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ORIGINAL PAPER

Youth Development Outcomes of the Camp Experience: Evidence for Multidimensional Growth

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Abstract Three thousand, three hundred and ninety-five families, whose child attended one of 80 different day or resident summer camps for at least one week, completed customized questionnaires that measured growth from precamp to postcamp in four domains: Positive Identity, Social Skills, Physical & Thinking Skills, and Positive Values & Spirituality. Parents, children, and camp staff reported significant positive change in these four domains; more than would be expected by maturation alone. Most gains were maintained or showed additional growth six months later. Few of the camp's structural elements correlated with growth, nor did striking gender, age, or ethnicity differences emerge. The study highlights the particular strengths of camp as an educational institution and social movement and suggests that different variations of summer camp can provide potent developmental experiences.

Keywords Positive youth development · Camp · Outcomes

Promoting the healthy development of young people adheres to two complementary theoretical orientations. Prevention Science (e.g., Greenberg *et al.,* 2003; Nation *et al.,* 2003) aims to identify at-risk populations and alter individual characteristics that are precursors to unhealthy behaviors, such as school failure, drug use, and violence. Positive Youth Development (e.g., Catalano, Berglund, Ryan, Lonczak, and Hawkins, 2002; Larson, 2000) also seeks to reduce unhealthy behaviors, but by fostering the individual, social, and environmental characteristics—such as positive identity, social competence, and independence—that promote healthy development. Viewing young people as assets rather than liabilities also reflects the trend toward studying

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positive psychology and resiliency (e.g., Seligman, 2003; Werner and Smith, 2001), rather than focusing narrowly on pathology and risk. This study sought to describe the ways in which summer camp might foster characteristics that promote healthy development.

Children's summer camps have historically blended Prevention Science and Positive Youth Development in an informal, intuitive way. However, unlike formal programs, camps have not collected much data that would (a) confirm conventional wisdom about the power of camp to nurture positive youth development; or (b) give camp the credibility needed for inclusion in national discussions on education, health, and youth development; or (c) allow for systematic program improvement. This study is the first large-scale, longitudinal, national research on the value of camp for children. If evidence exists that children experience positive development at summer camp, future research can address the mechanisms of change.

To understand how camps have blended Prevention Science and Positive Youth Development, it is most instructive to review camps' theoretical basis and the camp-based research that has focused on developmental outcomes. The earliest camps were not-for-profit experiments directed by educators who saw opportunities to teach children in ways schools did not (Eells, 1986). From the 1860s to the 1920s, private school headmasters and university students in education created programs that brought children out of depraved urban settings and into the New England countryside. The Gunnery Camp, initiated on the Connecticut coast in 1861, may have been the first.

Under the direction of enthusiastic and often idealistic adults, children experienced the essential trinity of organized camp: (1) community living; (2) away from home; (3) in an outdoor, recreational setting. This holistic experience included physical exercise, such as hiking; mental challenges, such as cooperative problem-solving; social skill development, such as making friends from different backgrounds; and spiritual events, such as outdoor worship.

Dissatisfaction with traditional schooling, concern for the physical, mental, and spiritual health of children, a Protestant work ethic, the American pioneer spirit, interest in American Indian traditions, progressive educational theories, conservationism, and the philanthropic interests of social service organizations were among the most important factors that converged to propel the nascent youth camping movement. In the 1920s and 1950s, patriotism and military traditions also fueled interest in camping (Eells, 1986). In the 1960s and 1970s, camp's uniquely immersive, relaxed, natural environment aligned with trends in humanistic psychology to popularize summer camps as therapeutic milieus or social work interventions. More recently, trends toward outdoor education, teaching values, and providing day care for working families have renewed enthusiasm for traditional summer camps. Today, an appreciation of physical play on children's development (e.g., Bjorklund and Brown, 1998), plus interest in positive youth development (e.g., Roth and Brooks-Gunn, 2003), the assets necessary to promote that development (e.g., Leffert *et al.,* 1998), and accountability for program outcomes (e.g., National Collaboration for Youth, 1997) has thrust the institution and social movement of organized youth camping into the research spotlight. Again, this study sought to measure outcomes of camp, an activity that in the US today includes approximately 10 million children and 12,000 camps.

The first systematic research on the outcomes of camp may have been Dimock and Hendry's *Camping and Character* (1929). This intensive study documented behavior changes in 216 boys who attended the 7-week season at Camp Ahmek in Ontario, Canada, one or more summers between 1925 and 1928. It included case studies and longitudinal group observations, with standardized, pre-post behavior ratings from consulting psychologists, camp counselors, instructors, and the authors themselves, both professors of education. The overall results suggested positive behavioral changes along many dimensions, including social skills, independence, and the willingness to try new things. Some boys showed decreases in desirable behaviors, such as manners and sportsmanship; others evidenced little change in some areas. Parent reports upon the boys' return home mirrored in-camp observational data, suggesting that most boys grew in multiple, positive ways while at camp; some showed no change in certain domains; a few lost ground.

Dimock and Hendry noted these conclusions: (1) Camp had a net positive but idiosyncratic effect on boys' behavior; (2) Change probably depended on type of program, peer pressures, quality of leadership, and prevailing attitudes; (3) Younger boys benefited more than older boys; (4) Amount of behavior change was unrelated to whether the boys stayed for one month or two; (5) Parents ratings were generally more favorable than the camp staff's ratings; and (6) Some of the positive changes persisted in the home environment several weeks after camp ended. Although prodigious and innovative, this study had the limitation of being based on only one, all-boys camp. To compensate for that limitation, the present study used a multi-rater, longitudinal design to study a national sample of boys and girls, attending both day and resident camps, of different durations and affiliations, across the U.S.

