



Development and Validation of Age-Appropriate Measures of Camper Outcomes

Gary Ellis

Jim Sibthorp

University of Utah

Deb Bialeschki

American Camp Association



Youth Development and Camp

- There has been sustained interest in documenting outcomes of organized camping.
- Such effort show that camp can be developmental for youth (e.g., ACA, 2005; Bialeschki, et al., 2002; Brannan, et al., 2000; Marsh, 1999)



Evidence Based Programs

- A second major body of research focuses not on what campers are getting out of camp, but rather what aspects of the camp experience are most related to positive development.
- Creating evidence-based models & programs is critical in recreation, outdoor education, youth development, and camp (e.g., ACA, 2007; Baldwin et al., 2005; Henderson, 2004)
- Strong desire to better design, implement, and train staff in how to implement developmental camp programs (Henderson et al., 2006-2007).
- Mandates by funding agencies (e.g., United Way)

Camp Outcome Measures

- First large scale outcome battery specific to camps was the Camper Growth Index (CGI; Henderson et al., 2006).
- Developed by a research team from the American Camp Association (ACA) and Philliber Research Associates.
- Measured four broad outcome categories:
 - positive identity (self-esteem and independence)
 - social skills (leadership, making friends, social comfort, and peer relationships)
 - physical and thinking skills (adventure/exploration and environmental awareness)
 - positive values (values/decisions and spirituality)



Camp Outcome Measures cont.

- Despite the extensive work on the CGI, the effect sizes found were relatively small.
- Revision to:
 - Include more proximal outcomes
 - Reduce the ceiling-effects evident in the measures
 - Address possible response shift-bias in the metrics or scales of measurement from pre to post camp.
 - Increase ease of use by eliminating the need to administer and track pre/post tests

Purpose

...develop a battery of seven outcome measures that can be used to...

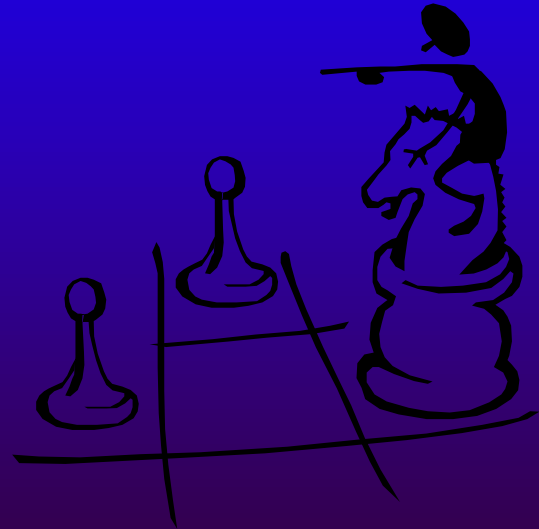
–Document outcomes

and

–Inform camp design and curriculum decisions



Method



Action Research

Kurt Lewin, 1946

“...research on the conditions and effects of various forms of social action [that lead to] to social action...

[action research involves] a spiral of steps, each of which is composed of a circle of planning, action, and fact-finding about the result of the action.”



Method:

“Spiral of Steps...”



- *Identify Outcomes*
- *Aristotelian Definitions*
- *Domains*
- *Item maps, response formats*
- *Items*
- *Criterion-based validity*
- *Expert Review*
- *Data Collection*
- *Psychometric Evaluation*

Step 1: Identify Outcomes



- Sources
 - American Camp Association Professional Judgment
 - Camp-Related Youth Development Literature
 - Our biases...

Outcomes	
Friendship Skills	Teamwork
Responsibility	Competence
Independence	Affinity for exploration
Family Citizenship	

Friendship Skills

Definition: Perceived skills in initiating, developing, and sustaining enjoyable and socially intimate relationships with other people.

Domains

Skills in choosing friends

Skills in initiating friendships

Skills in developing and sustaining friendships

- Mutual Enjoyment, Reciprocity
- Trust
- Perspective Taking
- Social Intimacy
- Self-Disclosure

Family Citizenship Behavior

Definition: Campers' intentions to perform in-role and extra-role behaviors in the family environment

Domains

In-role behaviors

Extra-role behaviors

Perceived Competence

Definition: Campers' beliefs about their ability to be successful that are integrated with their "self."

