

## Background

This study reports the development and validation of a scale to measure outcomes of girls' resiliency in adventure/experiential programs. Currently there is no standardized instrument specifically designed for assessing resiliency in the context of adventure programs (Ewert & Yoshino, 2011). Traditionally, organizations that use adventurous activities or experiential-based programming to support girls' development rely on survey instruments that have been created internally by their staff and have unknown psychometric properties (e.g., reliability and validity). While survey instruments do exist that measure youth development, many are challenging to interpret, focus on both girls and boys, and are not validated for use in adventure/experiential settings (rather clinical settings). The comparison scale for this study, Resiliency Scales for Children and Adolescents (RSCA)®, asks a total of 64 questions and costs approximately \$6.00 to implement pre and post program participation (Pearson, 2012). Additionally it was developed for a clinical setting and requires someone with extensive knowledge in statistical software to analyze.

The rationale for this new measure includes the following:

1. The creation of a scale that measures resiliency in girls
2. The creation of a scale that has known psychometric properties
3. The creation of a scale that can be used across multiple adventure/experiential programs
4. The creation of subscales that can be used independently of the larger scale

## Methods



**Participants:** N = 194 girls (ages 10-16)  
Mean Age: 11.8

The girls participated in one of two programs: Dirt Divas or Rosie's Girls. Dirt Divas is an adventure-based program based in Vermont that uses mountain biking as the adventurous activity. Rosie's Girls programming is offered around the country and combines experiential (hands-on) instruction in the trades, science, technology, engineering and math to support girls in nontraditional fields.

**Validation Measures:** The Resiliency Scales for Children and Adolescents (RSCA)® was used to validate the proposed scale (Prince-Embury, 2007). The RSCA® consists of three self-report subscales: Sense of Mastery (20 items), Sense of Relatedness (24 items), and Emotional Reactivity (20 items).

### Procedures:

- Pilot study conducted in 2012 that showed evidence that the creation of a scale was feasible
- The construction of a scale that included 44 questions on resiliency, self-efficacy and relationship building
- Data collected pre and post program participation

## Table 1: Factor Structure for Final Items

Item	Confidence	Positive Peer Relationships
Q19 I am motivated to set and accomplish goals for myself.	.757	
Q3 I am courageous.	.714	
Q17 I live up to my potential.	.703	
Q27 I am good at figuring things out	.698	
Q10 I am brave even when I am afraid.	.691	
Q8 I do not give up easily.	.681	
Q15 I am confident in my abilities to make things happen.	.680	
Q28 I can make things happen.	.672	
Q6 I don't give up, even when things are hard.	.668	
Q21 When I make a plan I follow through with it.	.642	
Q22 I can speak up for what I need and want.	.593	
Q41 Girls generally do not like me (Reversed)		.815
Q42 It is hard to make friends with other girls. (Reversed)		.811
Q43 I get along with other girls.		.784
Q40 I can trust other girls.		.716
Q33 I enjoy spending time with other girls.		.713
Q34 I can easily make friends.		.708
Q38 Other girls are supportive of me.		.695
Q39 I have experienced a supportive community of other girls.		.557
Eigen Value	5.62	4.78
% Variance Explained	30%	25%
M(SD)	4.11(.5235)	4.00(.6326)
Cronbach's Alpha	.90	.87

Note. Factor loading less than .30 are not displayed. Factor loading represent results of Principle Components Analysis with Varimax rotation.

## Table 2: Zero Order Correlations between Resilience Factors and RSCA scales

	Confidence (Post)	Positive Peer Rels. (Post)	Cronbach's Alpha
Confidence (Post)	--		.92
Pos. Peer Rel. (Post)	.67***	--	.87
Sense of Mastery	.70***	.60***	.93
Optimism	.54***	.51***	.81
Self-Efficacy	.71***	.56***	.89
Adaptability	.52***	.51***	.75
Sense of Rel.	.56***	.72***	.94
Trust	.49***	.71***	.89
Support	.44***	.51***	.73
Comfort	.49***	.73***	.88
Tolerance	.54***	.59***	.83
Emot. React.	-.36***	-.48***	.94
Sensitivity	-.30***	-.41***	.86
Recovery	-.31***	-.43***	.86
Impairment	-.31***	-.41***	.90

Note. \*\*\* =  $p \leq .001$ . DF range between 151 and 179 for all analyses.

## References

- Ewert, A., & Yoshino, A. (2011). The influence of short-term adventure-based experiences on levels of resilience. *Journal of Adventure Education & Outdoor Learning*, 11(1), 37-41.
- Pearson. (2012). *Resiliency scales for children and adolescents-A profile of personal strengths (RSCA)*. Retrieved August 25, 2013 from <http://www.pearsonassessments.com>
- Prince-Embury, S. (2007). *Resiliency scales for children and adolescents: Profiles of personal strengths manual*. San Antonio, TX: Harcourt Assessments.

## Results and Discussion

Convergent Validity was evaluated by correlating the new measure with the RSCA® (Table 2). Confidence was most strongly correlated with the Sense of Mastery scale and its subscales. Positive Peer Relationships was most strongly correlated with the Sense of Mastery scale and its subscales. The Discriminant validity of the new measure is supported by the consistent moderate, negative correlations between the new measure and the Emotional Reactivity scales of the RSCA®.

The new scale (proposed name Adolescent Girls' Resilience Change Scale) shows evidence of the following:

- *Is a reliable measure that taps the facets of resilience most amenable to change:*
  - Confidence & Relationship Building
- *Focuses on facets most relevant to adventure programming:*
  - Feelings of self-efficacy
  - Trust
  - Support within peer relationships
  - Positive approach to challenge
- *Does not measure emotional reactivity (a component of resilience)*
- *Can be separated into subscales to measure specific outcomes independently of resilience:*
  - Self-efficacy, confidence, relationship building
  - Other facets are still not known?
- *Assessment of Change within Programs*
  - Additional statistical analysis was conducted to measure pre and post-participation change in resiliency using the designed scale. Preliminary analyses showed a significant increase in resiliency post participation. The change is uniformly experienced across participants but is relatively small across the four programs. Analysis indicates that the effects were strongest for the Dirt Divas participants. Additional analysis needs to be conducted to determine the final results.

## Future Research

This study is aiding the researchers' in meeting their goals to develop a tool that measures several outcomes, has known psychometric properties, can be used across multiple adventure/experiential programs, and is focused on girls. Continued data collection and analysis will most likely be conducted for several years.



Interested in collaborating?

Would you like to test our scale?

Please contact Anja Whittington at [awhittington@radford.edu](mailto:awhittington@radford.edu) or 540-831-2476!  
We'd love your help!