Since Dimock and Hendry's study, dozens of researchers have documented the beneficial effects of single camp programs (e.g., Groves, 1981). Some have focused on the general population of children, noting that at camp, children experience a positive self-concept (Groves and Kahalas, 1976; Marsh, Richards, and Barnes, 1986), healthy beliefs about effort and mastery (Treasure and Roberts,

1998), and self-actualization (e.g., Cartwright, Tabatabai, Beaudoin, and Daidoo, 2000). The largest camp outcome studies have been conducted in 4-H camps (Garst, 2005; Garst and Bruce, 2003). Using questionnaires that asked youth to assess how they grew at 4-H camp, compared to what they knew or felt before camp, these researchers concluded that 4-H camp teaches important life skills, such as thoughtful decision making, wise use of resources, responsible citizenship, acceptance of differences, respectful treatment of others, and positive leadership. Studies by other organizations with youth camping programs, including the Boy Scouts of America, Girl Scouts of the USA, and CampFire USA, have used less rigorous methodologies and arrived at similar conclusions.

Another group of researchers has focused on children with identified problems, including emotional disturbances (Byers, 1979; Durkin, 1988, 1993), learning disabilities and social skills deficits (see Mishna, Michalski, and Cummings, 2001, for a review), family dysfunction (Lewicki, Goyett, and Marr, 1996), chronic medical conditions (e.g., Zimmerman, Carter, Sears, and Lawson, 1987), delinquency (e.g., Castellano and Soderstrom, 1992), and gang involvement (Harris, Fried, and Arana, 1995). Results of these studies all support the conclusion that camp promotes children's health and development and reduces the recurrence of referral problems.

For both general and special populations of children, the largest effects tend to be for participants who scored the lowest on the dependent variables before camp, i.e., those who had the most to gain (e.g., Groves and Kahalas, 1976; Stein, 1963). A recent meta-analysis of a wide range of camp programs also suggested that for self-esteem—a popular dependent variable in camp studies—effects were largest at camps that intentionally programmed for that specific outcome (Marsh, 1999). Large effects on self-esteem have also been documented for older adolescents and young adults in wilderness or Outward Bound-type experiences (e.g., Kaplan and Talbot, 1983), probably as a result of skill acquisition and mastery.

Despite the great variety in camp quality and program offerings, the recurrent theme in both of these small literatures is that a high-quality camp experience is uniquely suited for positive youth development. It is sequestered from pernicious urban, peer, media, and electronic influences; it demands physical activity in the outdoors; it is usually staffed with trusting, caring, supportive, accepting adults who strive to set appropriate boundaries; it offers a program of fun, challenging, healthy risk-taking activities; it promotes the formation of diverse friendships and a positive peer culture; and whether it is a day or resident program, it offers a kind of immersion that permits the camp's philosophical and sometimes spiritual goals to be intentionally realized.

This theme was articulated by camp's pioneers in the 1860s and 1870s (Eells, 1986), restated by mental health professionals as the Prevention Science and Positive Youth Development movements began to converge (e.g., Harris *et al.*, 1995), and recast most recently as the "Community Action Framework for Youth Development" (Gambone *et al.*, 2002). Simply stated, positive youth development is the outcome of a combination of challenging opportunities and supportive relationships (Anderson-Butcher, Cash, Saltzburg, Midle, and Pace, 2004). To these two essential elements, some (e.g., Larson, 2000) have added the elements of "agency," (i.e., young people must have the responsibility to chose, plan, and implement the challenging opportunities or activities in question), and "temporal arc," (i.e., the activities must be sustained over time). In addition, certain researchers (e.g., King and Furrow, 2004) have emphasized the contribution of supportive relationships that occur in a religious context.

Camp professionals have always felt that high quality camps provide these supportive relationships, challenging opportunities, and chances to take initiative in abundance. Many camps—both religiously affiliated and not—also provide a kind of spirituality that helps develop social capital and morality. Camps have what Larson (2000) characterized as ideal for positive youth development: They are intrinsically motivating, "structured voluntary activities" with ample opportunity to take initiative, take risks, and develop mastery. This theoretical framework clearly predicts that children at high-quality camps should evidence multidimensional growth.

In this study, we chose to focus on self-reported and observer-reported changes in four domains of youth development: (1) positive identity; (2) social skills; (3) physical and thinking skills; and (4) positive values and spirituality. Some evidence exists that growth occurs in each of these domains in camps or outdoor, educational settings (e.g., Dworkin, Larson, and Hanson, 2003; Blom and Zimmerman, 1981; Gordon, 1996; Watson, Newton, and Kim, 2003). Using a customized instrument especially developed for this purpose (Henderson, Thurber, Whitaker, Bialeschki, and Scanlin, 2006), we hypothesized that participation in a week or more of organized day or resident camp would result in growth in all four domains, as reported by parents, camp staff, and children themselves.

With an appreciation for the diversity of camp programs (different missions, structures, and content), we hypothesized that different types of camps would have comparable outcomes because camps accredited by the American Camp Association (ACA) typically possess the essential components of a positive youth development delivery system: challenging opportunities in the context of supportive relationships, with elements of agency and temporal arc (ACA, 1998). We also hypothesized that participation in religiously

affiliated camps would be associated with more spiritual development than participation in nonreligious camps.

Methods

Participants

Selection of participants began by deriving a representative sample of camps accredited by the American Camp Association (ACA) who served normally developing children, ages 8 to 14. Children may begin attending day camps as young as 4; overnight camp as young as 7. However, because this study had a self-report component, we excluded children younger than 8. We also chose an upper limit of 14 to exclude older adolescents whose role at camp might be that of junior staff. We selected only ACA accredited camps to participate, because such camps must comply with a rigorous set of up to 300 standards of health, safety, program, and management. This does not guarantee homogeneous high quality, but it excludes camps of obviously poor quality.

We then created a matrix based on (1) camp type [resident or day]; (2) sponsorship category [agency-sponsored, religiously affiliated, independent for-profit, or independent nonprofit]; (3) gender served [coeducational, all-boys, or all-girls]; (4) session length [one week, two weeks, three weeks, or four or more weeks]; and age of campers [between 8 and 14 years old].

Next, we created a stratified sample by calling batches of each kind of camp (e.g., a resident, agency-sponsored, coed camp that offered 2-week sessions) in each of the four quadrants of the contiguous 48 states: East, South, Midwest, and West. Camps scheduled for re-accreditation visits during the summer under study were not contacted. Camps serving significant percentages of racial or ethnic minorities were oversampled.