Domains

Cognitive

Physical

Social

General

Independence

Definition: beliefs that personal effectance is not dependent on others

Domains

Independence from family

Independence from adults

Independence from others/peers (general)

Decision items imbedded in previous three domains

Steps 2 and 3: Aristotelian Definitions and Domains



Aristotle



Affinity for Exploration

Definition: Desire to explore and engage in new experiences

Domains

People

Places

Activities

Ideas

Teamwork

Definition: beliefs that one can be an effective and productive group member

Domains

Leadership

Attitude

Followership

Team-player

Responsibility

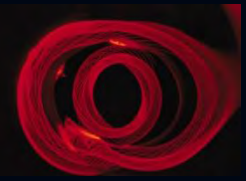
Definition: Habit of owning and accepting consequences of personal actions

Domains

Ownership

Correction

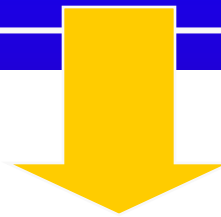
Step 4: Response Formats



Ages 10 -17

Increase?

Current Status + Change



	Decreased	Did not increase or decrease	Increased a little bit, maybe	Increased some, I am sure	Increased a lot, I am sure
1. Becoming better at playing soccer.	○	●	○	○	○

A) I enjoy playing team sports.	False	Somewhat False	A little False	A little True	Somewhat True	True
Is the above statement more or less true today than before camp?	A lot less	Somewhat less	A little less	A little more	Somewhat more	A lot more

Young Camper Interview

(Ages 7-9)



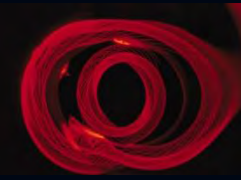
14 Questions

My best answers



- | | | | | |
|----|------------------------------------|--------------|-------------------------------|----------------------------|
| 1. | I didn't learn anything about this | I'm not sure | I learned a little about this | I learned a lot about this |
| 2. | I didn't learn anything about this | I'm not sure | I learned a little about this | I learned a lot about this |
| 3. | I didn't learn anything about this | I'm not sure | I learned a little about this | I learned a lot about this |

Step 5: Items, Older Campers



Current status + change

4. I want to visit places that are different from where I live	False	Somewhat False	A little False	A little True	Somewhat True	True
Is the above statement more or less true today than before camp?	A lot less	Somewhat less	A little less	A little more	Somewhat more	A lot more
5. I look forward to learning to do new activities	False	Somewhat False	A little False	A little True	Somewhat True	True
Is the above statement more or less true today than before camp?	A lot less	Somewhat less	A little less	A little more	Somewhat more	A lot more

Improve

	Decreased	Did not increase or decrease	Increased a little bit, maybe	Increased some, I am sure	Increased a lot, I am sure
1. Wanting to meet new people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Looking forward to learning new activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Wanting to learn more about new ideas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Enjoying getting to know new people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Wanting to travel to places that you have never been before.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Young Camper Outcomes Interview Questions

1.	At camp, did you learn how to be better at making friends?
2.	At camp, did you learn to feel good about things that you do well?
3.	At camp, did you learn that you can be good at some things that you didn't know you were good at?
4.	At camp, did you learn how to do more without your parents' help?
5.	At camp, did you learn to fix mistakes when you make them?
6.	At camp, did you learn to do more to help other members of your family?
7.	At camp, did you learn to look forward to trying new activities?
8.	At camp, did you learn to be better at doing things with groups of other kids?
9.	At camp, did you learn to be better at admitting when you do something wrong?
10.	At camp, did you learn to want to meet new people?
11.	At camp, did you learn how to get along with other kids when you are in a group?
12.	At camp, did you learn things that you can do to help someone in your family?
13.	At camp, did you learn how to be a better friend to other people?
14.	At camp, did you learn how to do more for yourself?



