positive bonds with people and institutions that are reflected in bidirectional exchanges between the individual and peers, family, school, and community in which both parties contribute to the relationship.
School	Emphasis on encouragement received and quality of relationships with teachers and students.
Neighborhood	Emphasis on quality of relationships with adults and their own importance within the community.
Family	Emphasis on the quality of relationship with parents.
Peers	Emphasis on the quality of relationship with peers
<b>Character</b>	Respect for societal and cultural rules, possession of standards for correct behaviors, a sense of right and wrong (morality), and integrity.
Values Diversity	Feelings on the importance of learning about people from a different race or culture, respecting their values and beliefs, and getting to know them.
Conduct Morality	Feelings on the importance of doing the right thing, and liking the way he or she behaves.
Personal Values	Feelings on importance of doing one's best, accepting responsibility, and standing up for what they believe.
Social Conscience	Feelings on the significance of helping others, making the world a better place, and treating people fairly.
<b>Caring</b>	A sense of sympathy and empathy for others.

# Assessment Criteria

The following measures have been adapted for this assessment.

Dimension	Definition
<b>Involvement</b>	The Psychological Continuum Model (PCM) provides a stage-based developmental framework of recreational involvement. Engagement in recreational activities progresses along four general hierarchical stages: Awareness (I know about martial arts), Attraction (I like martial arts), Attachment (I am a martial artist), or Allegiance (I live to do martial arts).
Pleasure	Enjoyment derived from the activity (martial arts) and program (Zhang Sah).
Centrality	How central the activity (martial arts) and program (Zhang Sah) are to the lifestyle of the individual.
Sign	Self-expression, value, or level of symbolism of the activity (martial arts) or program (Zhang Sah).
<b>Commitment</b>	The psychological state that characterizes the participants relationship with the program or activity, and has implications for the decision to continue participating.
Affective	Commitment based on emotional ties the participant develops with the program or activity via positive experiences
Normative	Commitment based on perceived obligations towards the program or activity, rooted in the norms of reciprocity.
Continuous	Commitment based on the perceived costs, both economic and social, of leaving the organization.
<b>Satisfaction</b>	The ASQ is multidimensional scale designed to measure an athlete's satisfaction with his/her athletic experience.
Training and Instruction	Satisfaction with the training and instruction provided by the coach.
Personal Dedication	Satisfaction with his/her own contribution to the team.
Personal Treatment	Satisfaction with those coaching behaviors which directly affect the individual, yet indirectly affect team development. It includes social support and positive feedback.
<b>Resiliency</b>	Refers to positive outcomes, adaptation, or the attainment of developmental milestones or competencies in the face of significant risk, adversity, or stress.
Behavior and Emotion	Behavioral and emotional strengths in children and protective factors related to the child and the child's family, relying on resilience theory.
Student Strengths	Social-emotional competencies that serve as protective factors for children.

Items adapted from measures included in references.

1. Psychological Continuum Model (PCM) (Funk & James, 2001).
2. Three-Component Model of Organizational Commitment (Meyer & Allen, 1991).
3. Athlete Satisfaction Questionnaire (ASQ) (Riemer & Chelladurai, 2000).
4. Epstein, M. R. (2002, May). Standardization of the behavioral and Emotional Rating Scale: Factor Structure, Reliability, and Criterion Validity. *The Journal of Behavioral Health Services and Research*, 208-216.
5. LeBuffe, P. a. (2009). Introduction to the Devereux Student Strength Assessment (DESSA). Lewisville, NC: Kaplan Press Publishing.
6. 5 C's of Positive Youth Development (Lerner, 2005) & Short-Form Five C's of Positive Youth Development (Bowers et. al, 2011).
  1. Search Institute Profiles of Student Life – Attitudes and Behaviors.
  2. Self-Perception Profile for Children (SPPC; Harter, 1983).
  3. Teen Assessment Project (TAP) Survey Question Bank (Small & Rodgers, 1995).
  4. Eisenberg Sympathy Scale (Eisenberg, Fabes, Murphy, Karbon, Smith, & Maszk, 1996).
  5. Empathic Concern (EC) subscale of the Interpersonal Reactivity Index (IRI; Davis, 1983).

# Executive Summary

The following report presents findings from an ongoing longitudinal outcomes assessment of the Zhang Sah Martial Arts program. Data was gathered using surveys administered onsite by staff from the Sport Industry Research Center (SIRC) at Temple University. The first wave of data was collected in Fall 2010, and follow-up surveys occurred semi-annually at approximately six month intervals to capture participant responses at the beginning and end of each program cycle. The survey utilized for the first four waves of data collection (Fall 2010, Spring 2011, Fall 2011, Spring 2012) consisted of 150 items measuring nine dimensions (Involvement, Commitment, Satisfaction, Resiliency, and Positive Youth Development). The instrument was reduced to 91 items in Fall 2012 by adapting the short (PYD-SF) version of the PYD scale for older adolescents which was used in the 4-H Study of Positive Youth Development. Respondents were identified by birthdates, and individual demographic data and fitness results were provided by Zhang Sah staff to integrate with the psychographic assessment. Focus groups were utilized with younger cohorts of participants (i.e. <9 years old) instead of surveys during the Fall 2011 assessment, leading to smaller sample size for that particular period. Table 1 below illustrates the mean age and collection totals for each wave to date.

**Table 1**

Collection	Mean Age	N	Std. Deviation	Minimum Age	Maximum Age
Fall 2010	12.31	29	2.04	9	17
Spring 2011	N/A	59	N/A	N/A	N/A
Fall 2011	12.58	31	1.54	10	15
Spring 2012	11.11	56	1.97	8	15
Fall 2012	8.93	56	2.15	5	13
Total	10.87	231	2.44	5	17

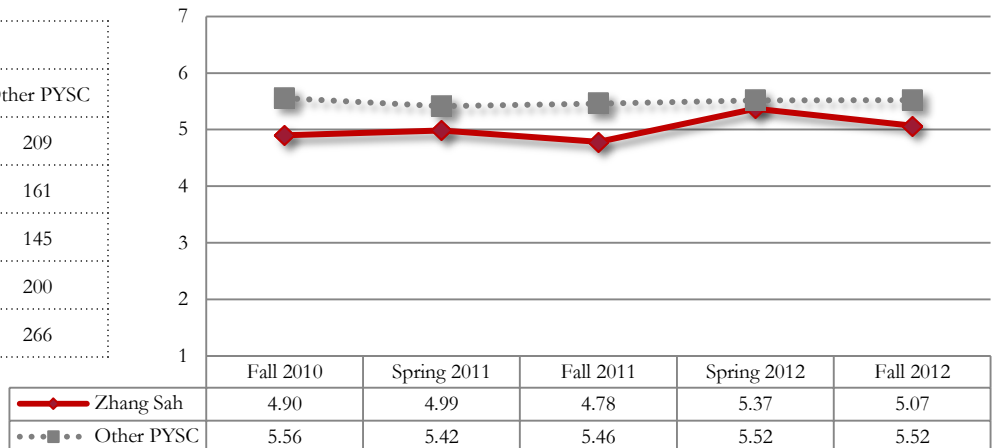
The Basic Results section of this report presents the mean scores for social and behavioral measure included in this study. These measures are plotted with the aggregated mean scores for the other Philadelphia Youth Sport Collaborative (PYSC) organizations currently partnering with SIRC. Zhang Sah participants surveyed in this study typically enter the Fall program as part of a cohort, and progress together through the Spring program. Consequently, the fall collection consists of returning and new participants, whereas the Spring collection consists primarily of participants who have experienced at least one program year. This information could explain the longitudinal fluctuations in mean scores, and will be further examined in future reports when more data has been collected. Overall, the trend lines exhibit positive development for Zhang Sah participants in most social and behavioral constructs, with particular growth in the first-order dimension of Character. This is especially encouraging considering the recent national movement to promote character development in the United States (Josephson Institute, 2009), and its particular significance in the Zhang Sah mission statement and vision. The Advanced Analysis portion of this report will further investigate the significance of these results, and evaluate the moderating effects of more latent constructs on crucial development dimensions.

# Involvement

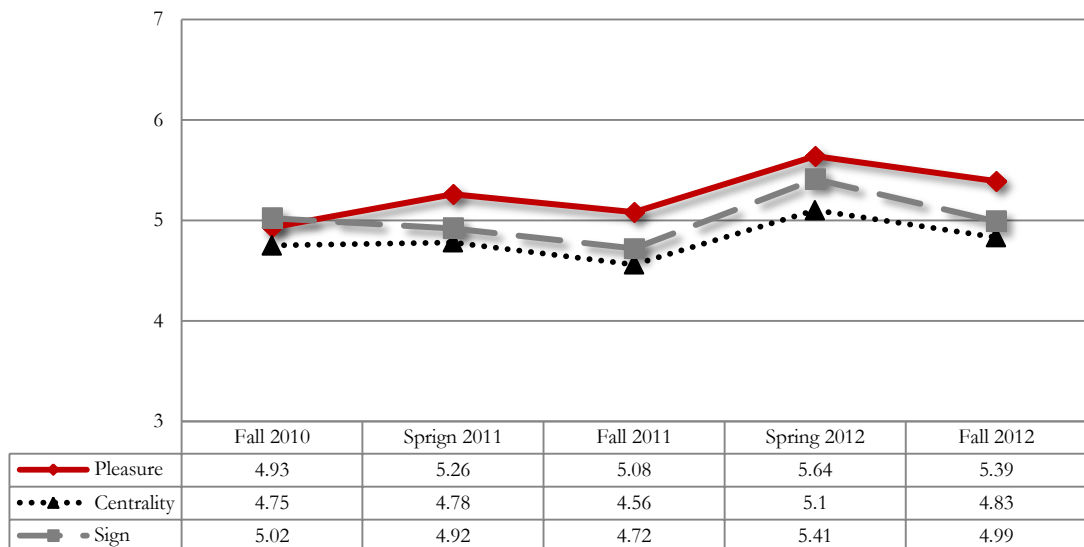
Zhang Sah participants answered nine questions related to their involvement with the activity of martial arts and the Zhang Sah program to determine which context they most identified (i.e. “I am a martial artist” vs. “I am a Zhang Sah participant”). The dimension of Involvement consists of three second-order factors (Pleasure, Centrality, and Sign) which collectively examine the development and continuance of participation in physically active leisure. Answers were coded on a 7 point scale from 1-7, with 1 representing the weakest score and 7 representing the strongest score. The longitudinal line chart below displays the mean scores for organizational involvement, and reveal a gradual increase from Fall to Spring in each year. This increase was characterized by particularly high scores for the sub-scale of Pleasure and a notable increase in Sign, suggesting participants enjoy the program and are progressively aligning their personal and psychological attributes with the values of the program. Similarly, the mean scores related to Centrality increased markedly during the second year, which implies that more participants feel the program has a central role in their daily lives, commanding effective time management and organization.

## Organizational Involvement

Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	29	209
Spring 2011	58	161
Fall 2011	31	145
Spring 2012	56	200
Fall 2012	39	266



## Organizational Involvement Factors

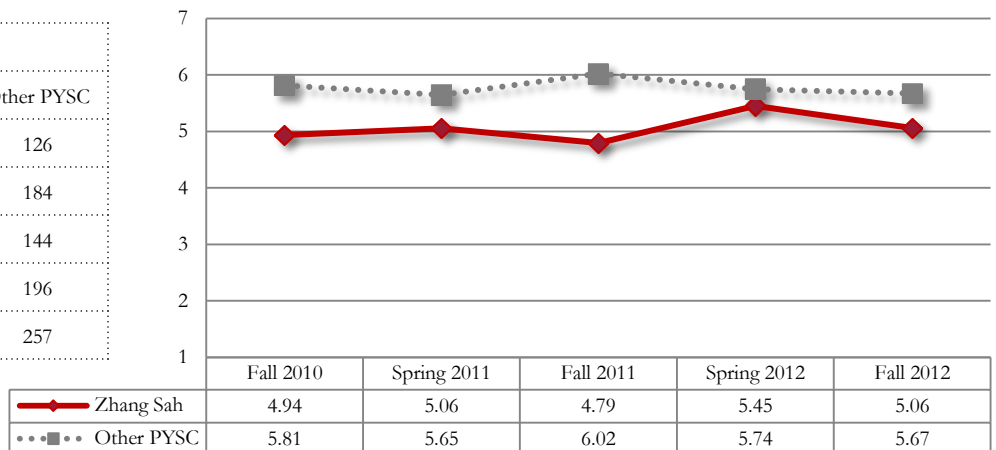


# Involvement

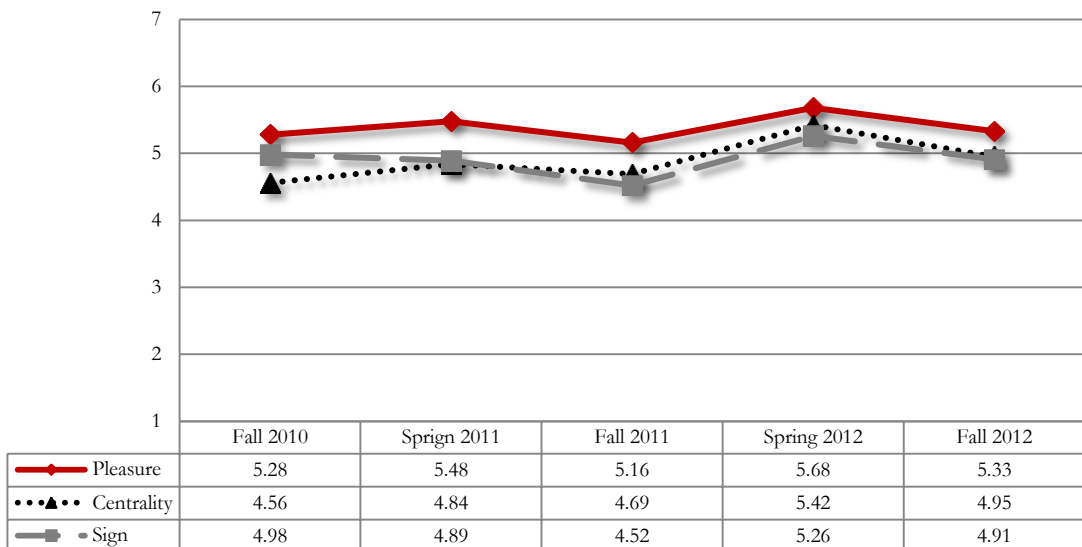
Questions related to pleasure produced similar responses for both the program and activity, indicating a possible correlation between these two contexts. This is a trend observed in other PYSC organizations, as the Involvement dimension often correlates strongly between the respective activities and programs. The longitudinal line chart below displays the mean scores for activity involvement, and reveal a similar trend line as organizational involvement. Although the first-order dimension appears comparable, the bar graphs below highlight slight disparities between the subscales for the activity and program. Respondents appear to derive equal enjoyment from both Zhang Sah and martial arts, however the activity received higher scores related to centrality, which indicates that participants may feel martial arts is more central to their lifestyle than the Zhang Sah program. Conversely, the mean scores for Sign were lower for questions related to the activity than the program, which suggests that participants view the Zhang Sah program as a particularly comfortable environment for self-expression.

## Activity Involvement

Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	27	126
Spring 2011	57	184
Fall 2011	30	144
Spring 2012	54	196
Fall 2012	56	257



## Activity Involvement Factors

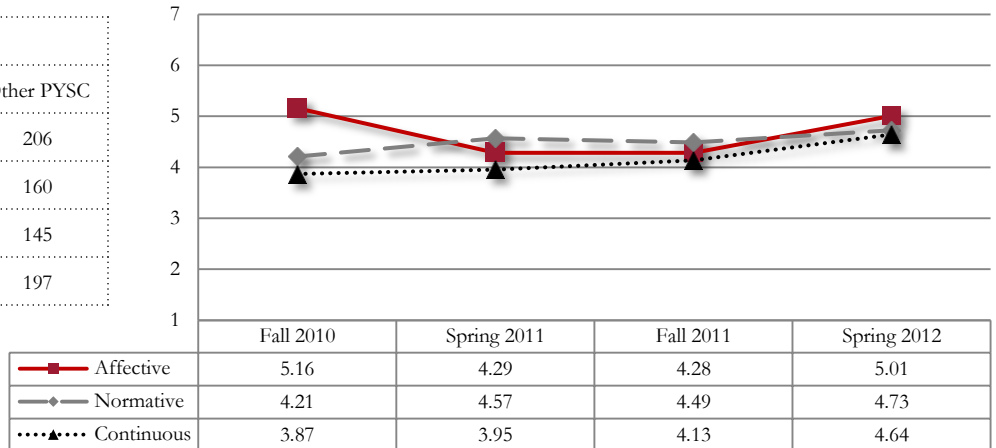


# Commitment

Commitment consists of three dimensions, Affective, Normative and Continuance. Affective commitment is expected to have the strongest positive relation to social/behavioral outcomes, followed by normative commitment, while continuance commitment is expected to be unrelated or negatively related to desirable behaviors. The questions are scaled from 1-7, with 1 representing the lowest score, and 7 representing the highest score. As seen in the line graphs below, Zhang Sah participants exhibit higher affective commitment to the activity than the program, especially when contrasted with the other two dimensions. While this potentially indicates a stronger commitment to martial arts than Zhang Sah specifically, one must consider the role of the program in developing and moderating the relationship. Furthermore, although the mean scores for affective organizational commitment fell in the first year, in the second year there was considerable improvement from the Fall to the Spring. Also evident in the line graphs is the steady decline of affective activity commitment, which could potentially be attributed to participants beginning to transfer their personal identification from the activity to the Zhang Sah program.

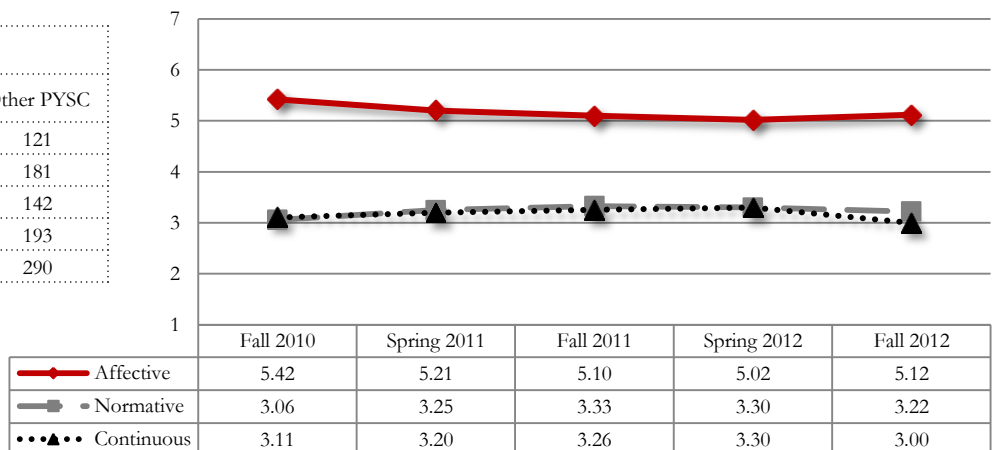
## Organizational Commitment

Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	28	206
Spring 2011	58	160
Fall 2011	30	145
Spring 2012	56	197



## Activity Commitment

Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	26	121
Spring 2011	56	181
Fall 2011	30	142
Spring 2012	56	193
Fall 2012	39	290



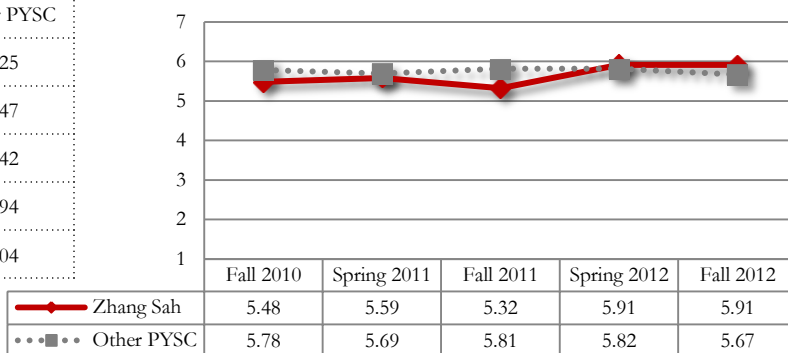


# Satisfaction

The Athlete Satisfaction Questionnaire (ASQ) is a multidimensional scale designed to measure an athlete's satisfaction with his/her athletic experience. Prior to evaluation, Zhang Sah management selected from a list of 15 subscales consisting of three to five questions. Each sub-scale relates to a more specific component of satisfaction (i.e. Individual Performance). The bar charts below display the mean scores for each subscale over the duration of this assessment, and reveal an increase in each area of satisfaction. The scores for Training and Instruction in Spring 2012 were particularly high, and during this collection 73.2% of respondents were 'Extremely Satisfied' with the coach's teaching of the tactics and techniques of martial arts.