Initially, 112 out of 285 camps we contacted (39%) agreed to participate in the study and attend a four-hour training workshop on research design and questionnaire administration. Reasons for declining participation at this "cold call" stage included not wanting an extra project and not having a senior staff member willing to coordinate the research at the camp. After the workshop, 105 camps agreed to participate. The reason for not participating at this stage was cited as realizing the time commitment involved. The 105 camps had all study preparation done for them, were reimbursed for expenses, and received a $700 stipend. Ultimately, data were collected from 80 camps, 41 in the summer of 2002 and 39 in the summer of 2003. Some 25 camps failed to collect data, either due to staff error, camper illness, staffing complications, misplaced data, or a change in directorship. One camp's completed surveys were lost in the mail and three camps had response rates so low they were unusable. There were no systematic differences between the 80 camps who completed the study and the 25 who did not.

Table 1 Comparison of ACA member camps and participating camps

ACA Membership	Type of camp	Research sample
37%	Day camp	29%
62%	Resident camp	71%
41%	Agency sponsorship	45%
23%	Religiously affiliated	23%
22%	Independent for-profit	21%
14%	Independent nonprofit	11%
67%	Coeducational[a]	45%
23%	All-Boys[a]	16%
33%	All-Girls[a]	39%
12%	Sessions less than one week	not in study
51%	One-week sessions	57%
27%	Two- or four-week sessions	31%
10%	Six-, seven-, or eight-week sessions	12%

[a]Some camps offer both co-ed and single-sex programs, at different times during the summer. Therefore, statistics on gender makeup add to more than 100%.

Each of the 105 camps who agreed to participate was asked to send parent consent and child assent forms to a specific cohort of campers, such as "all the 10-to-12-year-old boys who attend your camp for two weeks." By instructing camps to select specific cohorts of campers, we were able to create a sample whose demographics closely resembled the national membership of the American Camp Association. To ensure variability, multiple camps of different sponsorship and in different locations sampled the same cohorts. See Table 1. The cover letter accompanying the consent form and questionnaires described the research as a "nationwide study of the effects of camping and youth development activities on children and youth."

Initially, 14,310 families from these 105 camps were invited to participate in three rounds of data collection: precamp, immediately postcamp, and at a six-month follow-up. As a non-contingent incentive for returning the initial round of questionnaires, a $2 bill was included in the packet with the permission forms, cover letter, and precamp questionnaires; a $5 bill was included in the packet with the parents' postcamp questionnaires, which were sent only to those families for whom we had received precamp questionnaires. A reminder postcard was also sent two weeks after this postcamp mailing. Note that campers completed their postcamp questionnaire on the penultimate day of camp; parents completed their postcamp questionnaire two weeks after their child returned home.

The final sample from the 80 camps that completed the study included data from 5,279 parents and children at precamp; 3,395 parents and children immediately postcamp; and 2,293 parents and children at the six-month follow-up. Individuals who returned incomplete questionnaires were not included in this final sample. Thus, the initial return rate was 40% for precamp, then 64% at postcamp, and 67% at follow-up. Demographic characteristics of campers at the three time points did not differ significantly except on one dimension: The proportion of families of minority ethnicity dropped from 13% at precamp to 11% at postcamp to 9% at follow-up. It is unclear what may have caused minority families' participation to dip, but post-hoc analyses suggested this trend had no significant effects on the results. At the precamp survey administration, 36% of the sample were boys; 64% were girls. The percentages of boys and girls shifted to 32% and 68% in both the postcamp and follow-up samples. Mean age was 11.1 years ($SD = 1.9$), which stayed constant across all three time points.

Averaged across all participating camps, directors reported that 36% of the campers' families had annual incomes at or below $50,000; 31% between $51,000 and $100,000; and 31% greater than $100,000. Some 57% of participating camps offered one-week stays; 31% offered 2–4-week stays; 12% offered 6–8-week stays.

In addition to questionnaires from parents and campers, we collected observational checklists from camp counselors, both at the start and the finish of participating campers' stays. We also collected data on the camp's program and structure from several senior staff at each camp and from each camp's director. Of the 80 camps that participated, we received counselor checklists, senior staff data, and camp director data from all camps.

Materials

Because no single, brief instrument existed to simultaneously measure the four domains and ten constructs of interest, we designed, piloted, validated, and field-tested a customized measure over the course of three successive camp seasons. Instrument development is described separately in Henderson *et al.* (2006). The final version of the children's questionnaire—dubbed the Camper Growth Index-Child Form (CGI-C)—consisted of 52 items to which children responded on a 4-point Likert scale: Disagree a Lot, Disagree a Little, Agree a Little, and Agree a Lot.

Factor analysis of the CGI-C confirmed 10 reliable constructs of four to six items apiece that fit into the developmental domains of Positive Identity, Social Skills, Physical & Thinking Skills, and Positive Values & Spirituality. (See Table 2 for an outline of the domains and constructs). The 10 constructs, along with their Cronbach's alphas for the final sample, were Self-Esteem ($\alpha = .75$/6 items); Independence ($\alpha = .63$/4 items); Leadership ($\alpha = .77$/6 items); Friendship Skills ($\alpha = .69$/4 items); Social Comfort ($\alpha = .66$/4 items); Peer Relationships ($\alpha = .71$/4 items), Adventure & Exploration ($\alpha = .66$/4 items); Environmental Awareness ($\alpha = .76$/4 items); Values & Decisions ($\alpha = .76$/7 items); and Spirituality ($\alpha = .81$/4 items).