Step 6 and 7:

Validity



Internal and
Cross-Structure
Analyses

Evidential Basis

- *Construct validity
- *Relevance/Utility

Consequential Basis

- * Value Implications
- * Social consequences

Expert Review



Version A

- Affinity, new experiences
- Competence
- Responsibility
- Family Citizenship

Campers
N= 791

- Version B
- Friendship Skills
- Independence
- Teamwork

Young Camper
Interview

N=147

Increase Format
N=161



Status + Change
N=483

Version A
N=0

Version B
N=161

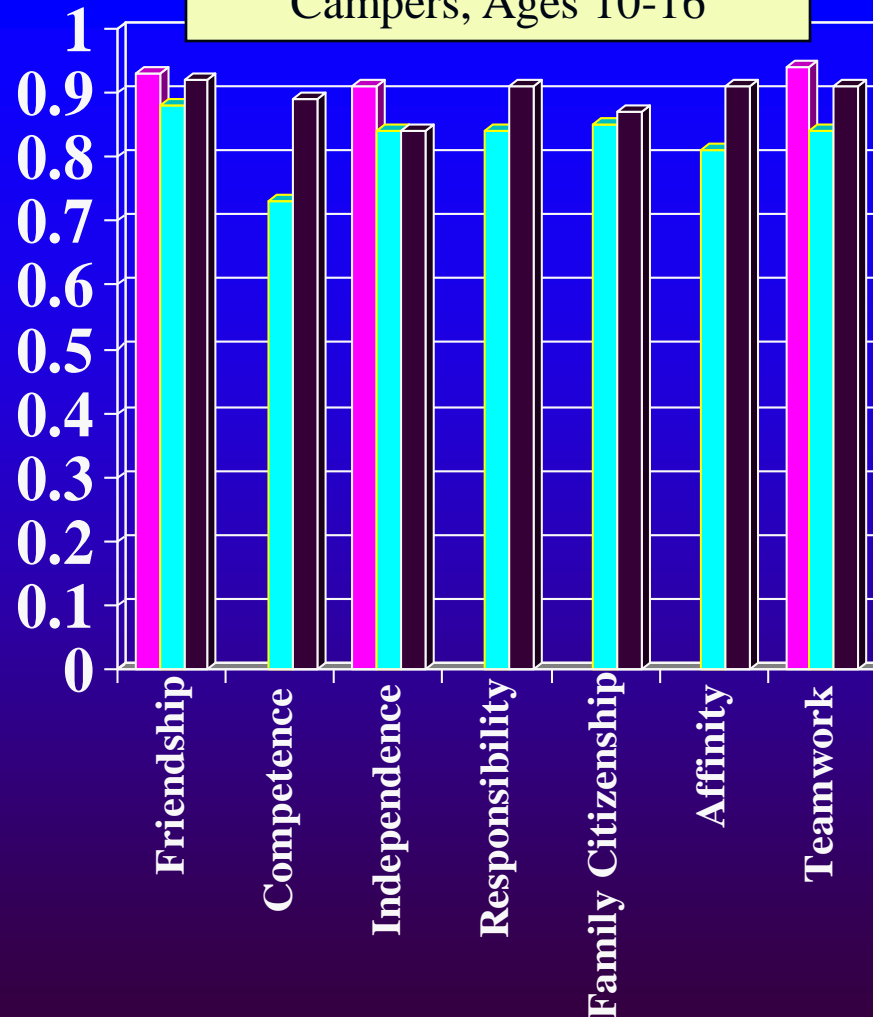
Version A
N=92

Version B
N=391

Step 8: Data Collection

Step 9: Psychometric Evaluation

Campers, Ages 10-16



α

■ Increase
■ Status
■ Change

*Young Camper
Interview $\alpha=.85$

Pearson's r :

“Improve” Format, Version B

Table 11: Correlation Matrix* and Scale Statistics: Increase in Friendship, Independence, and Teamwork

	Friendship Short Form	Independence Short Form	Teamwork Short Form
Friendship Short Form	.938		
Independence Short Form	.721	.912	
Teamwork Short Form	.813	.754	.936
Age	.071	.025	.031
Scale (Avg Item) Descriptive Statistics			
Mean	3.740	3.839	3.804
St Dvn	.810	.940	.877
N items	14	6	8
N Campers	153	157	155

*Alpha reliability coefficients are in the main diagonal. All correlations with age are nonsignificant

“Status + Change” Format Version A

Table 43: Correlations between the Family Citizenship Behavior, Perceived Competence, Affinity for Exploration, and Responsibility Variables and Camper Age

		Age	FCB	FCBC	Comp	Comp_CH	Aff Ex	Aff Ex_CH	Respon
Age	Pearson Correlation	1							
FCB	Pearson Correlation		1						
FCBC	Pearson Correlation			1					
Comp	Pearson Correlation				1				
Comp_CH	Pearson Correlation					1			
Aff_Ex	Pearson Correlation						1		
Aff_Ex_CH	Pearson Correlation							1	
Respon	Pearson Correlation								1
Respon_CH	Pearson Correlation								

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).