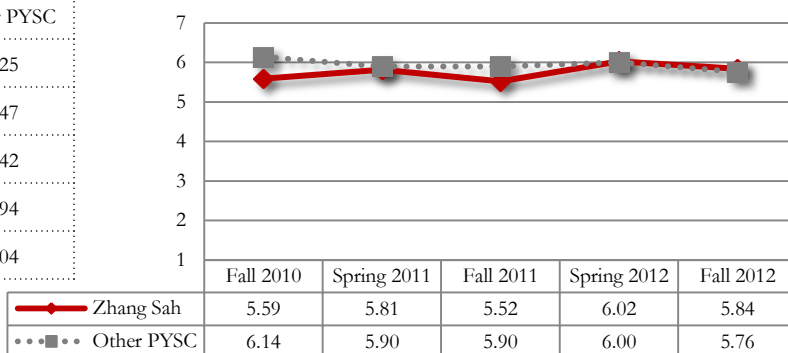
Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	27	125
Spring 2011	49	147
Fall 2011	30	142
Spring 2012	56	194
Fall 2012	39	204

## Individual Performance



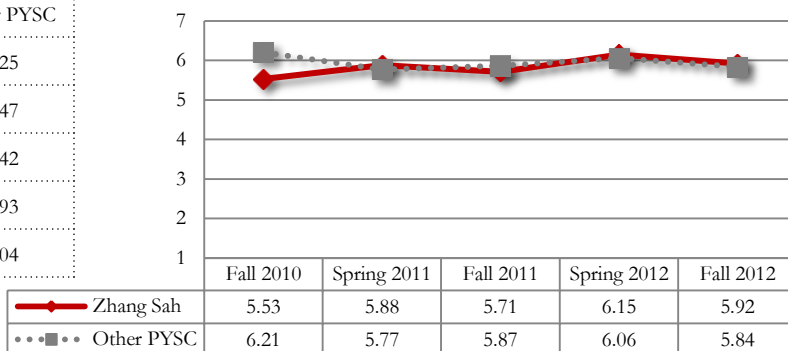
Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	27	125
Spring 2011	50	147
Fall 2011	30	142
Spring 2012	56	194
Fall 2012	39	204

## Personal Treatment



Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	27	125
Spring 2011	48	147
Fall 2011	30	142
Spring 2012	56	193
Fall 2012	39	204

## Training and Instruction

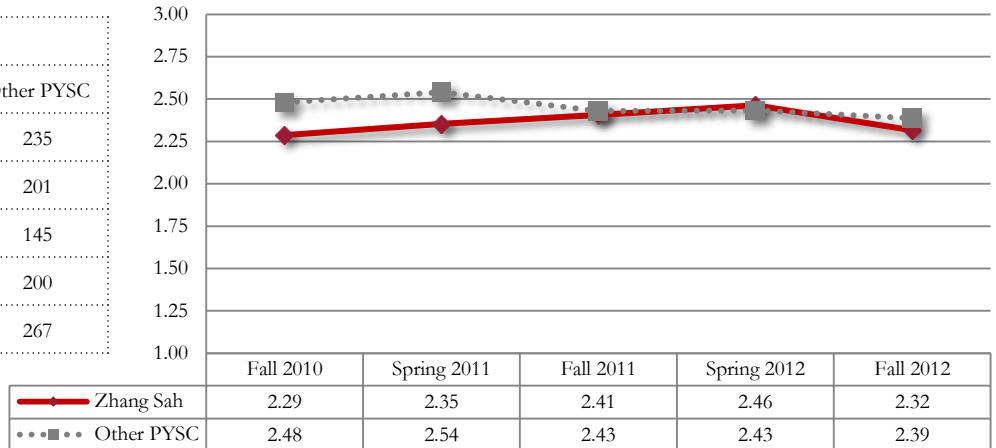


# Character

The Character dimension assesses an individuals respect for societal and cultural rules, and their general sense of right and wrong. This dimension is characterized by four subscales (Values Diversity, Conduct Morality, Personal Values and Social Conscience). Answers are coded on a 4 point scale from 0-3, with 0 representing the weakest score and 3 representing the strongest score. Zhang Sah participants reported high Social Conscience and Personal Values, which indicates integrity and responsibility (Personal Values) and a willingness to improve the lives of others (Social Conscience). Respondents also displayed relatively strong levels of Values Diversity, which reflects a cognizant recognition of diversity, and a willingness to learn about other races and cultures. Although Conduct Morality was the lowest reported subscale for the Character dimension, a closer analysis of the frequencies reveals this also contributes to the strong overall Character of Zhang Sah participants. For example, in Spring 2012 80% of respondents reported that they were very kind to others, and during the same time period 74.1% answered that they usually do the right thing. Finally, in Fall 2012 85% of Zhang Sah respondents reported that they usually act the way they know they are supposed to.

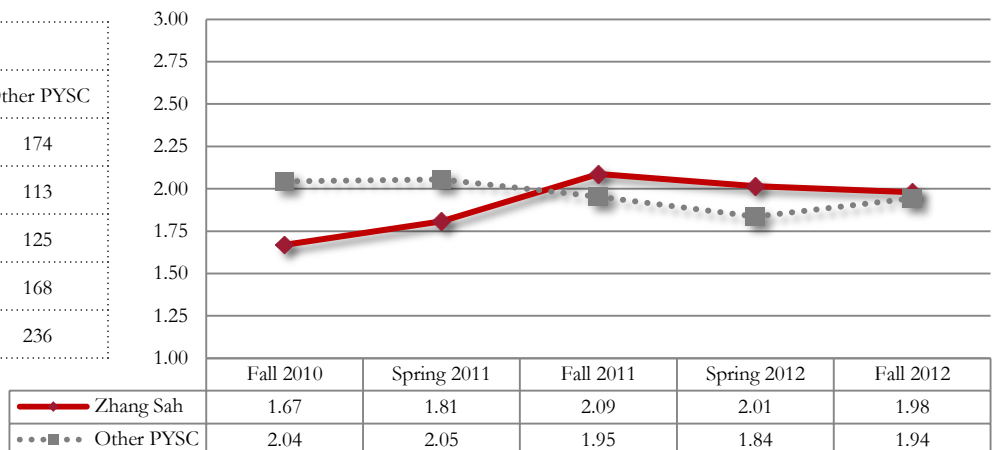
## CHARACTER

Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	29	235
Spring 2011	59	201
Fall 2011	31	145
Spring 2012	56	200
Fall 2012	38	267



## Conduct Morality

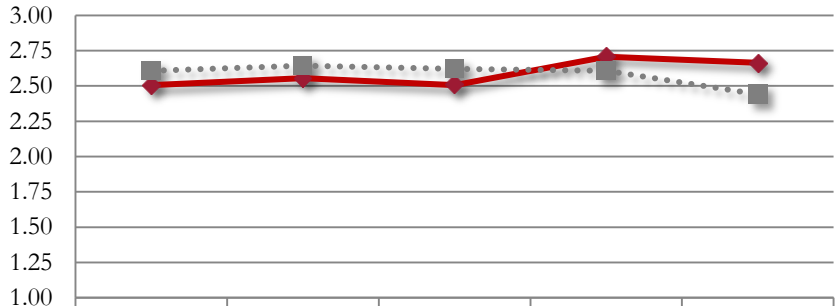
Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	21	174
Spring 2011	54	113
Fall 2011	22	125
Spring 2012	54	168
Fall 2012	30	236



# Character

## Social Conscience

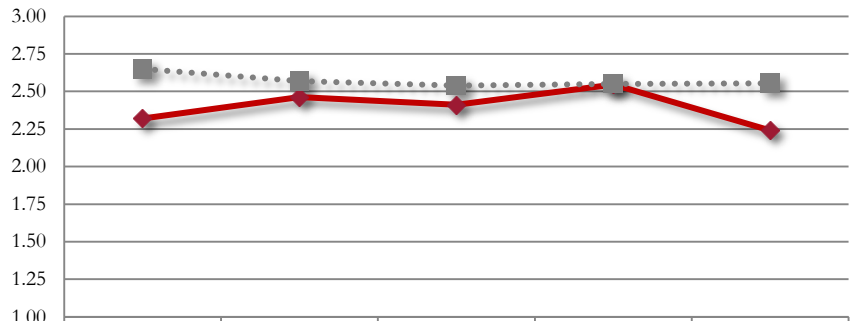
Collection	Responses (n)	
	Zhang Sah	Other PYSC
Fall 2010	29	205
Spring 2011	58	194
Fall 2011	31	142
Spring 2012	55	198
Fall 2012	35	266



Collection	Zhang Sah	Other PYSC
Fall 2010	2.51	2.61
Spring 2011	2.55	2.64
Fall 2011	2.51	2.62
Spring 2012	2.71	2.61
Fall 2012	2.66	2.44

## Values Diversity

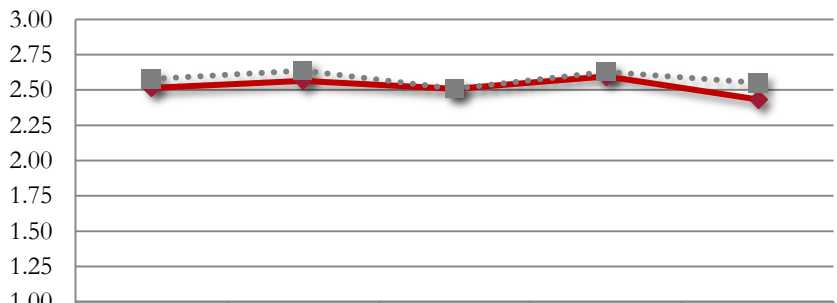
Collection	Responses (n)	
	Zhang Sah	Other PYSC
Fall 2010	29	235
Spring 2011	59	198
Fall 2011	31	145
Spring 2012	56	200
Fall 2012	35	261



Collection	Zhang Sah	Other PYSC
Fall 2010	2.32	2.65
Spring 2011	2.46	2.57
Fall 2011	2.41	2.54
Spring 2012	2.54	2.55
Fall 2012	2.24	2.55

## Personal Values

Collection	Responses (n)	
	Zhang Sah	Other PYSC
Fall 2010	29	205
Spring 2011	58	193
Fall 2011	31	142
Spring 2012	56	198
Fall 2012	35	266



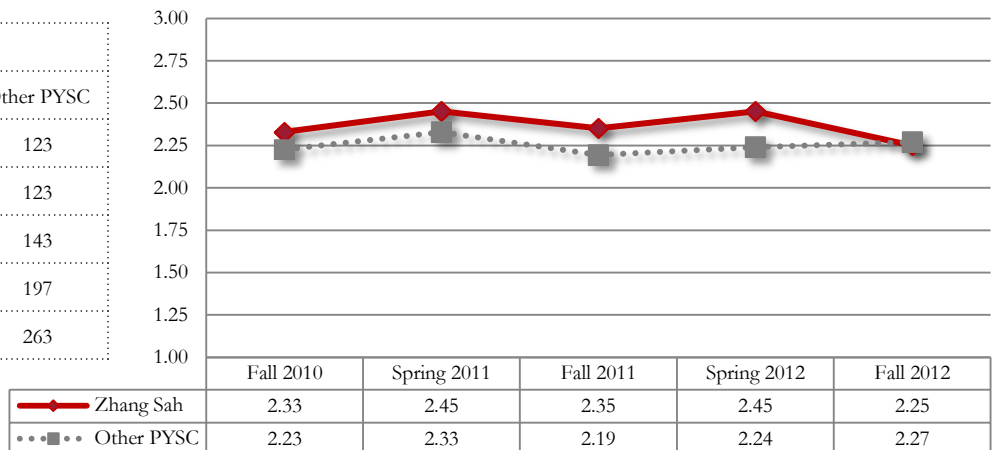
Collection	Zhang Sah	Other PYSC
Fall 2010	2.51	2.58
Spring 2011	2.56	2.64
Fall 2011	2.51	2.51
Spring 2012	2.60	2.63
Fall 2012	2.43	2.55

# Connection

The Connection dimension evaluates the relationship one experiences with several key social, personal and environmental contexts. These exchanges rely on bidirectional interactions between both parties, which ultimately contributes to the level of connection. Answers are coded on a 4 point scale from 0-3, with 0 representing the weakest score and 3 representing the strongest score. As seen from the line graph below, Zhang Sah participants exhibited slightly higher levels of Connection compared to participants in other PYSC organizations, and shared a similar trend line. This was also evident for both school and peer connectedness, although in both instances the difference between Zhang Sah participants and the aggregated PYSC scores was minimal. Interestingly, the increase in school connection was accompanied by a corresponding increase in reported grades during both years. Overall, 30.3% of Zhang Sah participants reported that they receive Mostly A's in school, and 40.7% reported they receive about Half B's and Half A's. Similar to other organizations, the results indicate the weakest connection is consistently with the neighborhood, although mean scores suggest Zhang Sah participants exhibited moderate increases in this subscale both years.

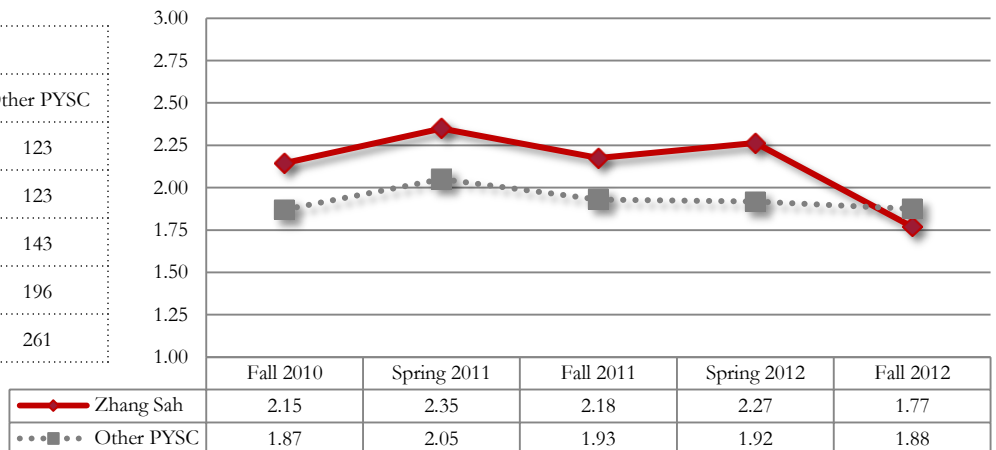
## CONNECTION

Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	26	123
Spring 2011	56	123
Fall 2011	30	143
Spring 2012	56	197
Fall 2012	39	263



## Neighborhood

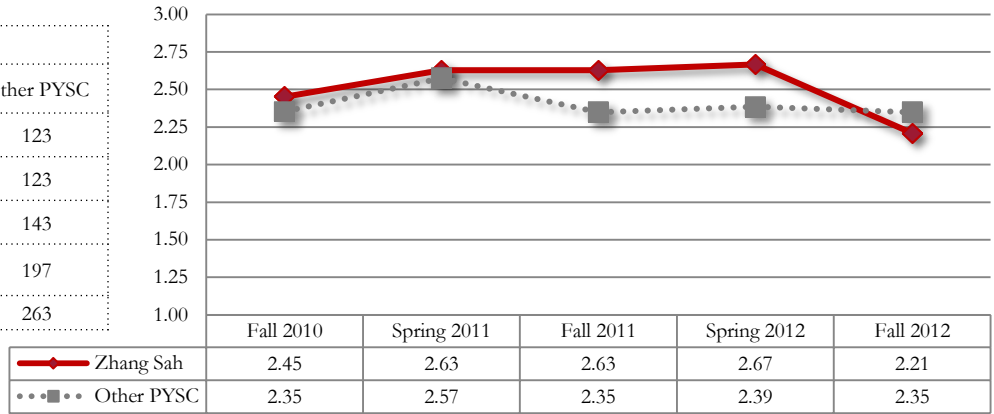
Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	26	123
Spring 2011	56	123
Fall 2011	30	143
Spring 2012	56	196
Fall 2012	38	261



# Connection

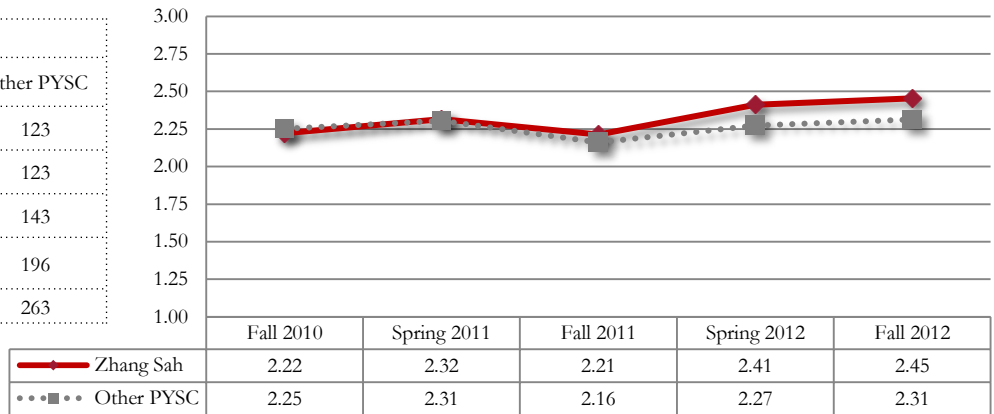
## Family

Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	26	123
Spring 2011	56	123
Fall 2011	30	143
Spring 2012	56	197
Fall 2012	38	263



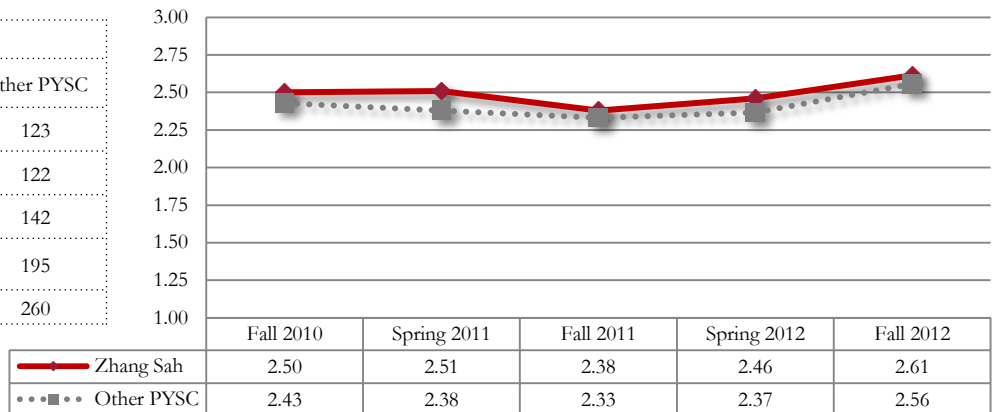
## School

Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	26	123
Spring 2011	56	123
Fall 2011	30	143
Spring 2012	56	196
Fall 2012	38	263