Sample items included: "I feel confident in myself" (Self-Esteem); "I'm good at doing things on my own" (Independence); "I get other kids together for games" (Leadership); "I like to talk to kids I don't know yet." (Friendship Skills); "I worry about making friends" (Social Comfort); "I get along with others" (Peer Relationships); "In the past week, I did a new activity" (Adventure & Exploration; "We should take care of our planet" (Environmental Awareness); "Before I

Table 2 Children's mean self-reported pre-post scores on the CGI-C, by domain and construct

Domain	Construct	*n*	Precamp	Postcamp	Difference	η^2
Positive identity		2781	3.55	3.58***	.03	.08
	Self-esteem	2930	3.66	3.70***	.04	.08
	Independence	3077	3.42	3.45**	.03	.05
Social skills		2469	3.34	3.37***	.03	.07
	Leadership	2903	3.11	3.13**	.02	.04
	Friendship skills	3030	3.37	3.46***	.09	.17
	Social comfort	2981	3.22	3.22	–	–
	Peer relationships	3046	3.65	3.64*	−.01	−.04
Physical & thinking skills		2935	3.66	3.74***	.08	.22
	Adventure & exploration	3076	3.56	3.73***	.17	.33
	Environmental awareness	3093	3.75	3.75	–	–
Positive values & spirituality	1777	3.30	3.32*	.02		.04
	Values & decisions	2702	3.45	3.46	.01	–
	Spirituality	2119	3.15	3.17*	.02	.04

Note. Sample sizes vary because of missing data and deliberate skipping of sensitive sections.

*$p \leq .05$; **$p \leq .01$; ***$p \leq .001$.

make a decision, I think about what might happen" (Values & Decisions); and "I have a close relationship with God" (Spirituality).

Validity of the constructs was established in three ways: through the confirmatory factor analysis noted above and detailed in Henderson *et al.* (2006); through item examination and revision by an advisory panel of seven expert researchers who publish in the field of child development; and through correlations with established measures of constructs such as self-esteem and social comfort. All three techniques suggested acceptable validity for what were admittedly brief scales. For example, cross-validation of the Friendship Skills construct with the Social Anxiety Scale for Children (LaGreca, Dandes, Wick, Shaw, and Stone, 1988) yielded an inverse correlation of $-.53$.

Because the experience and expression of religiosity and spirituality are both personal and, at times, controversial, the four items of that construct were not randomly ordered like the other items on the questionnaire. Rather, they comprised a separate, optional section. Finally, four additional questions—on age, gender, ethnicity, and grade—were added at the end of the campers' precamp questionnaire. For postcamp administration of the campers' questionnaire, we added 28 additional items: 14 items that contrasted children's feelings at camp versus away from camp (e.g., "At camp, I feel good about myself" and "Away from camp, I feel good about myself."); 4 items that assessed children's feelings about social growth (e.g., "Camp helped me get to know kids who are different from me."); 3 optional items about spiritual growth at camp (e.g., "Camp helped increase my faith in God."; and 6 open-ended items about what children felt they learned at camp (e.g., "While you were at camp, what activities or skills did you get better at?"); and 1 global rating of the camp experience, on a scale from 0 to 10, where 0 was "Terrible!", 10 was "Excellent!", and "So-so" was the midpoint. The six-month follow-up questionnaire was identical to this expanded, postcamp questionnaire.

Parents also completed pre-, post-, and follow-up questionnaires—the CGI-P—that mirrored the CGI-C. The only differences were changes to personal pronouns and syntax. For example, "I get along with others" was changed to "My child gets along with others," and "Camp helped me make new friends" was changed to "Camp helped my child make new friends."

Camp counselors completed a customized observational checklist—dubbed the Staff Observational Checklist (SOC)—for each of the participating children who were under their direct supervision. In all cases, this was 12 or fewer children. As with the camper and parent questionnaires, we were interested in assessing the four developmental domains of Positive Identity, Social Skills, Physical & Thinking Skills, and Positive Values & Spirituality. Instructions for completing the SOC were provided in a training video that all participating staff watched, as well as on the instrument itself. For each of four behavioral indicators in each of the four domains, counselors used a 4-point Likert scale, anchored at "strongly disagree" and "strongly agree." Sample items from each domain were: "Acts in a confident and optimistic way;" "Gets along well with others;" "Is willing to try new activities;" and "Follows rules and plays fairly." Staff completed this 16-item checklist after being with their campers for 24 hours and again one day prior to the campers' departure.

Directors completed a two-part, 50-item questionnaire designed to assess the director's experience and qualifications, plus the camp's clientele, structure, programs, and desired outcomes. Two or three senior staff members at the camp independently completed the outcomes section of this instrument, for cross-validation. (Results of this outcomes-intentionality research will be presented in a forthcoming paper.)

Design and procedure

This was a descriptive, naturalistic, longitudinal study, rather than an experiment or quasi-experiment. Randomly assigning some children to camp and others to a unique, equally well-defined, different activity would have been prohibitively expensive and unethical. Using a comparison group would have required rigorous quantification of the comparison group's many different activities, and would have still left us unable to determine the factors that differentially affected children's growth. Naturally, a descriptive, nonexperimental design diminishes the strength of a possible conclusion from "growth occurs *because* of camp experiences" or "camp experiences result in *more* growth than this or that other experience" to simply "growth occurs at camp." In full recognition of this design limitation, the first logical step in this research program was to determine whether or not children developed at camp, and in what ways.

Campers and parents completed their precamp questionnaires (the CGI-C and CGI-P) about four weeks prior to the start of camp, along with their consent and assent forms. Campers completed their postcamp CGI-C on the penultimate day of camp, gathered in a dining hall or main lodge. Parents completed their postcamp CGI-P about two weeks after camp, thus giving them time to observe any changes in their child's attitudes and behaviors. Campers and parents completed follow-up CGIs six months after camp. The third-grade reading level of the questionnaire ensured ease of completion, even for the youngest children, a conclusion we verified during field testing of the instrument with 300 parent-child dyads at 21 different camps during the summer of 2001. At each camp, the senior staff member who had attended the study training described above functioned as the research coordinator. He or she answered questions for

Table 3 Parents' observed mean pre-post scores on the CGI-P, by domain and construct

Domain	Construct	*n*	Precamp	Postcamp	Difference	η^2
Positive identity		3201	3.58	3.63***	.05	.15
	Self-esteem	3262	3.70	3.74***	.04	.11
	Independence	3350	3.45	3.52***	.07	.13
Social skills		2907	3.31	3.37***	.06	.14
	Leadership	3170	3.11	3.16***	.05	.08
	Friendship skills	3275	3.26	3.34***	.08	.14
	Social comfort	3200	3.21	3.27***	.06	.08
	Peer relationships	3277	3.65	3.70***	.05	.12
Physical & thinking skills		3145	3.49	3.56***	.07	.16
	Adventure & exploration	3243	3.40	3.52***	.12	.19
	Environmental awareness	3254	3.57	3.60**	.03	.04
Positive values & spirituality		2250	3.25	3.28***	.03	.06
	Values & decisions	3233	3.36	3.39***	.03	.06
	Spirituality	2374	3.15	3.18***	.03	.05

Note. Sample sizes vary because of missing data and deliberate skipping of sensitive sections.

