

## 4-S Positive Youth Development in Latin America: Professional Schools in Costa Rica

### Abstract

As youth development programs established in the United States expand globally, researchers must evaluate their impacts in diverse contexts. The work described in this article established a baseline for assessing the impact of a 4-S youth program at professional technical high schools in Costa Rica. The 4-S program is equivalent to 4-H in English-speaking countries. Results indicate that members of the 4-S program exhibited significantly higher levels of positive youth development than youths in the comparison group ( $p < .001$ ). We consider how these findings speak to the importance of promoting programs such as 4-S, and we conclude by discussing the implications of this work for practitioners.

**Keywords:** [positive youth development](#), [five Cs](#), [4-H](#), [Costa Rica](#)

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## Introduction

Youth-serving organizations have existed for over a century (Le Menestrel & Lauxman, 2011). Over that time, associated programming has evolved to meet the changing needs of youths, changing societal and cultural expectations, and increased connections across the globe. For instance, 4-H was established in the United States in the late 19th century and has spread to more than 50 countries (National 4-H Council, n.d.). 4-H and its related programs now reach approximately 7 million young people worldwide (National 4-H Council, n.d.).

Despite theoretical and empirical evidence supporting strength-based youth-serving organizations, most programs have only recently moved beyond a deficit-oriented perspective toward young people. Individuals working from a deficit-oriented perspective have treated youths as "problems to be managed" (Roth, Brooks-Gunn, Murray, & Foster, 1998). However, as youth development programs have expanded in recent decades, they have increasingly adopted more strength-based perspectives. In particular, the positive youth development (PYD) perspective has emerged as a prominent model among practitioners and researchers (Lerner, 2004). Of the many extant PYD models, the five Cs model of PYD developed by Lerner et al. (2005) has received perhaps the most comprehensive empirical support (e.g., Heck & Subramaniam, 2009). The five Cs model centers on five indicators of thriving in young people (competence, confidence, character, caring, and connection). Most applications of this model to date have stemmed from the 4-H Study of Positive Youth Development (Bowers,

Geldhof, Johnson, Lerner, & Lerner, 2014; Lerner et al., 2005), and this model naturally aligns with key strengths youth practitioners attempt to bolster in young people.

In the study discussed in this article, we assessed the impact of 4-S youth programs in Latin America by using measures of the five Cs. 4-S is a Costa Rican adaptation of 4-H. We examined whether, after controlling for age, gender, and parental income, youths enrolled in 4-S exhibited higher levels of the five Cs of PYD and had higher frequencies of contribution to their communities than youths not enrolled in 4-S. This study attempts to replicate findings from the United States showing that youths enrolled in 4-H programming are nearly four times as likely as non-4-H youths to report contributing to their communities (Lerner & Lerner, 2013).

In addition to providing an empirical test of the 4-S program's effectiveness, our study lays the groundwork for future PYD research. For instance, we describe one of the first applications of the five Cs model to study youths enrolled in professional technical high schools. In developing and lower-income countries marked by high levels of youth unemployment and poverty, policy makers increasingly seek to promote economic growth and employment through educational efforts that emphasize "skills for jobs" (Balwanz, 2012; World Bank, 2012). Therefore, professional technical high schools have become an important context for examining PYD. Our study also highlights the growing impact that 4-H and Extension programs can have at the international level. As these programs expand internationally, it is important to understand their global impact and to discover how youth-serving programs can adapt to meet the needs of diverse local populations.

## Theoretical and Contextual Background

In this section, we briefly summarize the five Cs model of PYD and describe the 4-S program. This background provides an important context that frames the empirical results presented later.