## Peers

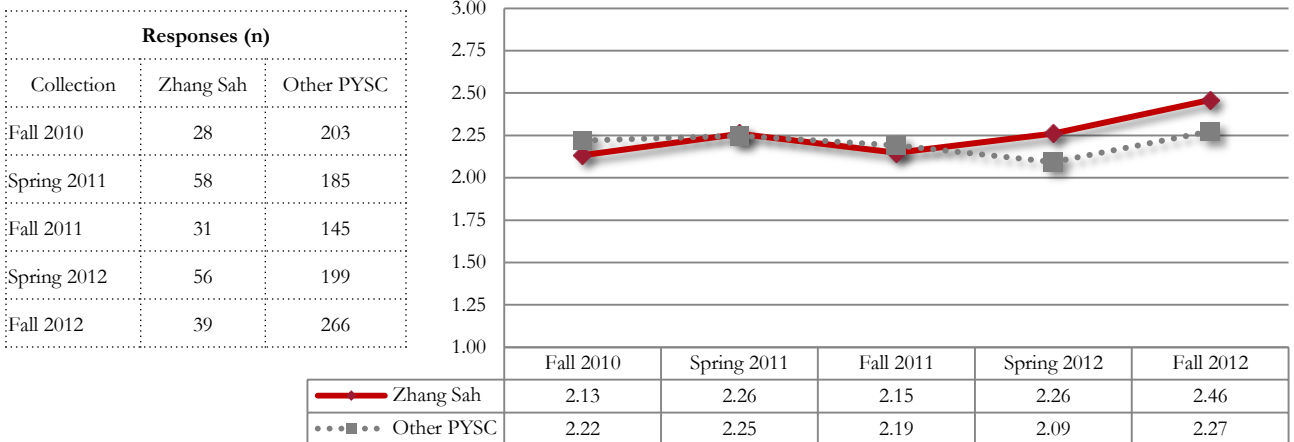
Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	26	123
Spring 2011	56	122
Fall 2011	29	142
Spring 2012	56	195
Fall 2012	38	260



# Caring

Participants responded to 6 questions related to Caring, which is the only PYD construct that does not consist of subscales. Instead, a modified version of Eisenberg’s Sympathy scale, which measures respondents sympathy towards five social contexts (Sympathy of Disadvantaged, Sympathy of Loneliness, Sympathy of Unfortunate, Sympathy of Pain, and Sympathy of Rejection), is combined with items adapted from the Empathic Concern (EC) subscale of the Interpersonal Reactivity Index. Answers are coded on a 4 point scale from 0-3, with 0 indicating the lowest level of sympathy toward a particular circumstance, and 3 indicating the strongest level of sympathy. The mean scores indicate a moderate increase in Caring over the past two years, with participants displaying a consistent degree of sympathy and empathy toward a variety of personal and social contexts. The frequency below features one question that assesses the child’s sympathy of loneliness, and provides conditional distributions for the answer choices across collection periods. In general, Zhang Sah participants revealed growth in this particular area highlighted by an increase in the proportion of respondents who answered ‘Very Well’, revealing an increasingly self-assured population.

## CARING



### How well does this statement describe you?

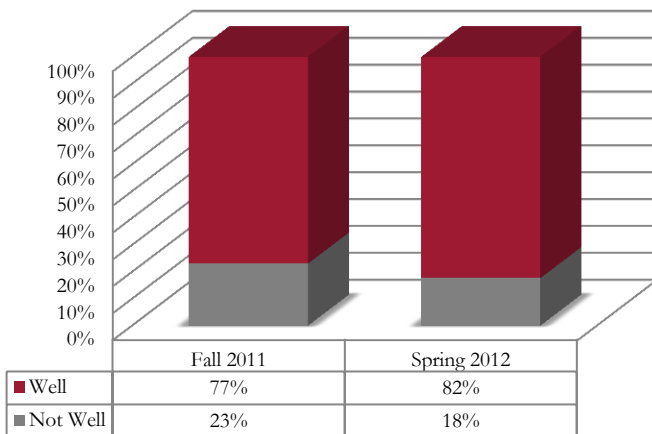
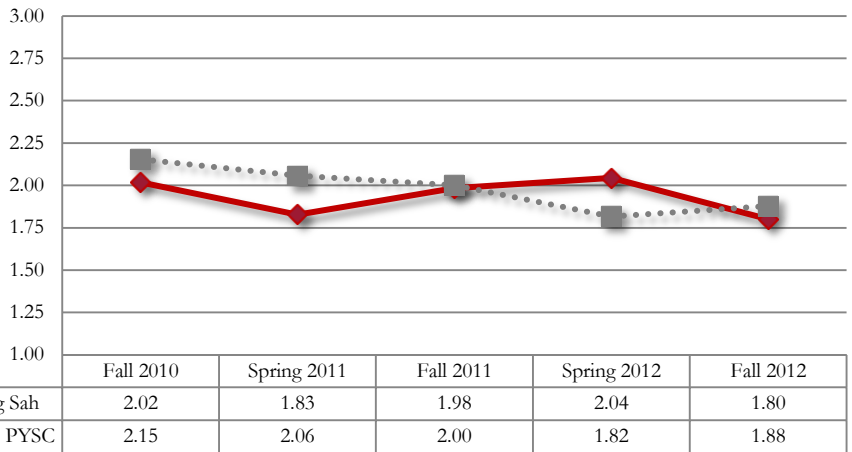
It makes me sad to see a person who doesn't have friends. (n=226)						
(n)	COLLECTION	(0) Not Well	1	2	(3) Very Well	Total
27	Fall 2010	15%	7%	22%	56%	100%
58	Spring 2011	7%	10%	19%	64%	100%
30	Fall 2011	7%	17%	17%	60%	100%
55	Spring 2012	16%	7%	7%	69%	100%
39	Fall 2012	6%	10%	23%	60%	100%

# Competence

Zhang Sah participants displayed variable levels of academic, social, and physical competence, a trend that was evident throughout other PYSC organizations as well. In fact, in Fall 2012 respondents were split exactly 50/50 when assessing their levels of athletic ability, with 50% of respondents believing that they are better than others their age at sports and 50% feeling they cannot play as well. Furthermore, participants expressed tempered feelings regarding their popularity and social ability. In Fall 2012, 74% of respondents reported that they have a lot of friends, yet only 48% report that they were popular with others their age. This trend was evident in Spring 2012 and Fall 2011 responses as well, and potentially relates to participants comfort with their social circle, coupled with tempered perceptions of popularity on a broader social scale (i.e. school). Although a majority of Zhang Sah participants report that they do very well at their school work (see bar graph below), a smaller percentage agree that they are just as smart as others their age. For example, 64% of respondents felt they were just as smart as others their age in Fall 2012, which was the same percentage as Spring 2011 and slightly higher than Fall 2011. These figures are especially interesting given that Zhang Sah participants actually reported the highest grades of any PYSC organization partnered with SIRC.

## COMPETENCE

Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	28	203
Spring 2011	58	185
Fall 2011	31	145
Spring 2012	56	199
Fall 2012	39	266

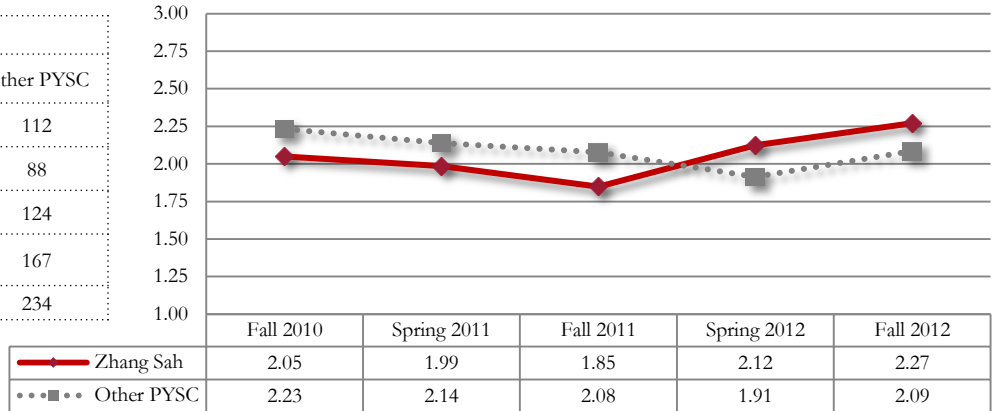


In Fall 2011, 77% of participants reported that they do very well at their class work, while 23% reported they do not. In Spring 2012, 82% of participants reported that they do very well at their class work, typifying a gradual and consistent trend evident in the first-order dimension of Competence as well.

# Competence

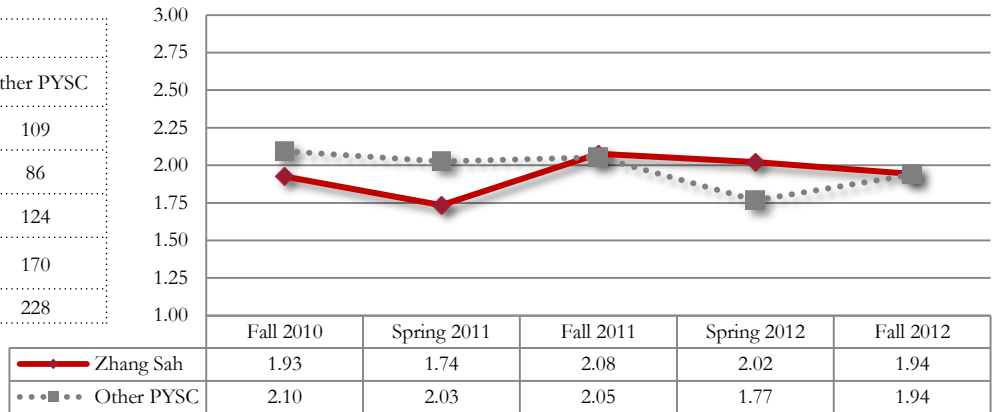
## Academic

Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	24	112
Spring 2011	44	88
Fall 2011	27	124
Spring 2012	53	167
Fall 2012	30	234



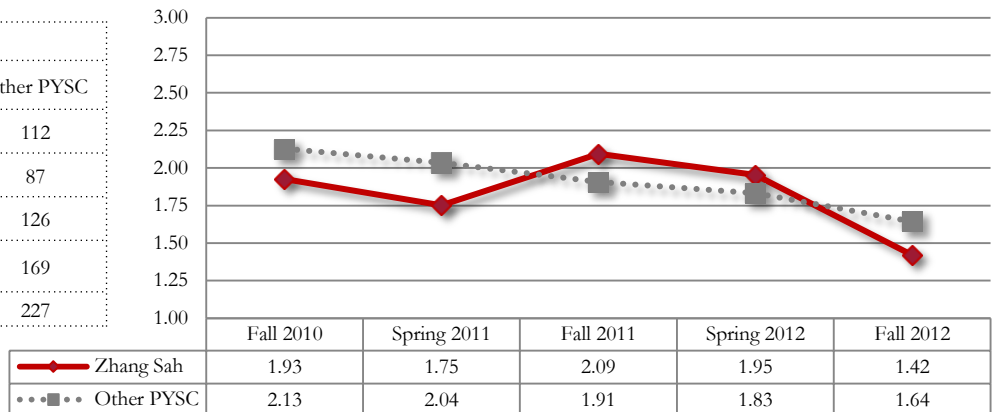
## Social

Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	23	109
Spring 2011	40	86
Fall 2011	25	124
Spring 2012	53	170
Fall 2012	29	228



## Physical

Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	25	112
Spring 2011	41	87
Fall 2011	26	126
Spring 2012	53	169
Fall 2012	34	227

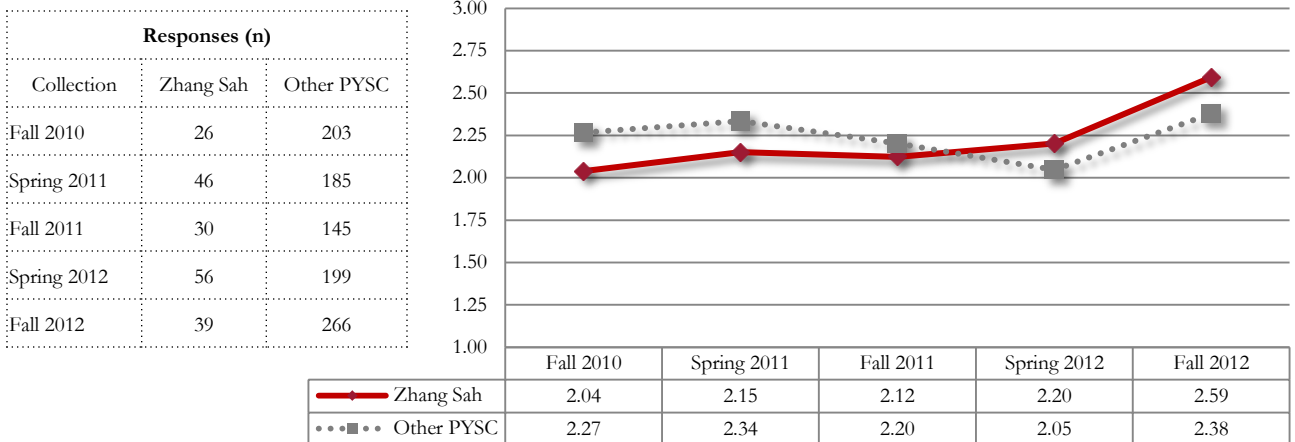




# Confidence

The Confidence dimension refers to one's internal sense of overall self-efficacy and importance. For this particular dimension, the focus is on one's global self-regard, rather than domain specific sentiments or beliefs. Answers are coded on a 4 point scale from 0-3, with 0 representing the weakest score and 3 representing the strongest score. Zhang Sah participants exhibited an overall increase in both sub-factor measures (Self-Worth and Positive Identity) and the first-order dimension of Confidence. The frequency table below highlights one question which characterizes this trend. In both years, there was over a 15% increase in the proportion of participants who 'Strongly Agreed' to the question which referenced one's personal contentment with their present disposition. This not only reflects an apparent increase in participant confidence, but also a growing conviction of one's positive self-worth. Recently, physical appearance has been proposed as a functional construct of confidence during middle adolescence. This sub-scale provides an appropriate measurement tool, especially in a youth sport context, and was added to the existing survey in 2012. The preliminary results are displayed on the next page.

## CONFIDENCE



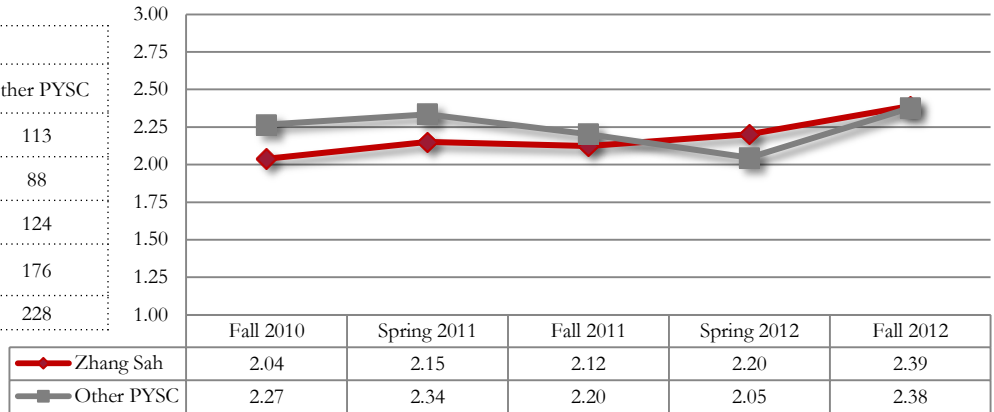
## How much do you agree or disagree with the following?

All in all, I'm glad I'm me. (n=206)						
(n)	COLLECTION	(0) Strongly Disagree	1	2	(3) Strongly Agree	Total
27	Fall 2010	17%	13%	17%	54%	100%
58	Spring 2011	7%	9%	7%	78%	100%
30	Fall 2011	7%	10%	10%	72%	100%
55	Spring 2012	4%	2%	6%	88%	100%
39	Fall 2012	2%	3%	14%	81%	100%

# Confidence

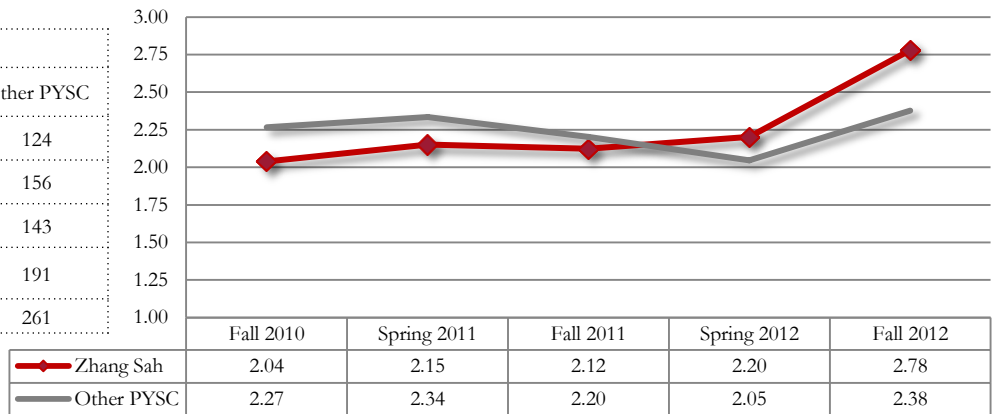
## Self-Worth

Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	24	113
Spring 2011	44	88
Fall 2011	27	124
Spring 2012	53	176
Fall 2012	30	228



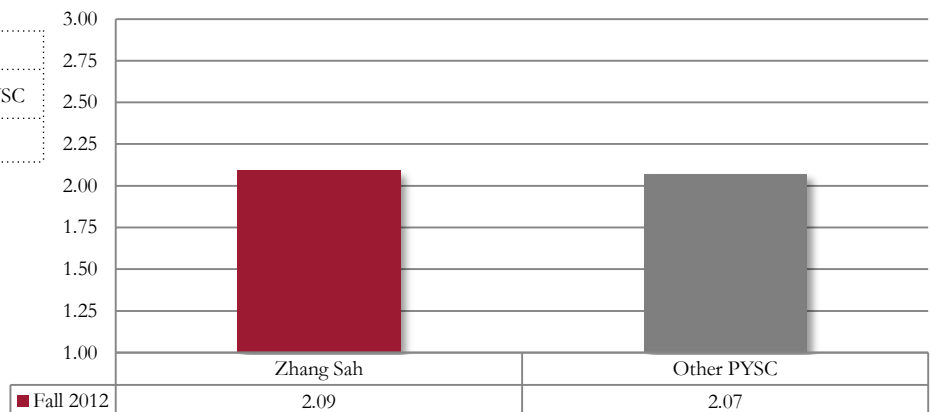
## Positive Identity

Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	23	124
Spring 2011	40	156
Fall 2011	25	143
Spring 2012	53	191
Fall 2012	29	261



## Physical Appearance

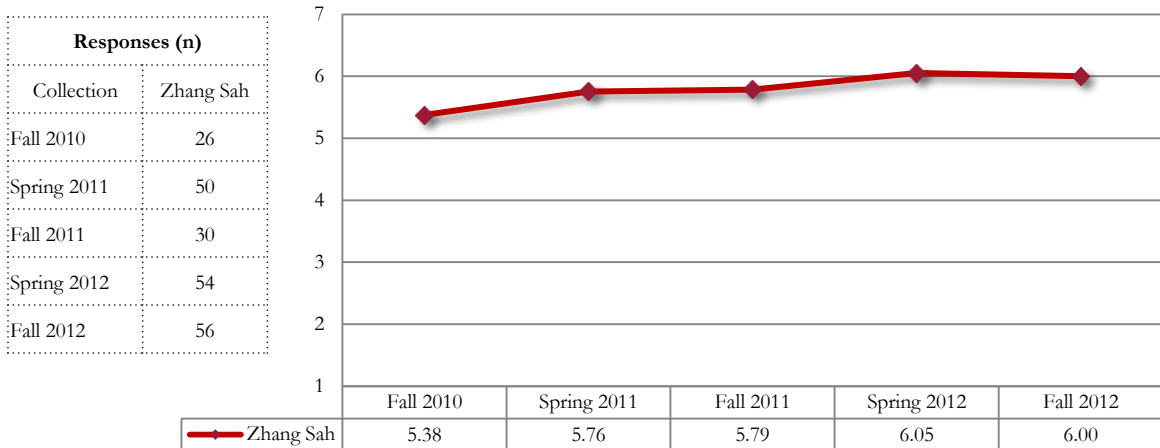
Responses (n)		
Collection	Zhang Sah	Other PYSC
Fall 2010	33	182



# Resiliency

The final dimension of Resiliency is a measure only included in Zhang Sah surveys. Answers are coded on a 7 point scale from 1-7, with 1 representing the weakest score and 7 representing the strongest score. As displayed graphically below, this construct has experienced consistent and gradual growth over the course of each collection period. As expected, notable increases came between the Fall and Spring each year, with the highest mean score occurring in Spring 2012. The frequency table below displays conditional distributions from one question related to Resiliency, which illustrates a common trend evident throughout the responses related to this construct. The proportion of Zhang Sah participants who ‘Strongly Agree’ that they learn from their mistakes is increasing, and in general the responses are being redistributed positively over time. This not only reflects an increase in the construct of Resiliency amongst respondents, but also demonstrates the certainty with which they associate this feeling with their personal conduct.