*$p \leq .05$; **$p \leq .01$; ***$p \leq .001$.

parents, campers, and staff, ensured the fidelity of the data and methods, and served as a liaison to the senior researchers at Philliber Research Associates (PRA) and the ACA. In addition, frequent correspondence between PRA staff and each camp's research coordinator helped ensure fidelity of survey administration by camp staff.

Scoring

All quantitative and qualitative data from all questionnaires were entered into SPSS and spot-verified. After reverse scoring negatively worded items, scores for the CGI-C and CGI-P at all three time points were derived by averaging the items in each of the four developmental domains and averaging the items in each of the ten constructs. This resulted in domain and construct mean scores that could range from 1 to 4. Missing data were treated conservatively: In cases where an item was missing, the score on that construct was not calculated, resulting in different sample sizes for different constructs. The SOC was scored similarly, producing mean scores ranging from 1 to 4 in the four developmental domains.

Results

To most clearly describe the growth associated with camp, data for each construct are presented in temporal groups (e.g., Pre-Post; Pre-Post-Follow-Up) and sample groups (e.g., Children; Parents; Staff). It should be noted that most effect sizes were small, despite the reliable statistical significance afforded by such a large sample size.

Pre-post comparisons—children and parents

Children's self-reports indicated statistically significant growth, on average, from precamp to postcamp in seven of the ten constructs measured by the CGI-C. See Table 2. Most ffect sizes were small, with Adventure & Exploration showing the largest effect ($\eta^2 = .33$). There was one small statistically significant effect in the negative direction: Peer Relationships.

Parents' reports on their children indicated statistically significant growth, on average, from precamp to postcamp in all ten of the constructs measured by the CGI-P. See Table 3. Effect sizes were small, with Adventure & Exploration showing the largest effect ($\eta^2 = .19$).

Pre-post-follow-up comparisons—children and parents

Children's self-reports at the six-month follow-up indicated that gains realized at camp were, on average, mostly maintained. In the case of Independence, Leadership, Social Comfort, and Peer Relationships, there were additional, statistically significant gains over postcamp levels. In the case of Making Friends, Adventure & Exploration, Values & Decisions, Environmental Awareness, and Spirituality, there were statistically significant regressions to precamp levels at follow-up. In three cases—Environmental Awareness, Values & Decisions, and Spirituality—mean self-reports on these constructs dipped below precamp levels. See Table 4.

Parents' reports on their children at the six-month follow-up also indicated that gains realized at camp were, on average, mostly maintained. In the case of Leadership there was an additional, statistically significant gain beyond postcamp

Table 4 Children's mean self-reported pre-, post-, and follow-up CGI-C scores, by domain and construct

Domain	Construct	*n*	Precamp	Postcamp	Follow-up	η^2
Positive identity		1806	3.55	3.58[a]	3.62[bc]	a = .08 c = .20
	Self-esteem	1924	3.68	3.71[a]	3.73[c]	a = .09 c = .13
	Independence	2040	3.43	3.45	3.52[bc]	b = .13 c = .17
Social skills		1549	3.35	3.38[a]	3.40[bc]	a = .08 c = .12
	Leadership	1898	3.11	3.13	3.18[bc]	b = .08 c = .11
	Friendship skills	1989	3.35	3.46[a]	3.40[bc]	a = .20 b = − .12 c = .08
	Social comfort	1961	3.25	3.25	3.31[bc]	b = .09 c = .09
	Peer relationships	2007	3.66	3.65	3.70[bc]	b = .13 c = .12
Physical & thinking skills		1920	3.66	3.75[a]	3.65[b]	a = .23 b = − .29
	Adventure & exploration	2031	3.56	3.73[a]	3.56[b]	a = .34 b = − .43
	Environmental awareness	2042	3.77	3.76	3.74[bc]	b = − .05 c = − .07
Positive values & spirituality		1094	3.33	3.35	3.30[bc]	b = − .09 c = − .06
	Values & decisions	1780	3.45	3.46	3.44[b]	b = − .04
	Spirituality	1324	3.20	3.22	3.15[bc]	b = − .10 c = − .07

Note. Sample sizes vary because of missing data and deliberate skipping of sensitive sections.

[a]difference between precamp and postcamp is statistically significant at $p \leq .05$ or less.

[b]difference between postcamp and follow-up is statistically significant at $p \leq .05$ or less.

[c]difference between precamp and follow-up is statistically significant at $p \leq .05$ or less.

levels. In the case of Making Friends, Adventure & Exploration, and Environmental Awareness there were statistically significant regressions to precamp levels at follow-up. In one case—Adventure & Exploration—the average parent report dipped below precamp levels. See Table 5.

Staff pre-post comparisons

Camp counselors' reports on their campers indicated statistically significant growth, on average, from the second day of camp until the penultimate day in all four of the developmental domains measured by the SOC. See Table 6. Effect sizes were small or medium, with Physical & Thinking Skills showing the largest effect ($\eta^2 = .40$).

Maturation effects

Although no a priori comparison group was included in this study, it was possible to construct a nonrandomized comparison group from the sample itself to evaluate age-related outcomes. This technique helps separate change associated with treatment (in this case, camp) from normal developmental changes typical of the participant population (McCall and Green, 2004; McCall, Ryan, and Green, 1999). The strategy consists of deriving an expected age function for the dependent variable(s) by cross-sectional analysis of pretest scores and then calculating an age-adjusted expected posttest score to which actual posttest performance can be compared.