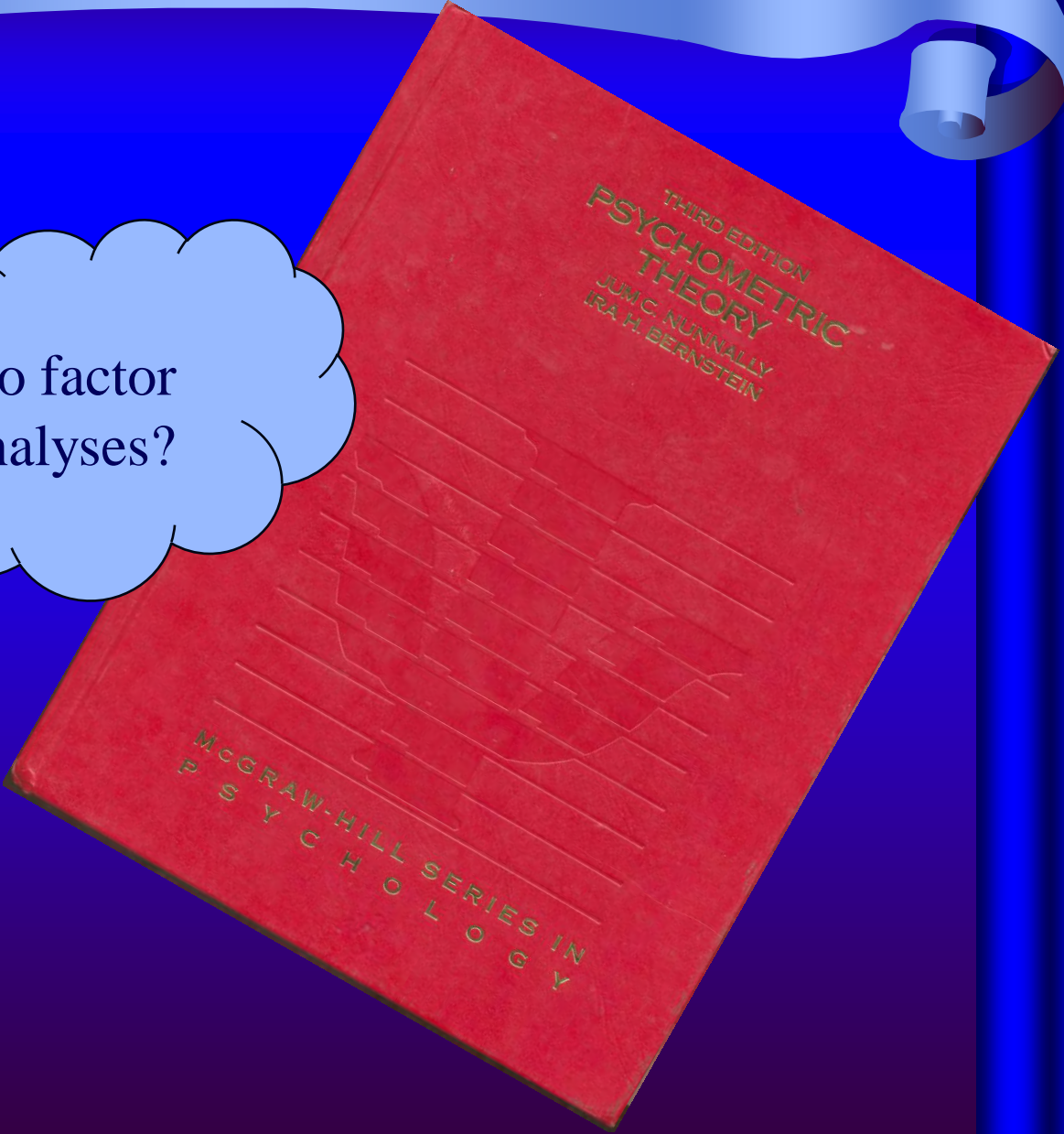
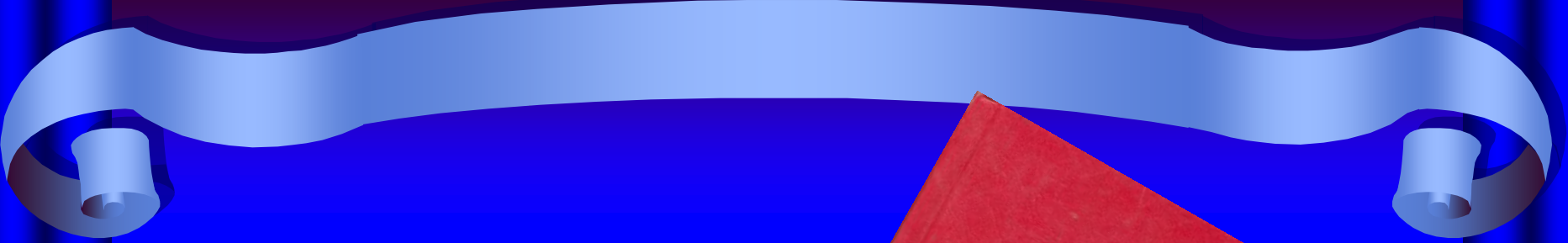
“Status + Change” Format Version B