## RESILIENCY



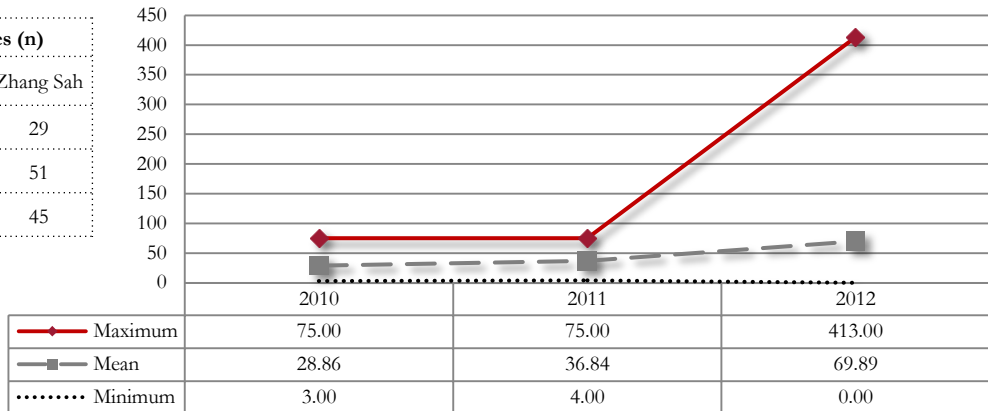
## How much do you agree or disagree with the following?

I learn from my mistakes. (n=214)									
(n)	COLLECTION	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree	Total
27	Fall 2010	16%	0%	0%	8%	8%	12%	56%	100%
58	Spring 2011	8%	2%	0%	10%	2%	22%	55%	100%
30	Fall 2011	7%	3%	3%	3%	10%	27%	47%	100%
55	Spring 2012	7%	0%	0%	2%	7%	24%	59%	100%
56	Fall 2012	7%	2%	0%	5%	7%	36%	43%	100%

# Fitness Results

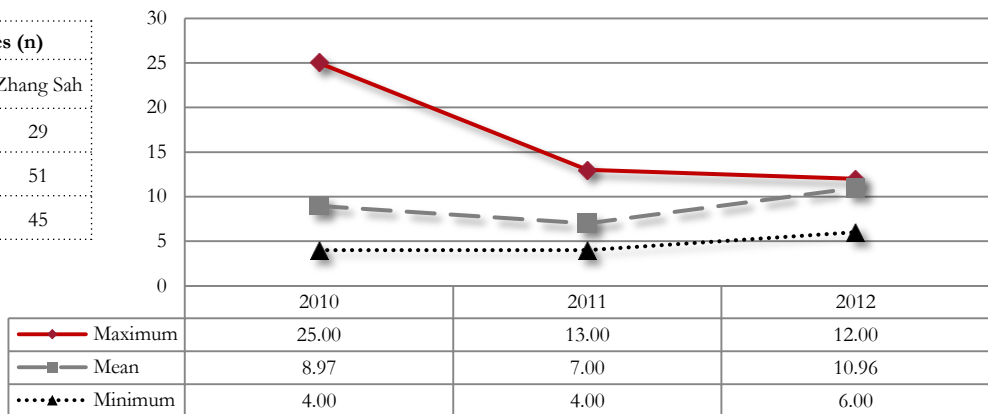
## Curl Ups

Responses (n)	
Collection	Zhang Sah
2010	29
2011	51
2012	45



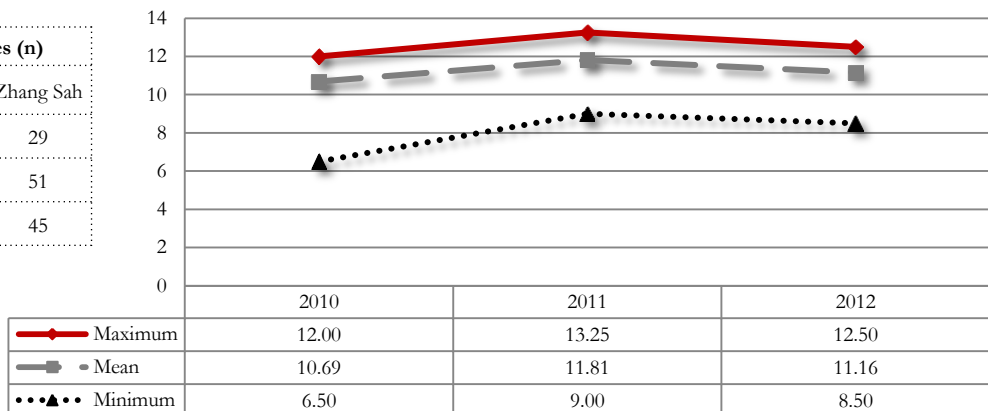
## Trunk Lifts

Responses (n)	
Collection	Zhang Sah
2010	29
2011	51
2012	45



## Back Saves

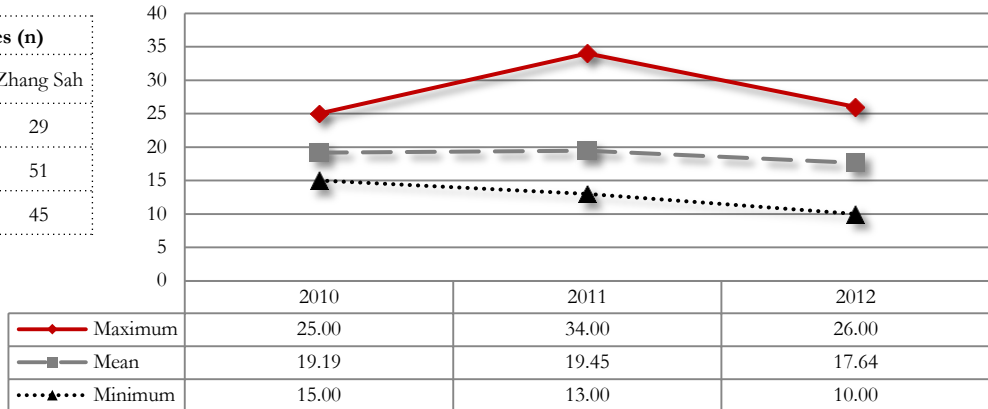
Responses (n)	
Collection	Zhang Sah
2010	29
2011	51
2012	45



# Fitness Results

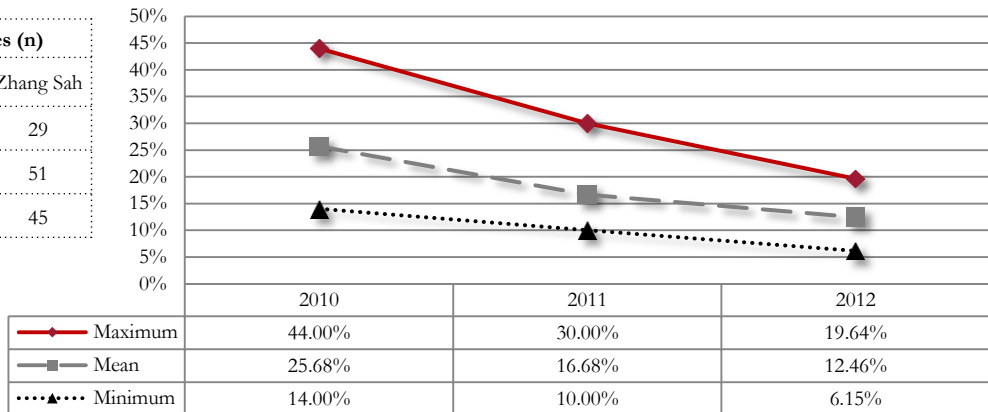
## BMI

Responses (n)	
Collection	Zhang Sah
2010	29
2011	51
2012	45



## Body Fat Percentage

Responses (n)	
Collection	Zhang Sah
2010	29
2011	51
2012	45



# Advanced Analysis

Analysis of the basic results revealed a consistent longitudinal trend of Fall to Spring increases in mean scores that could potentially be attributed to the participatory patterns of the Zhang Sah Martial Arts program (children typically join the program as cohorts each Fall rather than continuously throughout the year). In order to further examine this trend, two cohorts were identified to track the growth of individuals between these two periods. The Spring 2011 collection did not include birthdates, consequently the first Cohort included in this analysis consists of respondents from the Fall 2010 and Spring 2012 collections, who were identified and matched by birthdates. Cohort 1 comprises 16 Zhang Sah participants whose ages ranged from 9 to 15, with a mean of 12.55. The second Cohort consists of respondents from the Fall 2011 and Spring 2012 collections, and were also identified by birthdates. Cohort 2 comprises 19 Zhang Sah participants whose ages ranged from 9 to 15, with a mean of 12.5. A Paired Sample T-Test was used to track the strength and significance of attitudinal and behavioral changes of each cohort over the specified period of time. The following section graphically displays the mean scores for each period, and the change observed. Mean changes that had a P-value < .05 are identified by two asterisk (\*\*), and changes with a P-value < .10 are identified by one asterisk (\*).

## Paired Sample T-Test Summary

### Cohort 1 (Fall 2010-Spring 2012)

The first cohort reported increases in a majority of psychographic and behavioral constructs, with a number of first-order dimensions and second-order factors making notable gains. Zhang Sah participants exhibited increases in Character and Resiliency that were statistically significant with 95% confidence (P-value < .05), and within the Character dimension participants reflected particular growth in Social Conscience, Conduct Morality, and Personal Values (P-value < .10). Respondents also displayed increases in Confidence and Positive Youth Development (PYD) which were both statistically significant with 90% confidence (P-value < .10). Participants showed particular growth in their perceived Academic (P-value > .10) and Social (P-value > .05) capabilities, with mean increases of .39 and .50 respectively. Interestingly, Zhang Sah participants also displayed a noteworthy increase in Family Connection that was statistically significant with 95% confidence (P-value < .05).

### Cohort 2 (Fall 2011-Spring 2012)

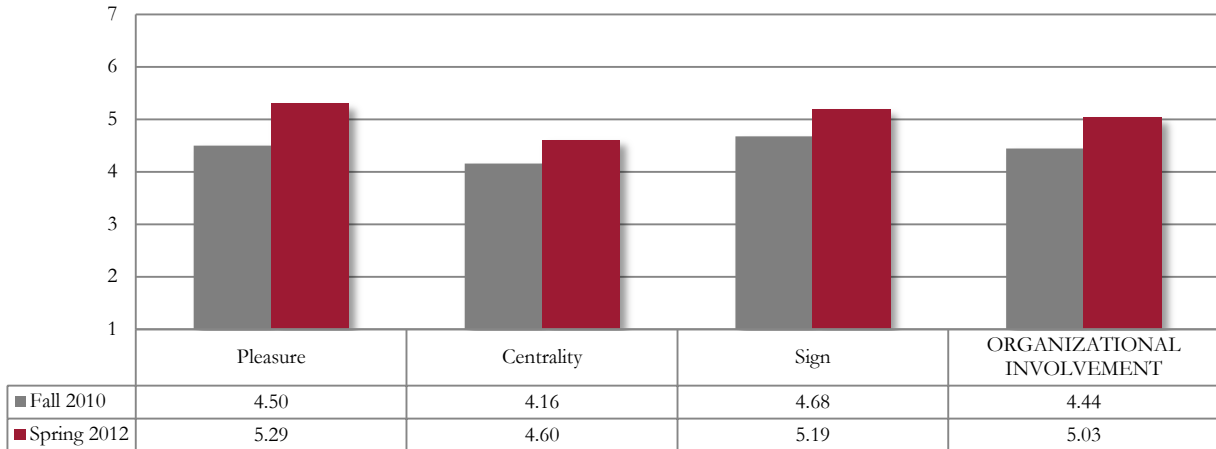
The second cohort also revealed increases in a majority of measures, yet the reported differences were not statistically significant for any of the first-order dimensions. This cohort consisted of the pre and post (Wave 3 & 4) survey data from the second year of assessment, with approximately six months separating the measures. This relatively short time lapse could explain why the attitudinal dimensions have not yet produced statistically significant gains, despite the growth of several second-order factors. Zhang Sah participants once again exhibited growth in Social Conscience and Values Diversity that was significant at 90% confidence (P-value < .10), and also reported a significant increase in their connection with school (P-value < .05).

*It is very important to note that this portion of the report is provided for format/content evaluation only. The data presented, and any conclusions that may be made therefrom are premature at this point. Until a sufficient level of data is gathered, in-depth analysis and interpretation is not possible.*

# Cohort 1

Fall 2010 – Spring 2012

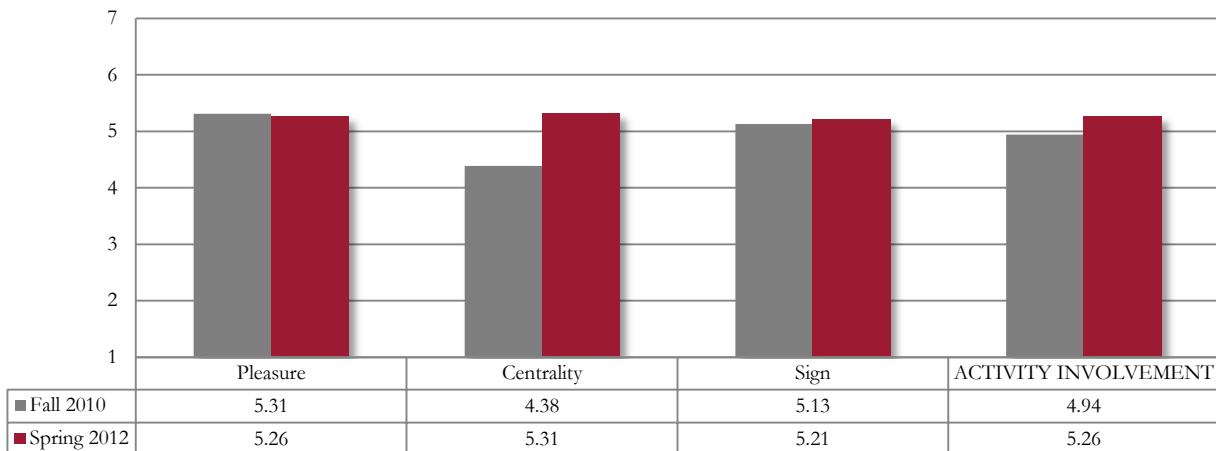
## Organizational Involvement



P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2010 – Spring 2012 Mean Difference
Pleasure	16	0.79
Centrality	16	0.45
Sign	16	0.51
Organizational Involvement	16	0.58

## Activity Involvement



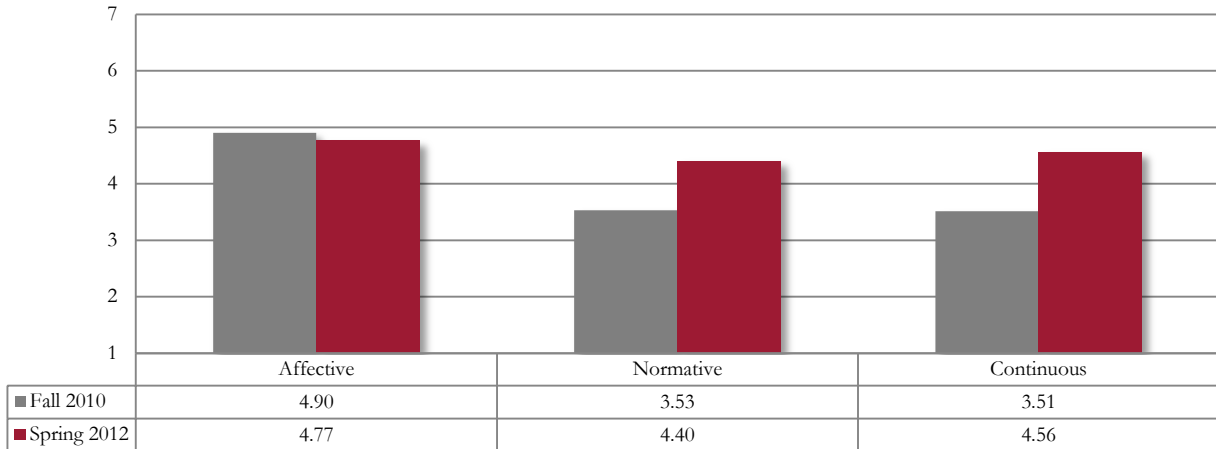
P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2010 – Spring 2012 Mean Difference
Pleasure	13	-0.05
Centrality	13	0.92
Sign	13	0.08
Activity Involvement	13	0.32

# Cohort 1

Fall 2010 – Spring 2012

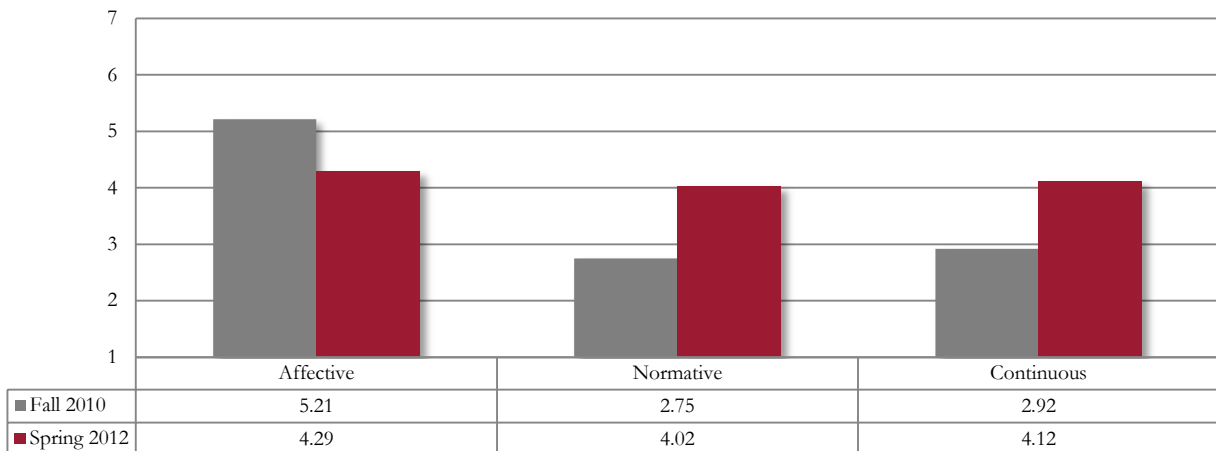
## Organizational Commitment



P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2010 – Spring 2012 Mean Difference
Affective	15	-0.13
Normative	15	0.87*
Continuous	15	1.04