Exploratory correlation analyses and curve estimations of children's self-reported precamp scores on the 10 constructs of the CGI-C suggested some small linear relationships—both positive and negative—with chronological age. Regressing precamp scores on precamp age, for those first-year campers who completed all three questionnaires ($n = 596$), yielded regression coefficients (i.e., slopes) that were then used to calculate age-adjusted expected postcamp scores for all campers, using a mean precamp-postcamp interval of eight weeks. In other words, estimated postcamp scores, for

Table 5 Parents' observed mean pre-, post-, and follow-up CGI-P scores, by domain and construct

Domain	Construct	*n*	Precamp	Postcamp	Follow-up	η^2
Positive identity		2400	3.58	3.65[a]	3.64[c]	a = .16 c = .14
	Self-esteem	2458	3.70	3.75[a]	3.74[c]	a = .12 c = .09
	Independence	2559	3.46	3.53[a]	3.52[c]	a = .15 c = .13
Social skills		2140	3.31	3.37[a]	3.36[bc]	a = .14 b = − .04 c = .10
	Leadership	2376	3.11	3.16[a]	3.18[bc]	a = .08 b = .04 c = .12
	Friendship skills	2464	3.26	3.33[a]	3.27[b]	a = .12 b = − .11
	Social comfort	2403	3.22	3.28[a]	3.26[bc]	a = .09 b = − .04 c = .05
	Peer relationships	2479	3.66	3.70[a]	3.70[c]	a = .11 c = .10
Physical & thinking skills		2340	3.49	3.56[a]	3.48[b]	a = .16 b = − .19
	Adventure & exploration	2420	3.40	3.52[a]	3.38[bc]	a = .19 b = − .26 c = − .04
	Environmental awareness	2455	3.58	3.61[a]	3.59[b]	a = .06 b = − .04
Positive values & spirituality		1574	3.28	3.31[a]	3.29[c]	a = .07 c = .04
	Values & decisions	2430	3.36	3.39[a]	3.39[c]	a = .07 c = .07
	Spirituality	1697	3.19	3.22[a]	3.21	a = .05

Note. Sample sizes vary because of missing data and deliberate skipping of sensitive sections.

[a]difference between precamp and postcamp is statistically significant at $p \leq .05$ or less.

[b]difference between postcamp and follow-up is statistically significant at $p \leq .05$ or less.

[c]difference between precamp and follow-up is statistically significant at $p \leq .05$ or less.

all the campers who completed precamp and postcamp questionnaires, were equal to precamp scores + (B × .1667), where B is the unstandardized regression coefficient for age and. 1667 is one-sixth of a year, the mean pre-post interval. Paired-samples *t*-tests revealed that actual postcamp scores were significantly larger than estimated postcamp scores, in most cases. This suggested that camp experiences, above and beyond expected maturation over the course of the pre-post interval, may have contributed to children's development. See Table 7.

Table 6 Counselors' observed mean pre-post scores on the SOC, by domain

Domain	*n*	Precamp	Postcamp	Difference	η^2
Positive identity	2731	3.20	3.34***	.14	.23
Social skills	2726	3.03	3.19***	.16	.25
Physical & thinking skills	2678	3.14	3.35***	.21	.40
Positive values & spirituality	2549	3.08	3.21***	.13	.21

Note. Sample sizes vary because of missing data.

***$p \leq .001$.

Table 7 Children's actual postcamp CGI-C scores compared with age-estimated postcamp scores

Construct	*r* (score-age correlation)	B (regression slope)	actual post-camp score	age-estimated post-camp score	*p*
Self-esteem	−.02	−.022	3.70	3.66	≤ .001
Independence	.18**	.06	3.45	3.43	.071
Leadership	.01	−.04	3.13	3.10	≤ .001
Friendship skills	.02	−.036	3.46	3.36	≤ .001
Social comfort	.07**	.005	3.22	3.22	.560
Peer relationships	.07**	.022	3.63	3.65	≤ .01
Adventure/exploration	−.14**	−.08	3.73	3.55	≤ .001
Envronmental awareness	−.25**	−.057	3.75	3.74	.322
Values & decisions	−.10**	−.045	3.46	3.44	≤ .01
Spirituality	−.18**	−.115	3.17	3.13	≤ .001

**$p \leq .01$.

Correlates of change

Although we hypothesized that growth would be evident across a heterogeneous and representative cross-section of campers and camps, we nevertheless sought to explore structural and demographic correlates of change. Specifically, four pieces of conventional wisdom were tested: (1) Longer camp stays affect greater changes; (2) Intentionally emphasizing an aspect of development—namely spirituality—affects greater change in that area; (3) Boys and girls who had more room for growth would show the greatest gains; and (4) Children who enjoyed camp the most also grew the most developmentally.

Bivariate correlational analyses of campers' reports of changes from precamp to postcamp with days of stay at camp were mostly not statistically significant. Two weak correlations suggested that longer session lengths slightly strained peer relations and slightly diminished exploration of new activities ($r = -.04$, $p \leq .05$; $r = -.06$, $p \leq .001$). Parents' reports indicated that longer session lengths were weakly associated with fewer prosocial behaviors, as indicated by the Making Friends construct on the CGI-P ($r = -.06$, $p \leq .01$). None of the counselor-reported precamp to postcamp changes were reliably associated with session length. Overall, correlations with session length did not support a dosage effect for change at camp.

Analysis of variance comparing campers' mean raw change scores between religiously affiliated and nonreligious camps supported the hypothesis that campers at religiously affiliated camps evidenced more growth in the CGI-C construct of Spirituality ($F_{(3,2081)} = 2.99$; $p \leq .05$). Conservative posthoc tests (Tamhane T2, for groups with unequal variances) confirmed that children's self-reports of spiritual growth from precamp to postcamp at religiously affiliated camps exceeded the growth reported at agency camps ($p \leq .01$), but was not significantly different from the growth reported at independent for profit or independent nonprofit camps. Parent reports on the CGI-P construct of Spirituality also suggested that children evidenced more spiritual growth at religiously affiliated camps, compared to the other three kinds of camp sponsorships ($F_{(3,2166)} = 4.14$; $p \leq .01$). Posthoc tests showed a significant difference between religiously affiliated camps and independent for profit camps ($p \leq .01$).