Table 25: Correlations between the Friendship Skills, Independence, and Teamwork Variables and Camper Age

		Age	Indep	Indep_CH	Team	Team_CH	Friend	Friend_CH
Age	Pearson Correlation	1						
Indep	Pearson Correlation		1					
Indep_CH	Pearson Correlation			1				
Team	Pearson Correlation				1			
Team_CH	Pearson Correlation					1		
Friend	Pearson Correlation						1	
Friend_CH	Pearson Correlation							1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).



No factor
analyses?

THIRD EDITION
PSYCHOMETRIC
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J.M.C. NUNNALLY
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The Role of Factor Analysis

Many investigators automatically think of using factor analysis whenever questions of structure arise. We will discuss specific strategies in Chapters 11 through 13. For now, we will stress an important conceptual difference between the factor analysis of whole tests (scale-level analysis), which we heartily encourage, and the factor analysis of individual items (item-level analyses), which we do not. There are defensible approaches to item-level multivariate analyses, but they are complex and typically unnecessary. Given that a domain has been well thought out, the same basic procedures used in the item analysis for content-validated tests generally suffice. Ordinary approaches to factoring items (i.e., those which may be appropriately applied to scale-level analyses) are almost guaranteed to produce spurious results. Such spurious results may lead to inappropriate criticism of sound scales or, what is basically the same thing, lead an investigator to falsely believe that the scale he or she has developed is inappropriately multidimensional when in fact it is not.

First, factor analytic results usually are clearest when correlations among measures vary considerably, especially when they fall in well-defined groups. For example, if some correlations are zero and others are .70, the measures will form strong factors. Two measures that each relate strongly to a factor will probably correlate substantially with each other and poorly with measures that relate strongly to other factors. Groups of measures will each then clearly define particular factors. This outcome is quite possible in scale-level factoring but is improbable in item-level factoring, simply because of the huge difference in reliability of whole tests versus individual items. The average correlation among items that are not simple variants of one another is less than .20 on most tests, and the variance of these correlations is small. Typically, two-thirds of the correlations among items are between .10 and .30. A larger range is just as likely to have arisen from sampling error than true population differences among correlations. This small variance of correlations makes it difficult to document different factors when they actually exist.



Correlation Matrix

		Q1	Q2	Q3	Q4	Q5
Correlation	Q1	1.000	.289	.093	.338	.364
	Q2	.289	1.000	.178	.234	.220
	Q3	.093	.178	1.000	.082	.199
	Q4	.338	.234	.082	1.000	.172
	Q5	.364	.220	.199	.172	1.000



Discussion

- Resulted in 2 versions of 7 outcome measures.
- Young Camper Interview can be used as a one-dimensional measure of “camp learning”
- Packaged with *Creating Positive Youth Outcomes* (ACA, 2007).
- Feedback has been positive from the camps
- The Camper Outcomes Surveys will be web-based by October 2007



Discussion cont.

- Documentation of outcomes is becoming a large focus for all camps, but especially for camps receiving United Way funds
- Outcomes are being linked with Standards as well as a program improvement process that promotes positive youth development



Thanks!

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