## Activity Commitment



P-value < .05 = \*\*  
P-value < .10 = \*

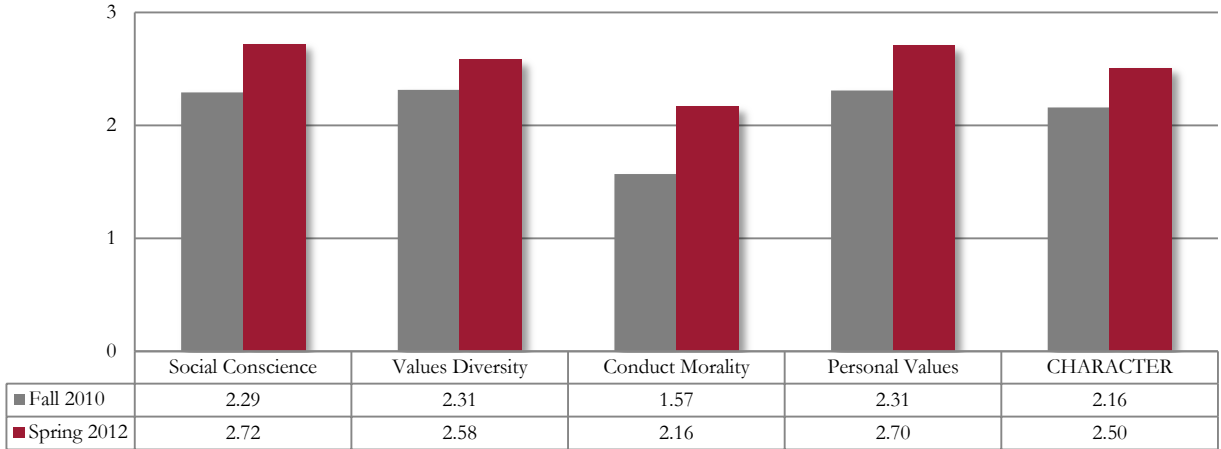
Dimension	(n)	Fall 2010 – Spring 2012 Mean Difference
Affective	15	-0.93
Normative	15	1.27
Continuous	15	1.20



# Cohort 1

Fall 2010 – Spring 2012

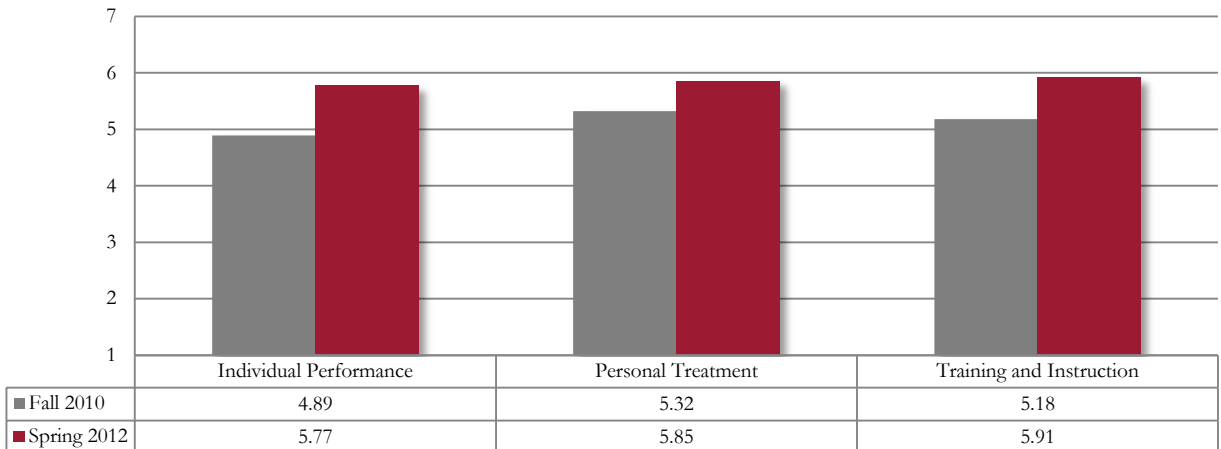
## Character



P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2010 – Spring 2012 Mean Difference
Social Conscience	16	0.43*
Values Diversity	16	0.27
Conduct Morality	11	0.60*
Personal Values	16	0.40*
CHARACTER	16	0.35**

## Satisfaction



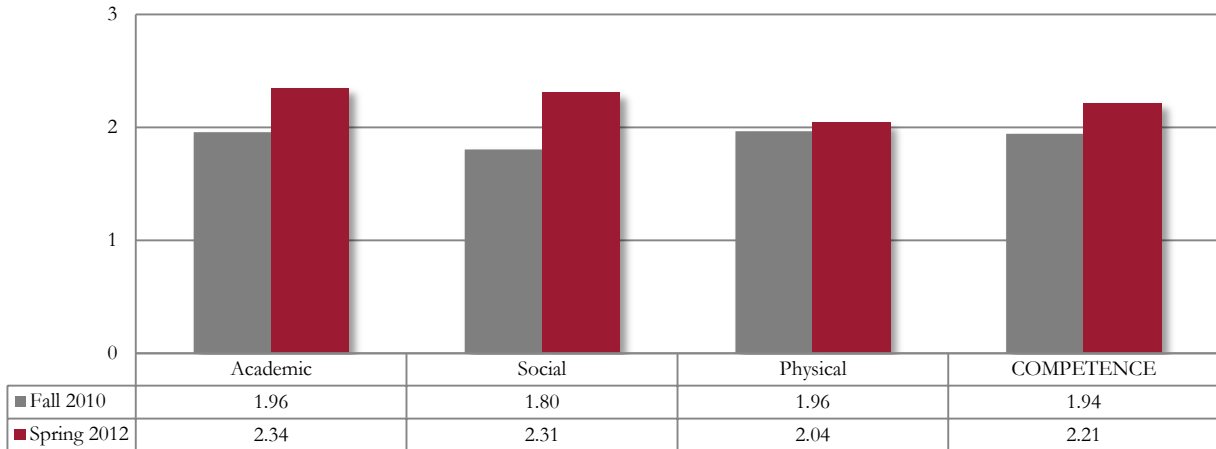
P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2010 – Spring 2012 Mean Difference
Individual Performance	15	0.88
Personal Treatment	15	0.53
Training and Instruction	15	0.73*

# Cohort 1

Fall 2010 – Spring 2012

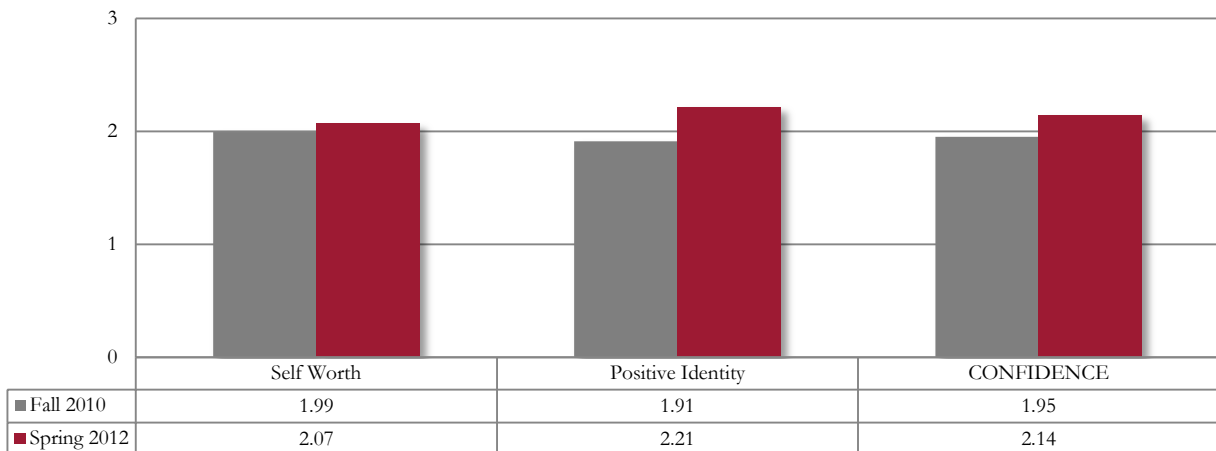
## Competence



P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2010 – Spring 2012 Mean Difference
Academic	14	0.39*
Social	13	0.50**
Physical	14	0.08
COMPETENCE	15	0.27*

## Confidence



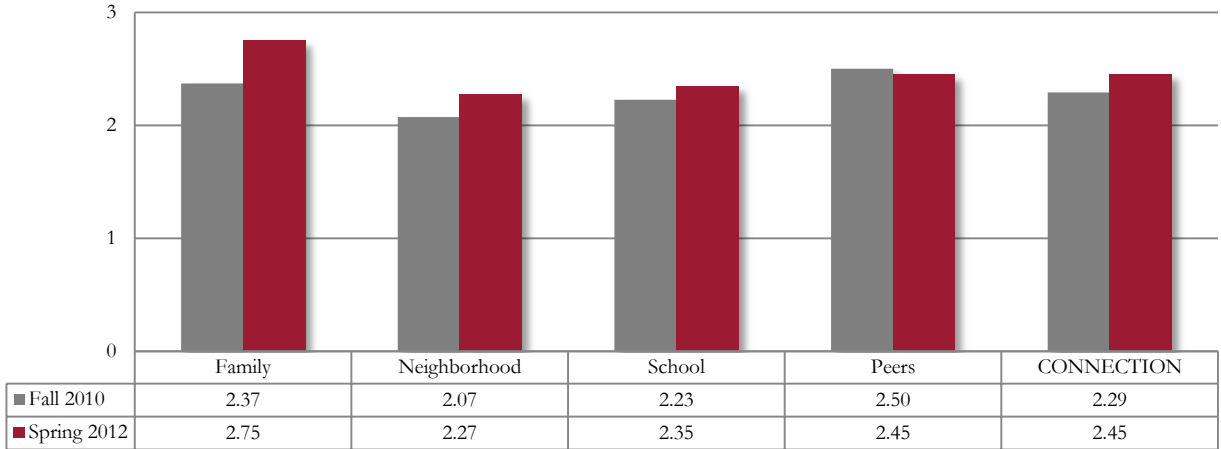
P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2010 – Spring 2012 Mean Difference
Self Worth	15	0.07
Positive Identity	15	0.30
CONFIDENCE	15	0.19

# Cohort 1

Fall 2010 – Spring 2012

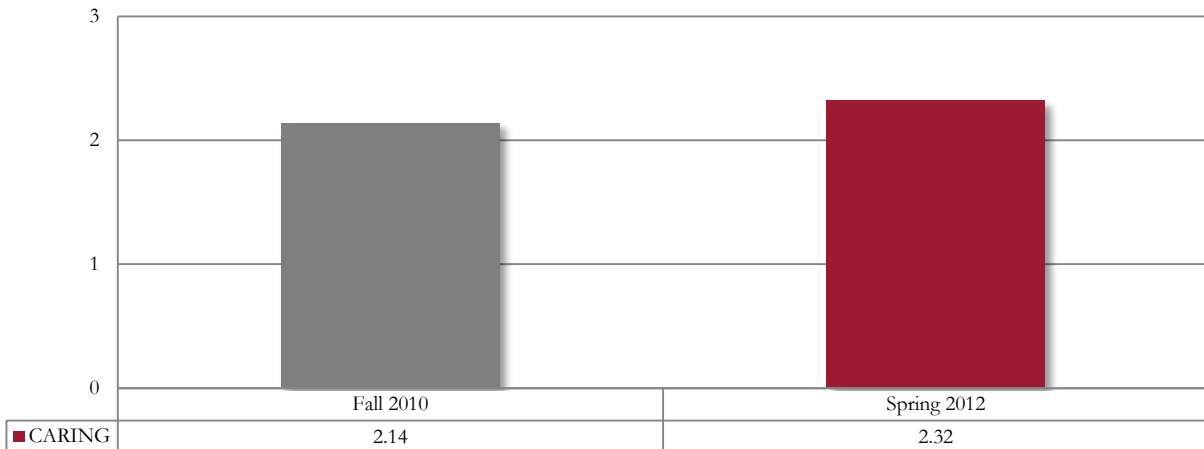
## Connection



P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2010 – Spring 2012 Mean Difference
Family	14	0.38**
Neighborhood	14	0.20
School	14	0.12
Peers	14	-0.05
CONNECTION	14	0.16

## Caring



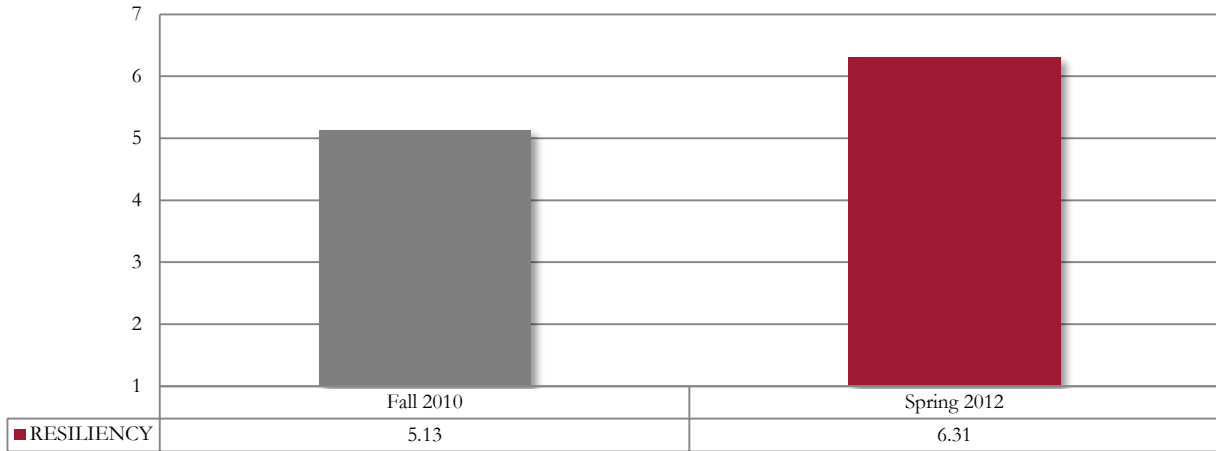
P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2010 – Spring 2012 Mean Difference
CARING	16	0.18

# Cohort 1

Fall 2010 – Spring 2012

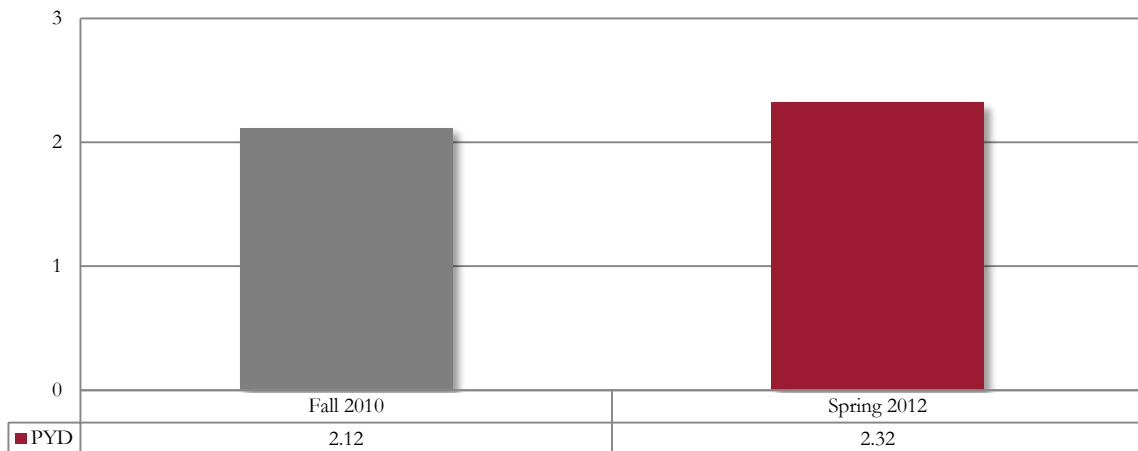
## Resiliency



P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2010 – Spring 2012 Mean Difference
RESILIENCY	14	1.18**

## Positive Youth Development (PYD)



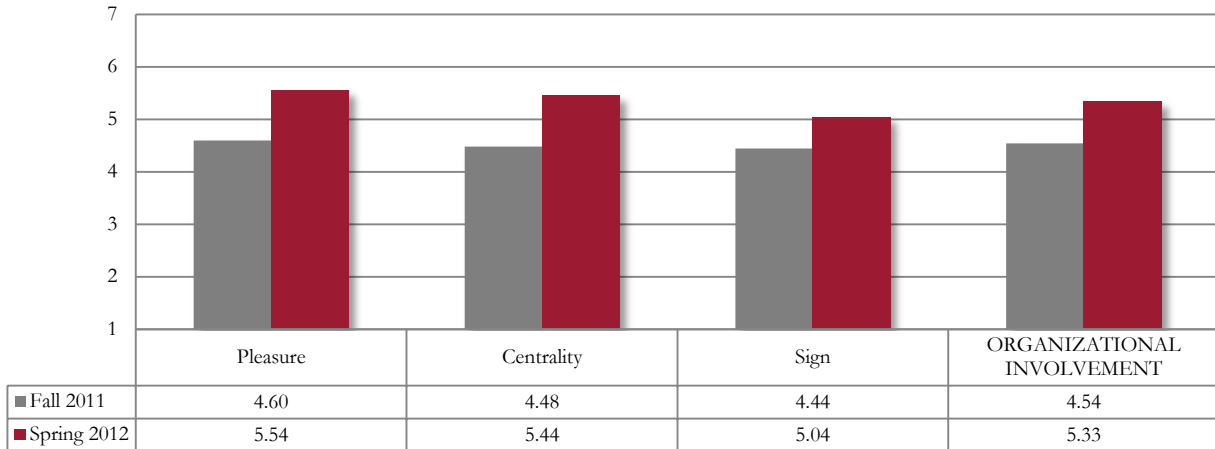
P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2010 – Spring 2012 Mean Difference
PYD	16	0.20*

# Cohort 2

Fall 2011 – Spring 2012

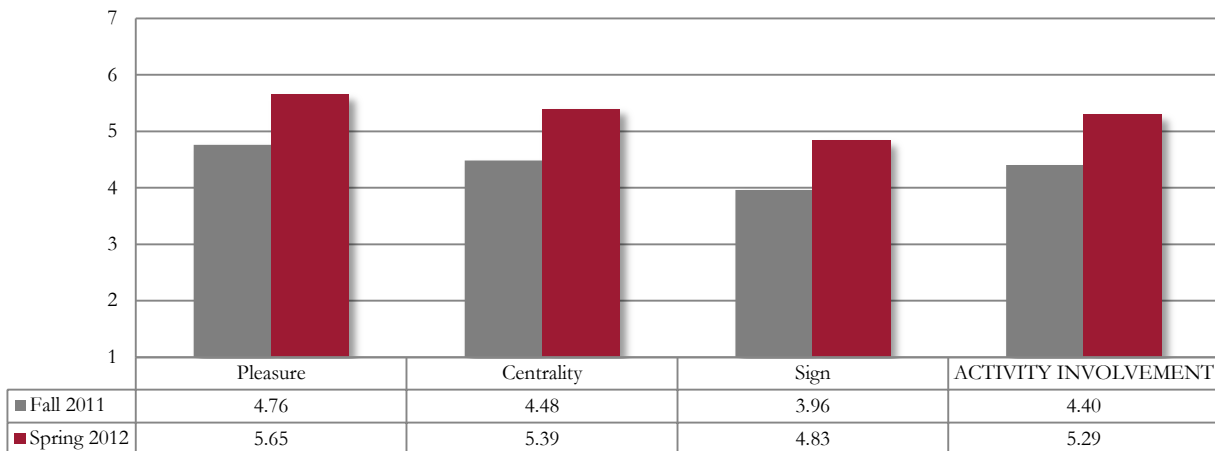
## Organizational Involvement



P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2011 – Spring 2012 Mean Difference
Pleasure	19	0.95*
Centrality	18	0.96*
Sign	18	0.59
Organizational Involvement	19	0.80**