As predicted, children whose self-report scores were lowest at precamp showed the greatest gains from precamp to postcamp. This is best illustrated by comparing the average precamp and postcamp CGI-C construct scores for five groups, defined by their precamp total scores on the CGI-C. For campers whose mean CGI-C construct scores averaged between 0 and 2.99 ($n = 166$), the mean pre-post change was .29; between 3 and 3.249 ($n = 298$), mean pre-post change was .10; between 3.25 and 3.49 ($n = 595$), mean pre-post change was .05; between 3.50 and 3.749 ($n = 612$), mean pre-post change was $-.02$; and between 3.75 and 4 ($n = 260$), mean pre-post change was $-.06$. Perhaps this effect was partly due to the epiphenomena of statistical regression to the mean and/or a ceiling effect. It was also evidence that camp engendered the most growth in the less well-developed children.

There were no reliable trends linking gender or ethnicity (White vs. NonWhite) to change scores on the CGI-C, CGI-P, or SOC. A few significant correlations, on the order of $r = .08$, suggested that, contrary to Dimock and Hendrey (1929), older campers showed slightly more change on some constructs than younger campers. Exploratory regression analyses, regressing change scores on a variety of independent variables, such as age, gender, ethnicity, sponsorship, camp type, camp fee, and session length, yielded paltry adjusted R^2 values, on the order of .017 or less. Clearly, some the demographic and structural factors associated with change remain elusive.

Finally, children were asked on their postcamp questionnaire, to rate their overall camp stay on a numerical scale

from 0 ("terrible") to 10 ("excellent") with "so-so" as the midpoint anchor. The bivariate correlation with total CGI-C pre-post change scores was.17 ($p \leq .01$); with total CGI-P pre-post change scores was. 03 (ns). This suggested a modest relationship, if any, between growth at camp and children's enjoyment of the experience.

Satisfaction data

Children's and parents' responses to additional items on the postcamp versions of the CGI-C and CGI-P illuminated some of the positive outcomes of the experience. For example, 75% of children and 69% of parents agreed "a lot" with the statement "Camp helped [me/my child] make new friends;" 69% of children and 58% of parents agreed "a lot" with the statement "Camp helped [me/my child] get to know kids who are different from [me/him/her];" and 65% of children and 73% of parents agreed "a lot" with the statement "The people at camp helped [me/my child] feel good about [myself/him/herself]." Some 76% of children indicated that they had learned something new at camp; 71% indicated that they improved their skills in some area while they were at camp. Some 70% of parents reported that after camp their children were noticeably more confident and had more self-esteem; 18% said their child had better social skills.

Discussion

Multiple raters (children, parents, and camp counselors) using parallel forms all reported significant growth in the domains of Positive Identity, Social Skills, Physical & Thinking Skills, and Positive Values & Spirituality for children between 8 and 14 years old who were spending a week or more at camp. This longitudinal convergence of opinion, from a large, representative, national sample, strongly supports the conventional wisdom, anecdotal reports, single-camp studies, and multisite retrospective studies that have all found camp to be a positive developmental experience. Analysis with a nonrandom constructed comparison group confirmed that growth at camp significantly exceeded growth attributable to maturation alone. These findings fit nicely within the theories of Positive Youth Development that predict multidimensional growth from a sustained, engaging experience in an environment of supports and opportunities. Some of the growth reported from precamp to postcamp was also reported by parents and children six months after camp, suggesting that camp may spark and perhaps even accelerate growth in certain domains long after immersion in the camp environment is over. Despite growth that appears to exceed the rate of maturation in certain domains, this initial descriptive study does not permit strong conclusions about camp's causing the observed growth in children.

Children reported precamp-to-postcamp growth in 6 of 10 constructs: Self-Esteem, Independence, Leadership, Friendship Skills, Aventure/Exploration, and Spirituality, as indexed by a customized survey. Much of this growth seemed to continue or be maintained six months after camp. Children also reported a small but significant decrease in the construct of Peer Relationships, suggesting camp challenged some children's abilities to get along with others. Parents reported precamp-to-postcamp growth in all of the areas in which children reported growth and also in Social Comfort, Peer Relationships, Environmental Awareness, and Positive Values & Decision Making. Here, too, much growth seemed to continue or be maintained at the six-month follow-up. As with children's self-reports, effect sizes were generally small. Finally, camp staff were asked to index Positive Identity, Social Skills, Physical & Thinking Skills, and Positive Values & Spirituality for each of the children under their direct supervision. Staff reported significant growth in all four of these broad developmental domains.

This study demonstrates—for the first time with a nationally representative sample—that accredited summer camps of at least a week's duration may all provide, to some degree and for most children, the essential ingredients for positive youth development. To use the language of contemporary PYD theorists, they are voluntary, structured activities where intrinsic motivation is high and where challenging opportunities and reliable supports are plentiful (cf., Gambone, 2002; Larson, 2000). In addition, camp is an immersive experience that allows for the sustained resetting of negative attitudes and behaviors and the reinforcement of positive attitudes and behaviors. Results of this study suggest that camps are one answer to Bumbarger and Greenberg (2002) and Gillham, Reivich, and Shatté (2002), who called for national programs that fostered a broad range of positive outcomes, rather than ones that narrowly drive decreases in a few unhealthy risk behaviors. Indeed, as summarized in the Introduction, organized camp is a program that was originally designed both to prevent poor outcomes in youth *and* to make good citizens better. This study's design answered the call of Catalano *et al*. (2002), who lamented previous PYD studies' lack of follow-up measurement, narrow scope of outcome measures, and dearth of multiple informants. The strengths of the study's design included: (1) full immersion of all participants in an organized, nationally accredited program of activity; (2) full attendance of all participants in the program; (3) use of multiple reporters; and (4) a longitudinal design that included preprogram, postprogram, and follow-up data collection. These design elements were improvements over other studies of positive youth development, which have often measured participants' attitudes and behaviors at just a single point in time (e.g., BSA, 1998).