## Activity Involvement



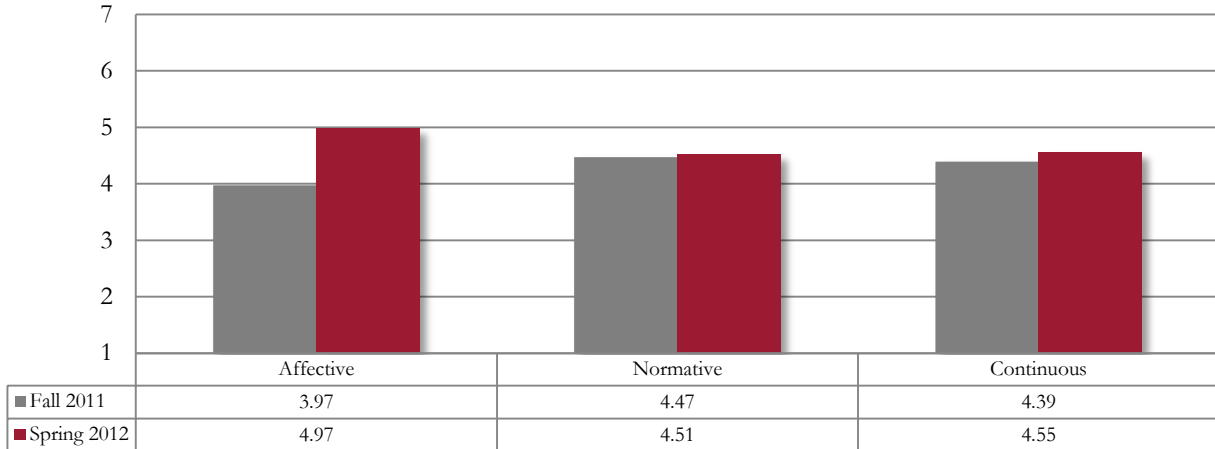
P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2011 – Spring 2012 Mean Difference
Pleasure	18	0.89
Centrality	18	0.91
Sign	18	0.87
Organizational Involvement	18	0.89

# Cohort 2

Fall 2011 – Spring 2012

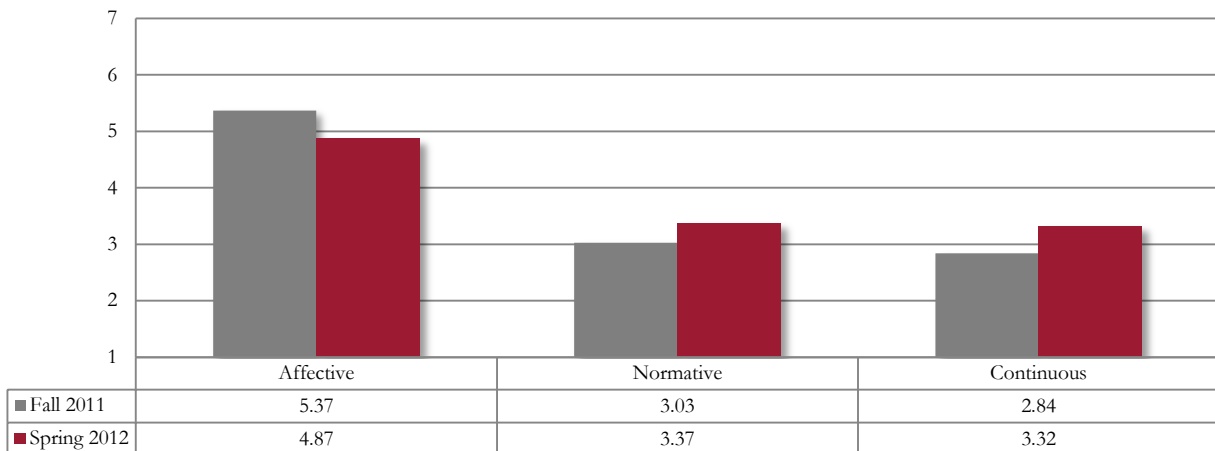
## Organizational Commitment



P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2011 – Spring 2012 Mean Difference
Affective	18	1.00*
Normative	17	0.04
Continuous	17	0.16

## Activity Commitment



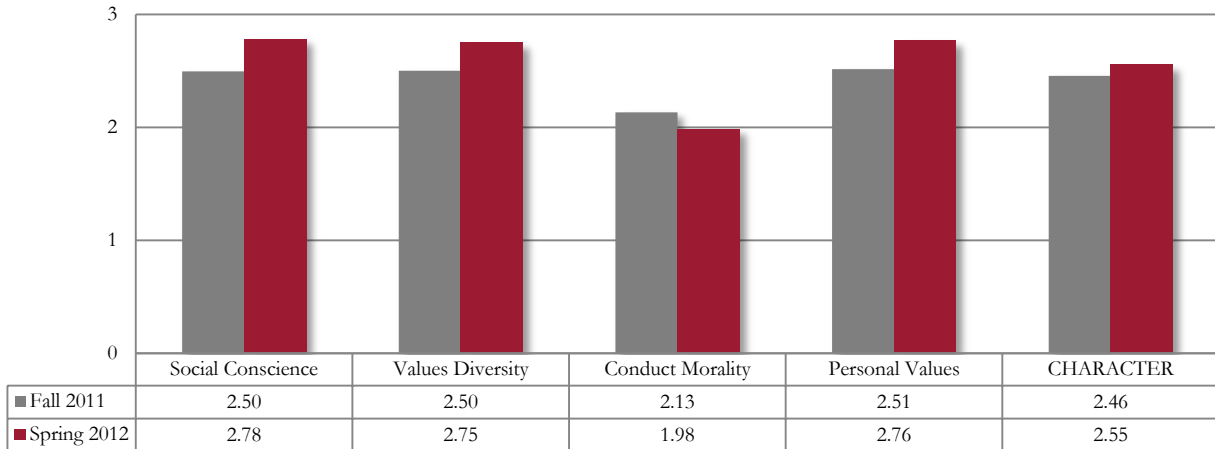
P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2011 – Spring 2012 Mean Difference
Affective	19	-0.50
Normative	19	0.34
Continuous	19	0.47

# Cohort 2

Fall 2011 – Spring 2012

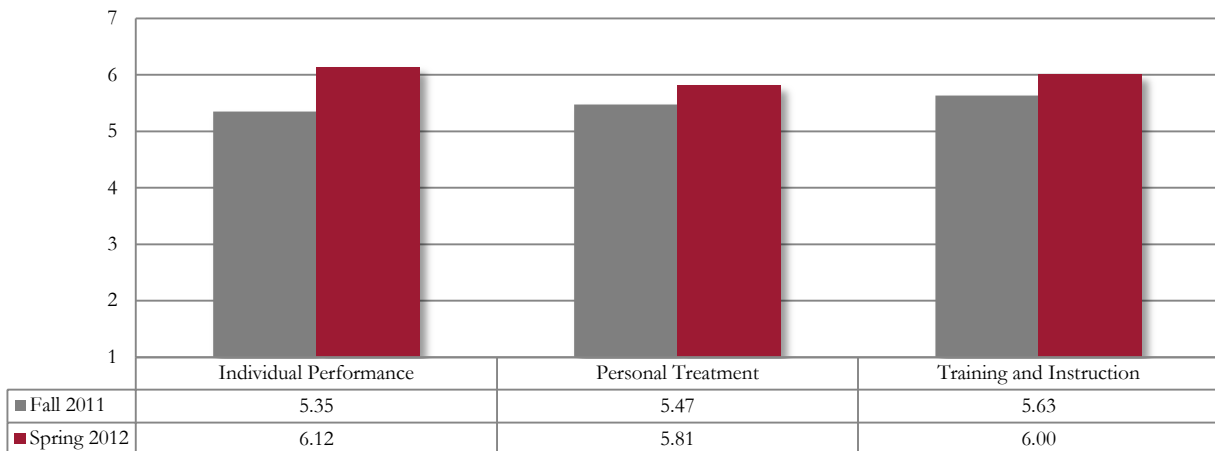
## Character



P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2011 – Spring 2012 Mean Difference
Social Conscience	18	0.28*
Values Diversity	19	0.25*
Conduct Morality	11	0.65
Personal Values	18	0.25
CHARACTER	19	0.10

## Satisfaction



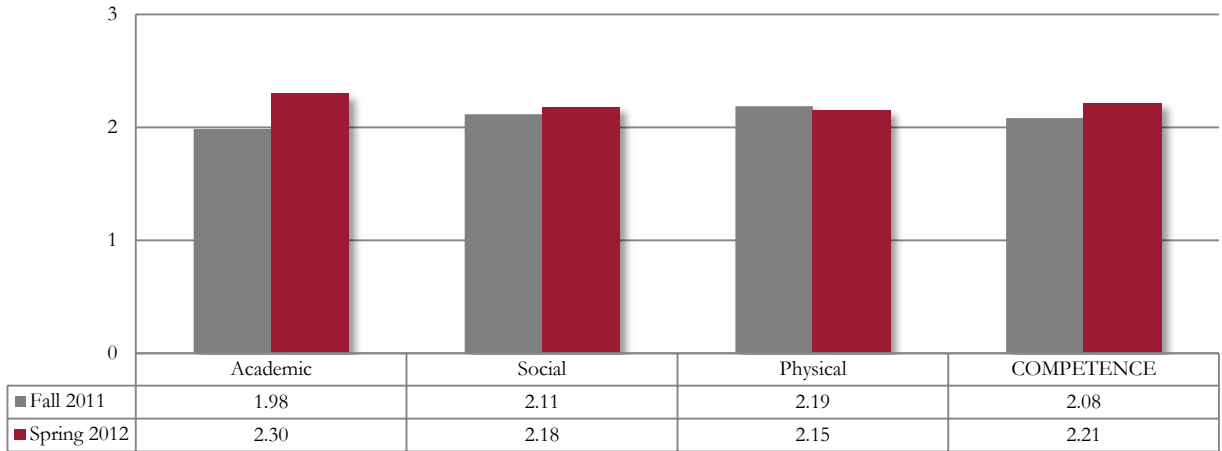
P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2011 – Spring 2012 Mean Difference
Individual Performance	19	0.77
Personal Treatment	19	0.33
Training and Instruction	19	0.37

# Cohort 2

Fall 2011 – Spring 2012

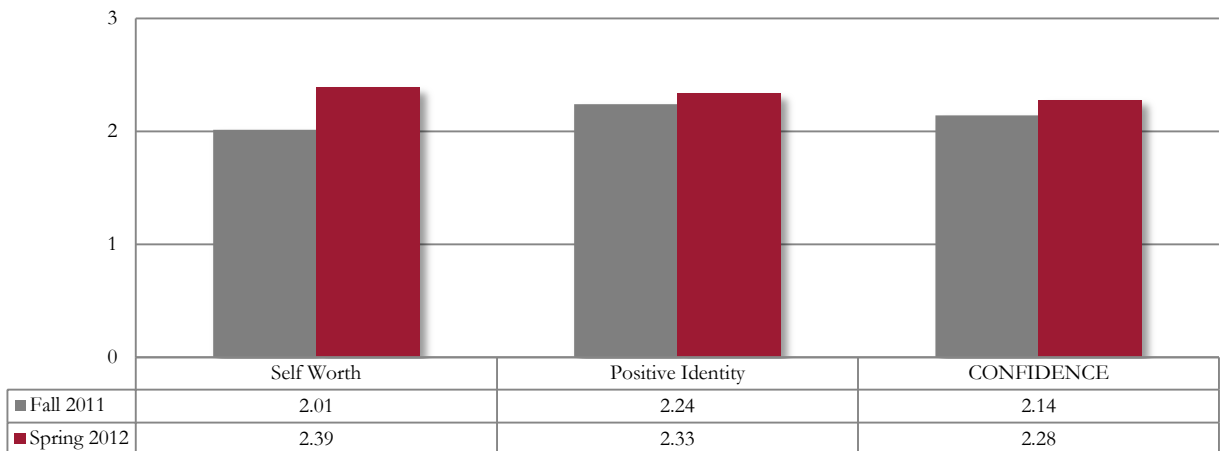
## Competence



P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2011 – Spring 2012 Mean Difference
Academic	16	0.31
Social	14	0.06
Physical	15	-0.04
COMPETENCE	16	0.13

## Confidence



P-value < .05 = \*\*  
P-value < .10 = \*

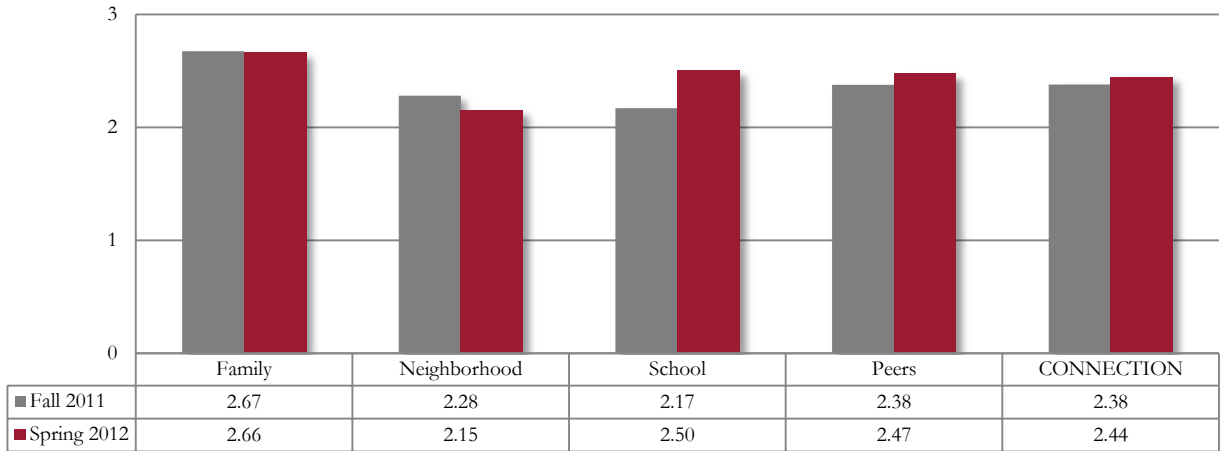
Dimension	(n)	Fall 2011 – Spring 2012 Mean Difference
Self Worth	15	0.37
Positive Identity	18	0.09
CONFIDENCE	19	0.14



# Cohort 2

Fall 2011 – Spring 2012

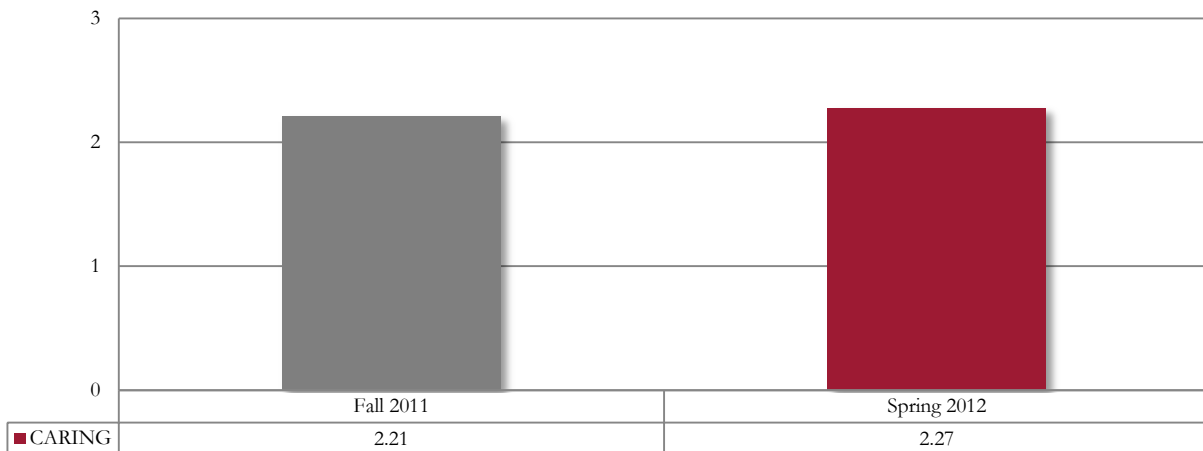
## Connection



P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2011 – Spring 2012 Mean Difference
Family	19	-0.01
Neighborhood	19	-0.13
School	19	0.33**
Peers	18	0.10
CONNECTION	19	0.06

## Caring



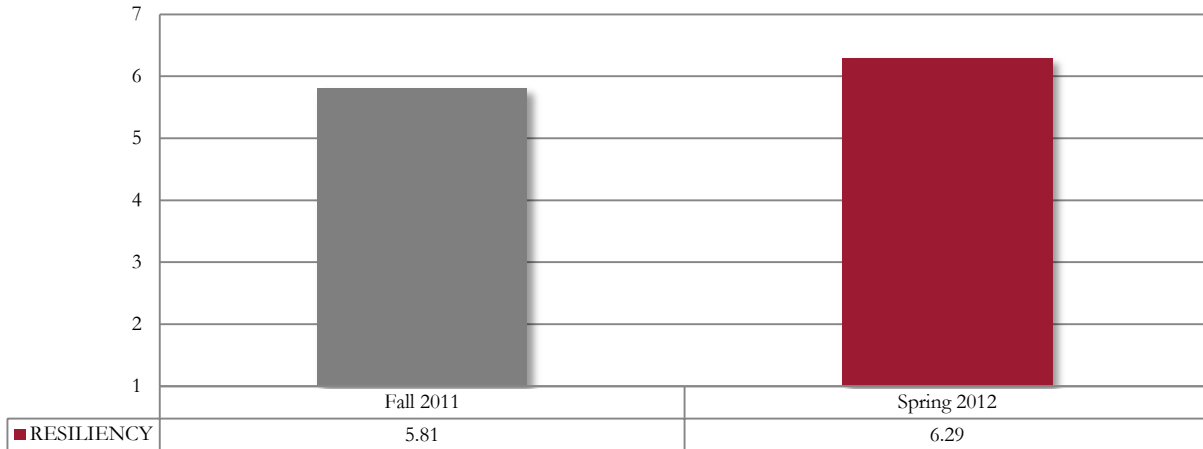
P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2010 – Spring 2012 Mean Difference
CARING	19	0.06

# Cohort 2

Fall 2011 – Spring 2012

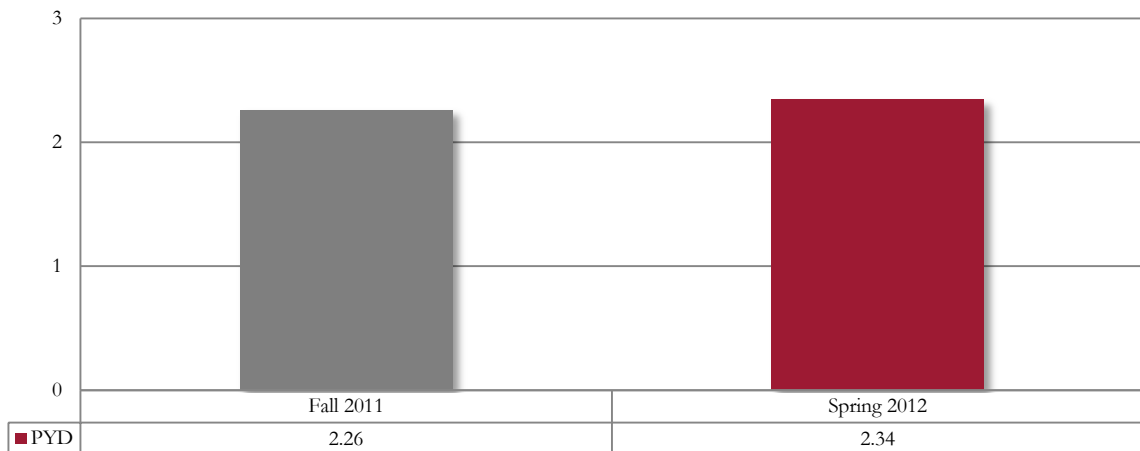
## Resiliency



P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2011 – Spring 2012 Mean Difference
RESILIENCY	19	0.49

## Positive Youth Development (PYD)



P-value < .05 = \*\*  
P-value < .10 = \*

Dimension	(n)	Fall 2011 – Spring 2012 Mean Difference
PYD	19	.08

# Advanced Analysis

In order to assess the impact of several moderating factors on the psychological and attitudinal growth of Zhang Sah participants, an Ordinary Least Squares (OLS) Linear Regression was performed utilizing the complete data set (n=231). The purpose of this analysis was to determine the direction and strength of the relationship between potential moderating factors and behavioral outcomes (i.e. Character, Connection, etc.). Involvement and Resiliency were identified and analyzed as moderating factors on the both 5 C's (Competence, Confidence, Character, Caring and Connection) as individual constructs and Positive Youth Development (PYD) overall. Relationships with a Pearson Correlation greater than +/- .4 were identified as strong relationships, and included graphically in the following section.

## OLS Regression Summary

### Activity Involvement as a Moderating Factor

When regressed with the behavioral outcome measures used in this assessment, activity involvement yielded strong positive (Pearson between .40 - .49) correlations with the Character, Connection and Positive Youth Development (PYD) dimensions. The Psychological Continuum Model (PCM) framework adapted for this study suggests that continuous participation and engagement explains how personal, psychological and environmental determinants increase the level of psychological connection with an activity. This stage-based developmental framework of recreational involvement suggests that as psychological involvement with the activity of martial arts increases, the level of behavioral engagement will theoretically increase. This strong relationship between Zhang Sah participant involvement with the activity of martial arts and key outcomes further suggests a positive relationship between activity involvement and several attitudinal measures.

### Organizational Involvement as a Moderating Factor

Organizational involvement measures the same second-order factors (Pleasure, Centrality and Sign) as activity involvement but focuses instead on the specific program. The theoretical premise of the PCM model outlined above applies to this construct as well. Organizational involvement exhibited strong positive (Pearson between .40-.49) correlations with the Connection and Positive Youth Development dimensions. A particularly strong relationship existed with school connectedness, an interesting observation considering school is the most structured second-order factor of the dimension.

### Resiliency as a Moderating Factor

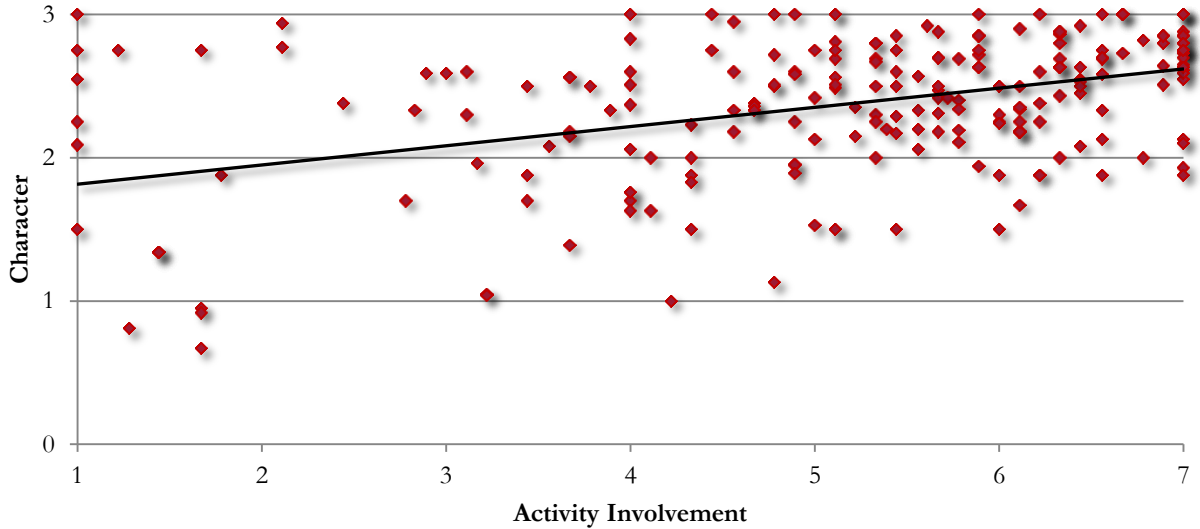
Resiliency proved to be the strongest of the three moderating factors measured in this analysis. Strong positive relationships were evident with Connection, Caring, Character and Confidence as individual constructs, with Connection and Character exhibiting particularly strong positive associations (Pearson Correlation > .550). Most notably, Resiliency correlated strongly with Positive Youth Development (Pearson > .650), indicating a very strong positive relationship between the two variables.

*It is very important to note that this portion of the report is provided for format/content evaluation only. The data presented, and any conclusions that may be made therefrom are premature at this point. Until a sufficient level of data is gathered, in-depth analysis and interpretation is not possible.*

# Activity Involvement

## Character

Pearson Correlation - .426



Pearson Correlation for Subscales:

Social Conscience - .349

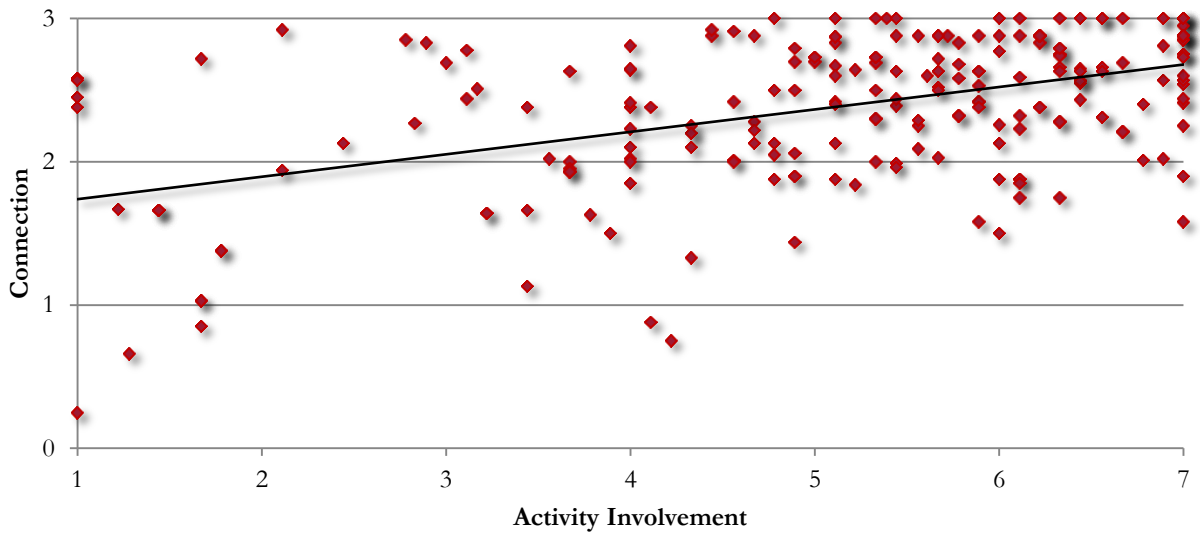
Values Diversity - .451

Conduct Morality - .122

Personal Values - .312

## Connection

Pearson Correlation - .479



Pearson Correlation for Subscales:

Family - .362

Neighborhood - .323

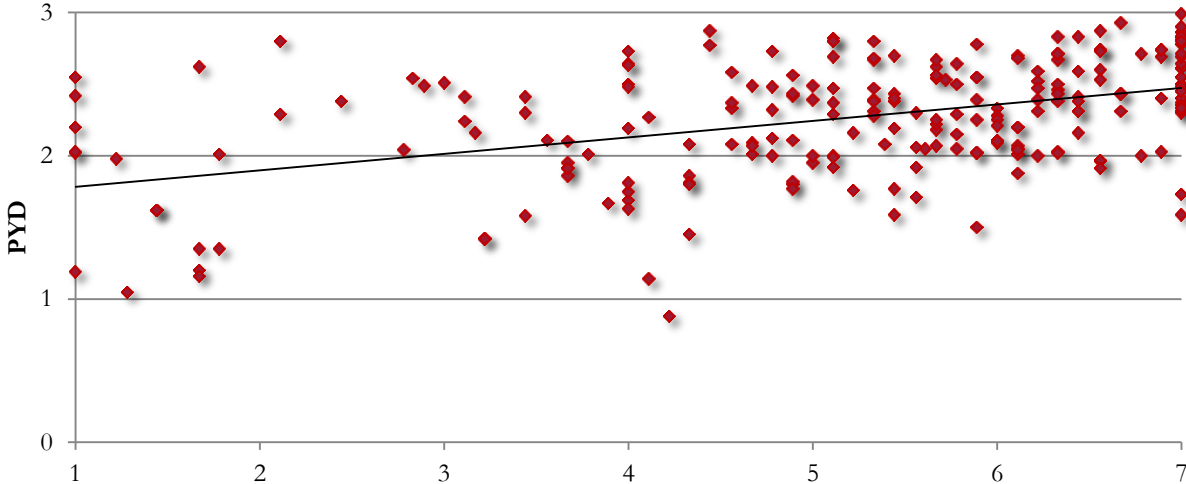
School - .471

Peers - .294

# Activity Involvement

## Positive Youth Development

Pearson Correlation - .448



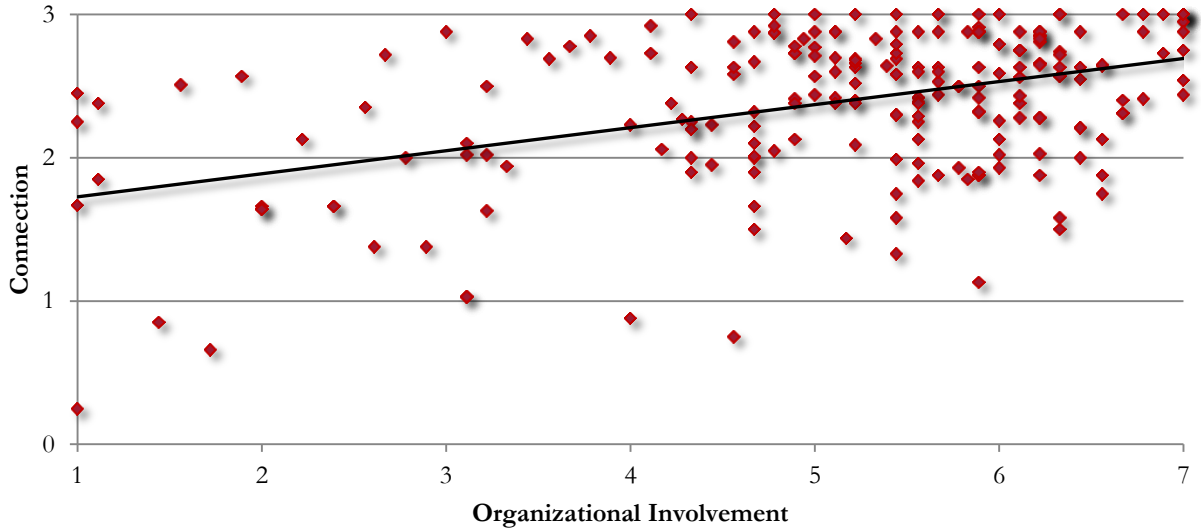
Activity Involvement

Pearson Correlation for Subscales:  
N/A

# Organizational Involvement

## Connection

Pearson Correlation - .438

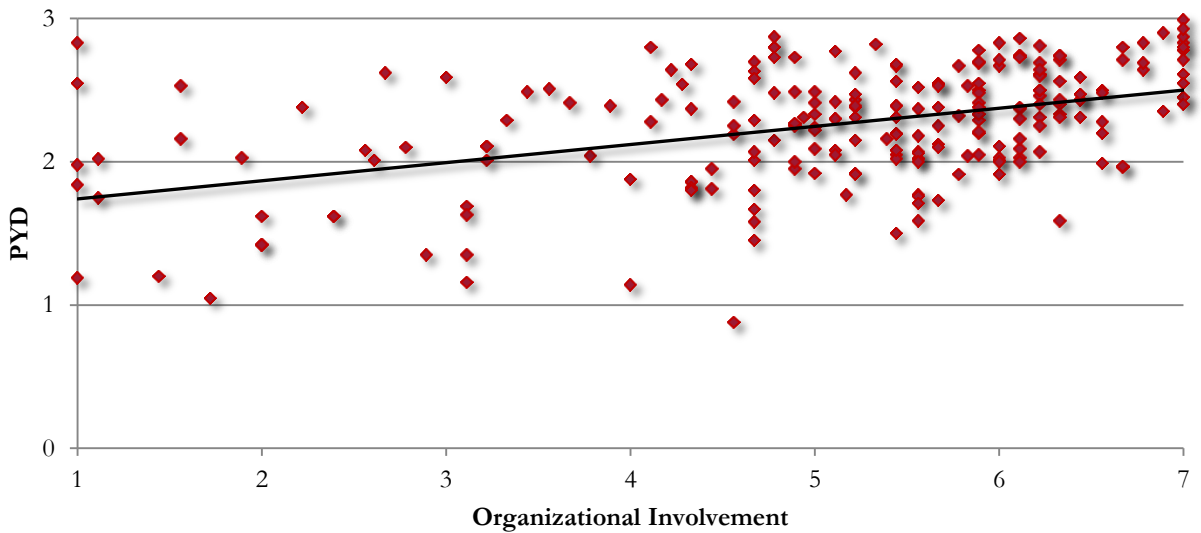


Pearson Correlation for Subscales:

- Family - .362
- Neighborhood - .293
- School - .426
- Peers - .250

## Positive Youth Development (PYD)

Pearson Correlation - .452



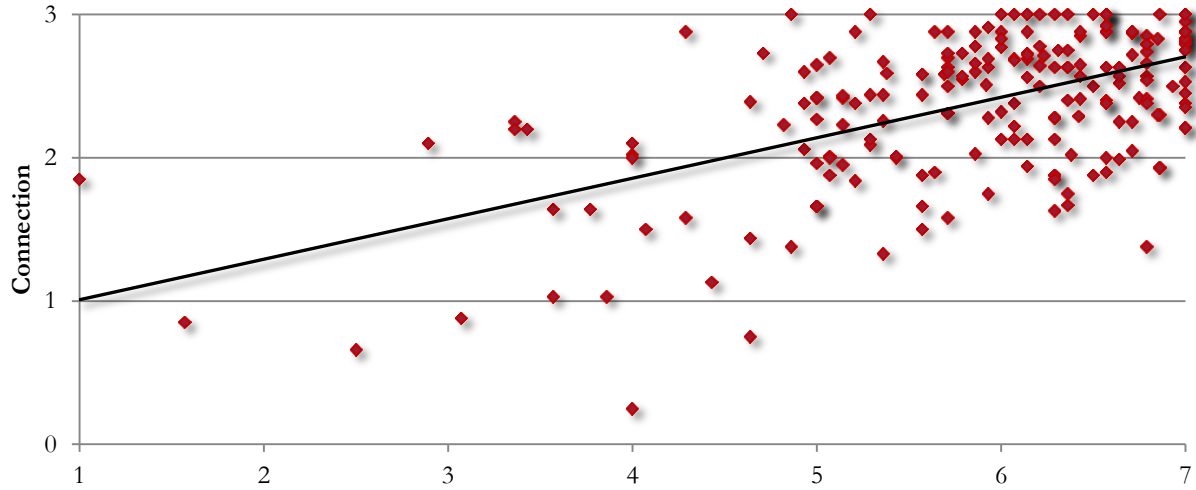
Pearson Correlation for Subscales:

N/A

# Resiliency

## Connection

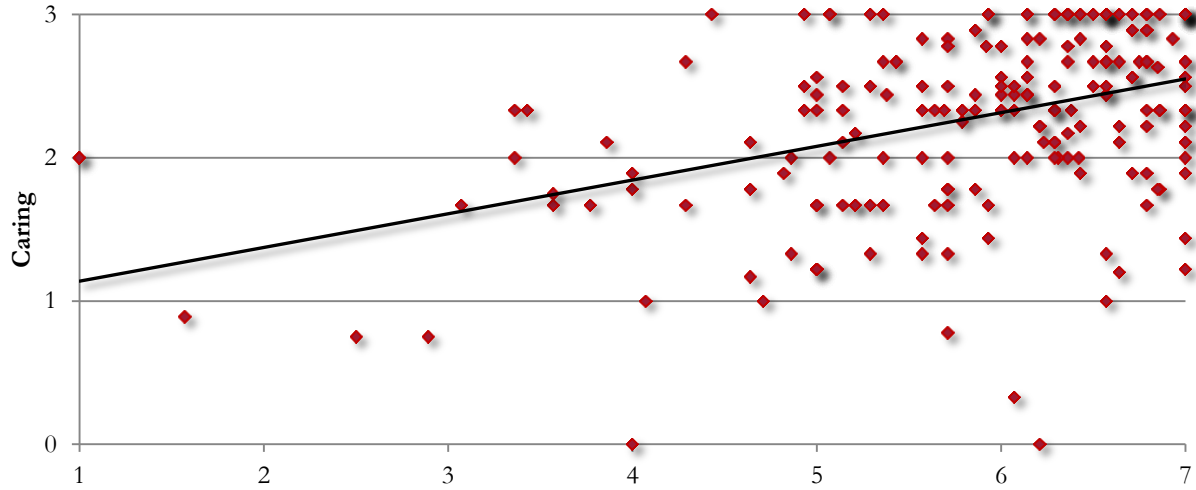
Pearson Correlation - .564



Pearson Correlation for Subscales:  
Family - .492  
Neighborhood - .343  
School - .379  
Peers - .481