Despite these methodological strengths, this study had clear limitations. First, although the voluntary nature of camp

feeds its intrinsic motivation and minimizes adjustment problems, such as homesickness (Thurber and Sigman, 1998), it naturally results in a self-selected sample. The fact that parents and children work together to find a camp that best matches the child's interests, abilities, and developmental needs surely maximizes the likelihood of positive outcomes. Unfortunately, it also reduced the variability in this study's sample. Most children had high precamp scores on all constructs, according to both parents and children. This surely constrained correlations and may have clouded differences among key variables.

Second, as Larson (2000) pointed out, children from higher SES backgrounds, with more ability and greater parental support, tend to have more positive outcomes. This study did not measure individual families' socioeconomic status, or children's cognitive abilities, or the level of parental support, or any other third variable that might be contributing to the positive effects observed after a camp stay. Possible third variables make the interpretation of the 6-month follow-up data particularly challenging to interpret. Future studies should seek to separate the variance in growth due to the enduring effects of camp from other influences on development.

Third, because different cohorts of different sizes were drawn from different camps (e.g., 10-12-year-old boys staying 2 weeks at Camp A and 12-14-year-old girls staying 4 weeks at Camp B), this study did not permit valid comparisons among the 80 participating camps. Had such comparisons been possible, we might have learned more about what camp programs, missions, or philosophies were associated with the most growth. Although it was clear that campers at religiously affiliated camps realized, on average, more spiritual growth, there is more to learn about intentionality in camp programming.

Fourth, all camps in this study were, by design, accredited by the American Camp Association. Each had complied with up to 300 industry standards relating to staff hiring and training practices, health and safety protocols, etc. In many ways, this is a methodological strength. However, it also may have resulted in enough homogeneity in camp quality that expected correlates of change, such as length of stay, were ultimately negligible. Future research aimed at discerning the qualitative, structural aspects of camp most associated with children's development could include a wider variety of accredited and nonaccredited camps. Undiscovered structural forces notwithstanding, it seems likely, as Dimock and Hendrey speculated almost 80 years ago, that the quality of adult-child and child-child relationships at a camp is responsible for the greatest acceleration in children's development during and after camp. These relationships at camp are the foci of our ongoing research.

The decrement in children's self-report scores on the Peer Relationships construct suggests at least one unexpected dynamic at camp. Contrary to our hypothesis, some children reported being less confident that they could get along well with others or that others liked them and liked being with them. Perhaps the mechanism behind this and any other individual changes in the negative direction can be partly explained by the phenomenon of intrapersonal recalibration. Although the camp experience is expressly designed to be positive, camps purport to promote growth through challenging children, encouraging them to take healthy risks, and immersing them in an intense social milieu (Gregg and Hansen-Stamp, 2005). The net result of these calculated stressors may, in many cases, be that a child reassesses his or her abilities and self-concept.

For example, a child may play on the school soccer team. She may enjoy the time on the field, the camaraderie with teammates, the physical exercise, and the skillful contributions she makes to the team's occasional successes. Once at camp, she may encounter players her age who are decidedly more skilled, an atmosphere that is more spirited, a coach who pushes her harder in practice, and opposing teams who are better. In reality, this camper's soccer skills may grow a great deal, but her self-perception of how well she plays may diminish. She has had to recalibrate. Perhaps a similar dynamic is at work socially for some children at camp. A child who has gotten along well with others at school and in his neighborhood, and who perceives himself to be well-liked, arrives at camp and—by design—is surrounded by some children unlike himself. His cabin mates are from different parts of the country, follow different religious traditions, and have a different style of interaction. This child's social skills may very well develop during just a week or two at camp, but he may perceive himself to be less well-liked than at home. Or, he may perceive himself to be less socially skilled than he reported on his precamp questionnaire. Here too, camp has been a positive growth experience for this child, even though his self-report on social skills items are lower at postcamp than they were at precamp.

One thing is certain: Camp was rarely an aversive experience for children, nor was it an experience reliably associated with significant negative change among the constructs we measured. Certainly, some change in the negative direction, from precamp to postcamp, represents statistical regression toward the mean. This was expected, given campers' high precamp scores. That said, it was also expected that some children would not enjoy camp. Their interests, abilities, and developmental needs may have been poorly matched to their particular camp. Or, they may have been poorly prepared for the separation and become extremely homesick. Research does suggest that 7% of 8-to-16-year-old boys and girls at overnight camp experience intense homesickness, associated with significant symptoms of depression and anxiety (Thurber, 1995; 1999; Thurber, Sigman, Weisz, and Schmidt, 1999). However, it is worth noting that even for the group

of children who reported negative change on a construct, the postcamp group mean never dropped into "disagree territory," i.e., below 2.5 on the 4-point scale. On an individual level, of the roughly 3000 children who completed precamp and postcamp questionnaires, just 114 (under 4% of the sample) dipped from a 3 ("agree a little") or a 4 ("agree a lot") on any one of the 10 constructs to 2.5 or below on that same construct; just 9 children (0.3%) dipped from a 3 or a 4 on one of the constructs to a 1 ("disagree a lot") on that same construct. In sum, very few children reported that some aspect of their camp experience was negative. Recalibration of self appraisal seems the most likely explanation for construct changes in the negative direction, though more research is needed to understand the children's negative experiences at camp.

Future research is also aimed at understanding the structural and interpersonal mediators and moderators of positive youth development at camp. For more than 150 years, the institution and social movement of camp has aimed to promote children's growth. Until recently, efforts to refine that delivery system have largely been guided by intuition. This study suggests, but does not prove, a pervasive net positive effect of the camp experience on multiple aspects of children's development, using a representative national sample. A closer examination of the specific and common factors that underlie those effects is the next crucial step toward strengthening camp and the millions of young people who participate in camps each year.

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