## Caring

Pearson Correlation - .412

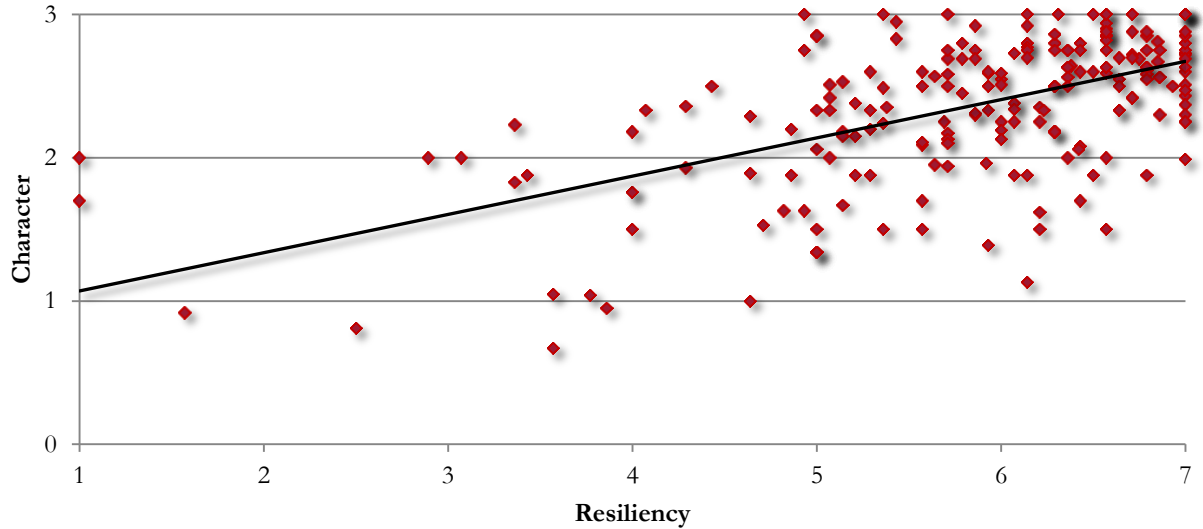


Pearson Correlation for Subscales:  
N/A

# Resiliency

## Character

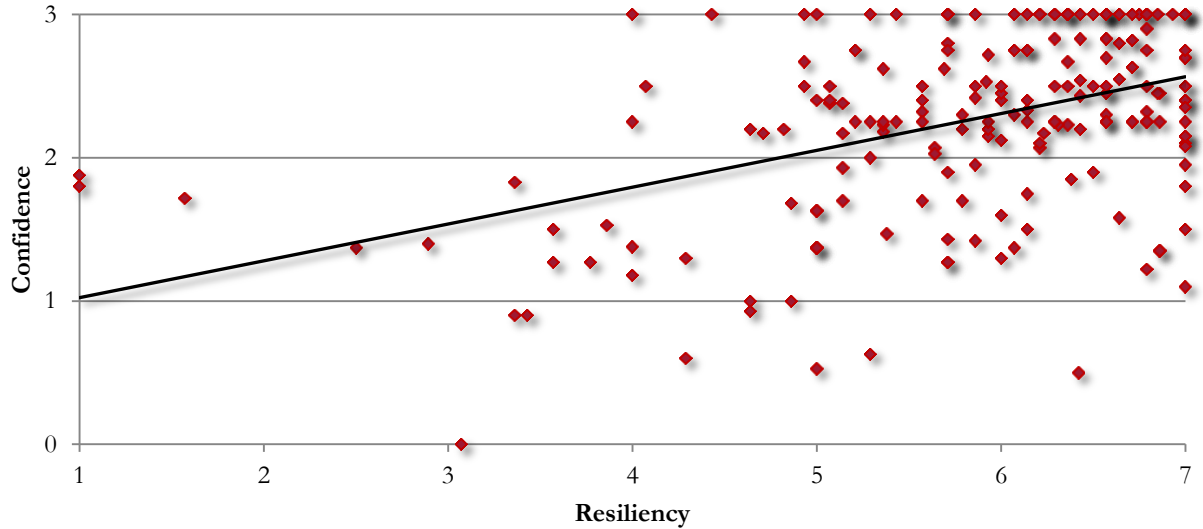
Pearson Correlation - .580



**Pearson Correlation for Subscales:**  
Social Conscience - .467  
Values Diversity - .525  
Conduct Morality - .271  
Personal Values - .480

## Confidence

Pearson Correlation - .448



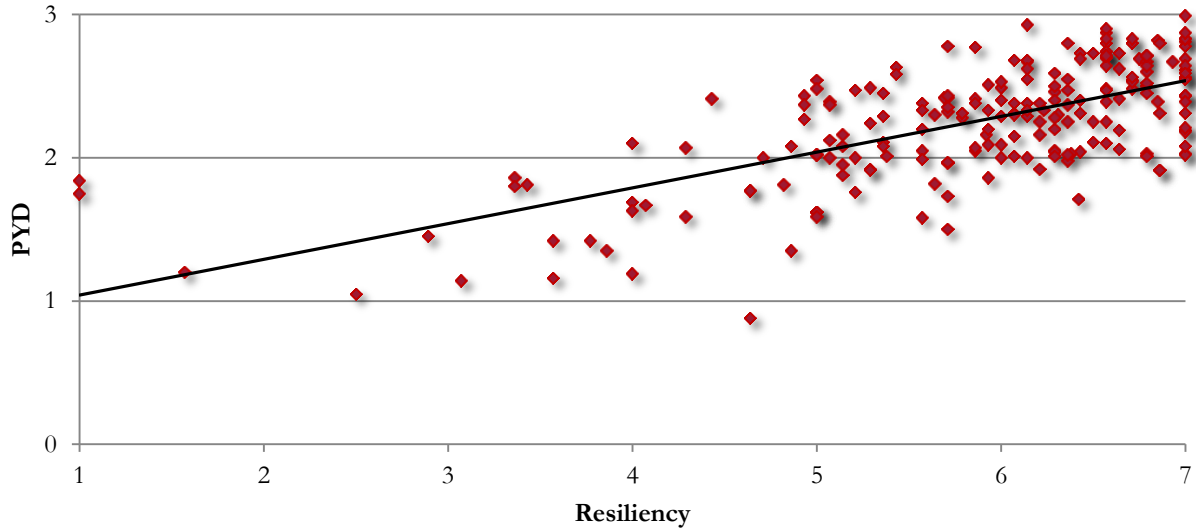
**Pearson Correlation for Subscales:**  
Self-Worth - .350  
Positive Identity - .461



# Resiliency

## Positive Youth Development

Pearson Correlation - .669



Pearson Correlation for Subscales:  
N/A

# Advanced Analysis

Three participants completed the survey at each collection period and were subsequently tracked by birthdate. Demographic and fitness data was available for two of these three respondents. The respondents have been identified as Participant A, Participant B, and Participant C respectively. The basic demographic information for each participant is listed below, and their individual results on the fitness and social/behavioral assessment are provided on the following pages.

*It is very important to note that this portion of the report is provided for format/content evaluation only. The data presented, and any conclusions that may be made therefrom are premature at this point. Until a sufficient level of data is gathered, in-depth analysis and interpretation is not possible.*

Demographics			
	Gender	Race	Current Age
Participant A	Male	Black/Hispanic	13
Participant B	Male	Black/Hispanic	12
Participant C			12

## Fitness Results

Curl Ups			
	2010	2011	2012
Participant A		75	51
Participant B		31	18
Participant C			

Trunk Lifts			
	2010	2011	2012
Participant A		7	12
Participant B		7	10
Participant C			

Back Saves			
	2010	2011	2012
Participant A		11.5	9
Participant B		12	12
Participant C			

BMI			
	2010	2011	2012
Participant A		18	16
Participant B		19	16
Participant C			

Body Fat Percentage			
	2010	2011	2012
Participant A		16	6.88
Participant B		16	6.15
Participant C			

# Involvement

## Pleasure

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	1		1.33	1	1
Participant B	2		5	5.33	5
Participant C	6.33		7	6.67	1

## Centrality

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	1		1	2.33	1
Participant B	2		6.33	4.67	5
Participant C	6.5		7	5.67	1

## Sign

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	1		1	2.33	1
Participant B	2		5	4	3.67
Participant C	4.67		7	6.33	1

## Organizational Involvement

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	1		1.11	1.89	1
Participant B	2		5.44	4.67	4.56
Participant C	5.83		7	6.22	1

## Pleasure

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A			1	1	1.67
Participant B	3.33		5.67	2.67	4.67
Participant C	6.67		7	6.33	7

## Centrality

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A			1	1	1
Participant B	3.33		6	5.33	5
Participant C	5		7	5.33	7

## Sign

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A			1	1	1
Participant B	3		6	2.33	3
Participant C	5.5		7	5.67	7

## Activity Involvement

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A			1	1	1.22
Participant B	3.22		5.89	3.44	4.22
Participant C	5.72		7	5.78	7

# Satisfaction

## Individual Performance

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	1		1	7	5
Participant B	3		4.67	5.33	3.33
Participant C	7		7	7	7

## Ability Utilization

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	1		1	7	
Participant B	4		5.25	4.75	
Participant C	7		7	7	

## Training and Instruction

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	1		1	5.67	3.33
Participant B	3		4.33	4.67	4.33
Participant C	7		7	7	7

## Personal Treatment

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	1		1	5	2.6
Participant B	3.4		4.6	4.2	4
Participant C	7		7	7	7

# Commitment

## Organizational Commitment - Affective

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	7		7	7	
Participant B	7		3	5	
Participant C	6.5		4.5	5.5	

## Activity Commitment - Affective

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A			7	7	6.5
Participant B	7		2	2.5	3.5
Participant C	2		7	5	7

## Organizational Commitment - Normative

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	1		1	2.67	
Participant B	2.67		3.67	4.33	
Participant C	4		4.33	5.67	

## Activity Commitment - Normative

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A			1	1	1.33
Participant B	1		5.67	6.33	5
Participant C	5.5		1.67	7	2

## Organizational Commitment - Continuous

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	1		1	6	
Participant B	1		5.33	3.67	
Participant C	5.33		6.33	5.67	

## Activity Commitment - Continuous

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A			1	1	1.33
Participant B	1.67		5.67	4.67	5
Participant C	4.67		2	7	1.67

# Character

## Social Conscience

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	2		3	3	3
Participant B	0.5		1.83	1.17	0.5
Participant C	2.33		3	3	2.5

## Values Diversity

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	2		2.25	3	2.5
Participant B	0.75		2	2	1.5
Participant C	3		3	2.75	3

## Conduct Morality

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A				1.2	2.5
Participant B	1.25			1.4	1.5
Participant C	1.6		2.2	2	3

## Personal Values

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	2		3	3	3
Participant B	1.67		2	2.25	0.5
Participant C	2.75		3	3	3

## CHARACTER

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	2		2.75	2.55	2.75
Participant B	1.04		1.94	1.7	1
Participant C	2.42		2.8	2.69	2.88

# Connection

Family						Neighborhood					
	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012		Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A			3	2.4	2.5	Participant A			3	2.8	1
Participant B	1		1.83	2	1	Participant B	1.8		1	0.8	0.5
Participant C	2.83		2.5	3	2	Participant C	3		3	3	1

School						Peers					
	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012		Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A			0.5	2.33	1.5	Participant A			3	2.75	
Participant B	1.5		1.5	1.83	0.5	Participant B	2.25		2	2	1
Participant C	2.67		2.5	2.33	3	Participant C	3		3	3	3

CONNECTION					
	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A			2.38	2.57	1.67
Participant B	1.64		1.58	1.66	0.75
Participant C	2.88		2.75	2.83	2.25

# Competence

Academic						Social					
	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012		Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	1.6			1.6	1.5	Participant A				1.2	0
Participant B	1.4		1.2	1	1	Participant B	0.8			2.2	0
Participant C	1.5		3	2.4	3	Participant C	2.2		3	3	3

Physical						COMPETENCE					
	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012		Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	1.4			1.6	1	Participant A	1.5			1.47	0.83
Participant B	2.2		1.2	1	0.5	Participant B	1.47		1.2	1.4	0.5
Participant C	2.8		3	2.8	3	Participant C	2.17		3	2.73	3

# Caring

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	2		1.44	2.33	2.17
Participant B	1.67		1.33	1.44	1.17
Participant C	2.56		3	3	3

# Confidence

Self Worth					Positive Identity						
	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012		Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	1.75			0.6	2	Participant A	2		1.5	1.83	3
Participant B	1.2		1.2	1.4	1	Participant B	1.33		1.67	2	1
Participant C	2.6		2.2	2.4	3	Participant C	2.67		2.5	1.5	3

CONFIDENCE					
	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	1.88		1.5	1.22	2.5
Participant B	1.27		1.43	1.7	1
Participant C	2.63		2.35	1.95	3

# Resiliency

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	1		7	6.79	6.36
Participant B	3.77		5.71	5.57	4.64
Participant C	6.71		7	7	6.71

# Positive Youth Development (PYD)

	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Participant A	1.84		2.02	2.03	1.98
Participant B	1.42		1.5	1.58	0.88
Participant C	2.53		2.78	2.64	2.83

# Appendix

## **An Assessment Culture**

The inner-city environment is such that negative influences are prevalent, and often lend themselves to higher rates of youth crime rates and increased numbers of high school drop-outs (U.S. Conference of Mayors, 2009). America's Promise Alliance (2009) recently released graduation rates from the 50 largest cities in the U.S. In their report, *Cities in Crisis 2009*, they found that roughly half (53%) of all young people in the nation's 50 largest cities are graduating from high school on time (62.1% in Philadelphia for the 2005 class). This represents a considerable distance from the national graduation rate of 71%.

In the face of this, many organizations in Philadelphia (and elsewhere) are taking on the mission of providing additional mentoring for young people. In assessing the efficacy of such programs however, the terminology of outcome is often confused with that of output. In short, inputs represent total dollars spent on certain programs, while outputs represent the mere existence and delivery of such programs, as expressed in easily gathered data such as participation rates and expense amounts. Outcomes, in contrast, represent the actual timely and enduring change that occurs within the participants of the program, as a result of participation in the program. It seems that a fundamental perception problem exists within the non-profit framework, in that many organizations view evaluation as an unnecessary burden that takes resources away from the participants they serve, or fail to see assessment as a strategic resource acquisition tool (Urban Institute, 2009).

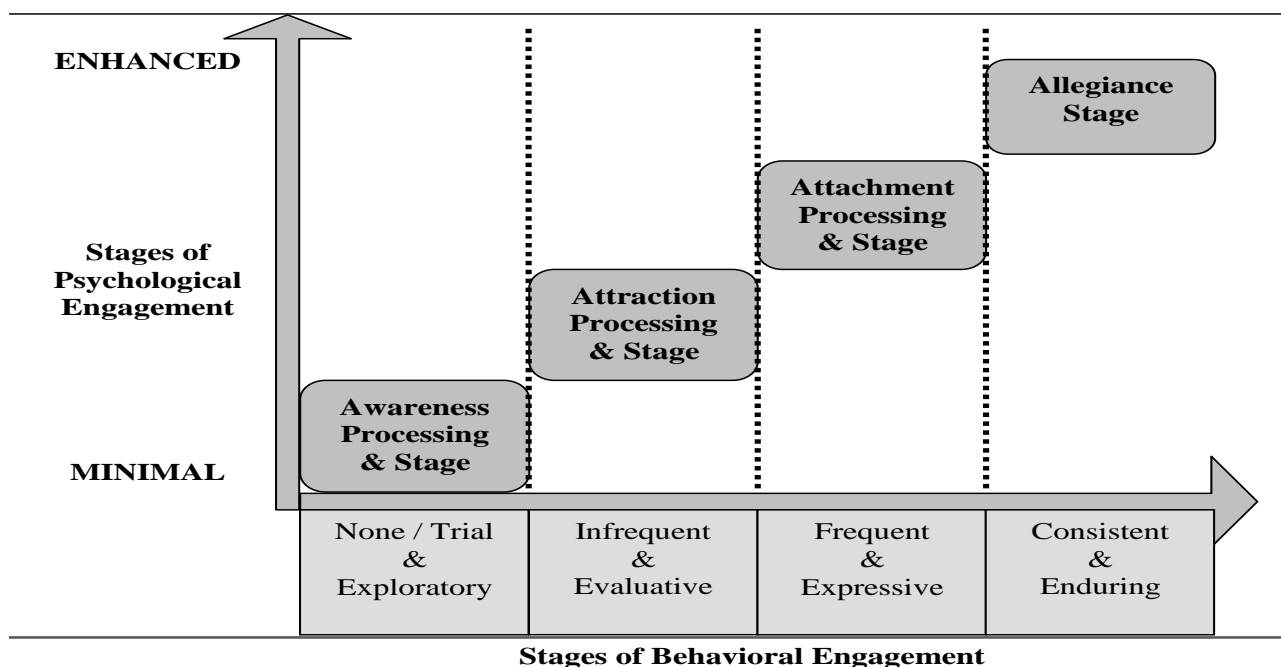
## **Theoretical Basis of Research (Change Model)**

Research indicates more than half of the world's population does not engage in sufficient physical activity to benefit their health. Reducing the amount of people in this category by just one percent could save millions of lives and billions of dollars (WHO, 2006). Governments throughout the world are investing significantly in the promotion of healthy lifestyles. However, public interventions designed to combat these trends have produced mixed results due in large part because physical activity is a complex human behavior and theory-driven research applied to natural populations remains inadequate to provide guidance. When developing strategies to increase levels of physical activity, recreation in the form of physically active leisure is considered to play an important role (WHO, 2006). Unfortunately, such strategies fail to target other aspects of daily life including vocational, educational, political, theological, and familial that increase the social value and importance of recreational involvement. The efficacy of programs designed to increase and sustain active lifestyles may well rest upon their ability to promote social engagement helping individuals build social connections through recreational involvement.

The capacity to understand and increase participation is not only important for the recreation industry delivering these opportunities, but extends to community organizations charged with protecting the public interest. Strategies to promote active lifestyles are often used to assist special populations as engaging in regular physical activity helps prevent illnesses and promotes mental health and well-being.

The Psychological Continuum Model (PCM) provides a sound framework to examine the development and continuance of participation in physically active leisure to inform the practice of sport and recreation managers and public policymakers. The PCM provides a stage-based developmental framework of recreational involvement. Engagement in recreational activities progresses along four general hierarchical stages: Awareness (I know about martial arts), Attraction (I like martial arts), Attachment (I am a martial artist), or Allegiance (I live to do martial arts). The framework suggests participating and engaging continuously through social and individual processes explains how personal, psychological and environmental determinants increase the level of psychological connection with an activity.

**Table 1**



Psychological engagement progresses from “minimal” to “enhanced” while behavioral engagement progresses from simple to complex. Psychological engagement represents the degree of attitude formation that occurs as a person becomes more involved with the activity. As psychological engagement increases, the level of behavioral engagement will theoretically increase to create movement through linear trajectory of the PCM. Hence, the complexity of behavioral engagement will increase positively as individuals move towards the highest level of the PCM. Unfortunately, human behavior and participation in particular does not adhere to a simple linear progression as perceived and actual barriers may constrain the level of behavioral engagement. Therefore, individuals must utilize negotiation strategies and resources to overcome constraints. Failure to negotiate constraints may prevent individuals from progressing through the different stages of the PCM. Importantly, the PCM also offers the ability to gauge and track engagement with multiple entities (e.g., both “martial arts” generally, and the Zhang Sah Martial Arts program specifically).



## Research on Youth Development

In the 1950's, U.S. Federal funding programs were initiated to address concerns regarding troubled youth. From this period in U.S. history evolved a prevention approach to problem behaviors amongst youth. It wasn't until the 1990's that researchers developed a broader focus in regard to youth development. This period of time was a major turning point for considering the promotion and development of positive behaviors, rather than only viewing individuals from a deficit point of view of needing to correct adverse behaviors. This outlook has become a mainstream approach known as Positive Youth Development (PYD), which focuses on the talents, strengths, and potential of youth. There is also evidence suggesting that increased positive youth development outcomes are like to prevent negative behaviors in youth as well.

There is a generally accepted conclusion that participation in community youth organizations has been found to relate to a variety of positive outcome. When discussing youth development programs that are also related to sport, it has been found that positive developmental outcomes are clearly experienced by the participants, and that specifically areas of Psychological/Emotional Development, Social Development, and Intellectual Development can result from involvement in youth sports programs.

New PYD vocabulary since the early nineties has led to more relevant discussions regarding youth development. After much analysis, there is a general consensus that it would be desirable for future studies to utilize what are known as the Five C's of PYD to best understand that outcomes of community-based programs. These latent constructs are referred to as: Competence, Confidence, Connection, Compassion, and Character.

Clichés such as 'Sport Builds Character' are commonly used in reference to sports as an important tool to develop positive values in youth. Sport has a unique potential to be an important medium for character development due to natural occurring teachable moments that exist in this context. However, most emphasize the necessity of appropriate programmatic design in order for sport context to have its greatest influence on character. In general, participation in sport-related programs has been found to play an important role in the development of character and other targeted outcomes. However, this has primarily been done from the perspective of participating versus not participating, or more participation verses less participation. Measuring participant levels of involvement give the opportunity to gain a deeper understanding of the effectiveness of character development strategies.