### The Five Cs of PYD

The five Cs model specifies that PYD emerges when young people exhibit five key indicators of thriving (i.e., the five Cs). Although these indicators are typically measured at the level of an individual, it is important to realize that PYD can exist only as a relationship between individuals and their contexts. Each C therefore actually represents a person–context relationship (e.g., Geldhof, Bowers, Johnson et al., 2014). In our conception of the five Cs, we define *competence* as the ability to successfully navigate the world and achieve one's goals. *Confidence* is the sense of well-being that arises from competent navigation of one's context. *Character* develops as individuals internalize social norms and act in ways that reflect those standards. We define *caring* as the empathic responses to others in one's context and *connection* as the bonds that connect individuals to each other. Taken together, the five Cs combine to promote a "sixth C": contribution (Lerner et al., 2005).

The five Cs framework has been validated in numerous scientific publications. As noted previously, much of this research derives from the 4-H Study of Positive Youth Development, a study from the United States that began in 2002 and followed more than 7,000 youths over 8 years (ending when participants were in grade 12) (Bowers et al., 2013; Lerner et al., 2005). Although prior research illuminated areas in which youth program leaders can promote youth thriving (Bowers et al., 2015; Jeličić, Bobek, Phelps, Lerner, & Lerner, 2007; Robinson, Levon, Dotterer, McKee, & Tucker, 2012), the implications of this research remain geographically limited. Additional research is needed to understand how children and adolescents adapt and thrive in diverse contexts.

### 4-S Programming in Costa Rica

Due to its history of active national youth-serving programs based on PYD principles, Costa Rica is an appropriate context for testing a measure of the five Cs. In 1949 the Inter-American System of Central America Integration adapted the 4-H model to provide support for youth agricultural projects in Cartago City, Costa Rica (Ministerio de Agricultura y Ganadería de Costa Rica, 2012; Fundación Nacional de Clubes 4-S Costa Rica [FUNAC], 2012). It was the first time Costa Ricans implemented the Spanish 4-H brand and motto called 4-S (saber [head], sentimiento [heart], salud [health], and servicio [hands]). One year later, aiming to expand the pilot program, the Ministry of Agriculture and Livestock incorporated the National 4-S Clubs program into its extension activities through the creation of a government foundation (Rivera, 2002).

In 1960 the American International Association for Economic and Social Development and the Inter-American Institute of Agricultural Sciences (now the Inter-American Institute for Cooperation on Agriculture) created an umbrella organization for Latin American 4-S clubs) (Rosenberg, 2011a). This organization then financed the Programa Interamericano para la Juventud Rural (PIJR), or the Inter-American Rural Youth Program (Rosenberg, 2011b).

The PIJR lobbied for legislation and gathered supporters for the National Foundation of 4-S Clubs in Costa Rica, called FUNAC 4-S (FUNAC, 2012). FUNAC 4-S offered training and opportunities to children and youths aged 5–19 years, including recreation camps, volunteer programs, and international exchange programs. In addition to youths, FUNAC 4-S provided support for rural women. Because women traditionally have been marginalized in Costa Rican culture, job skills training such as that provided by 4-S served as an important component of empowering adult women and youths. The PIJR launched a series of initiatives that reached more than 20 countries in Latin America and the Caribbean but then suffered as dictatorships became more powerful across the region (La Gaceta, 2012). After years of minimal impact, FUNAC 4-S was reformed and renamed National Council of 4-S Clubs Costa Rica (CONAC 4-S) on November 22, 2012 (FUNAC, 2012). CONAC 4-S programming has recently expanded to professional technical high schools (referred to in Spanish as CTPs), which provide technical education in urban and rural areas. CONAC 4-S programming centers on three vocational domains: commerce and services, industry, and agriculture (FUNAC, 2012).

4-S programs involve various activities that focus especially on environmental projects (natural, human, and social capital) (Lopes, 2013). As some examples, these clubs develop reforestation projects, solid waste management and recycling activities, organic fertilizers, and community orchard plots. 4-S agricultural products can generate income for 4-S clubs, which 4-S reinvests in school infrastructure and development activities such as 4-S camps. 4-S clubs based in CTPs have one guide-teacher who conducts 2–3 hr of PYD activities per week. There are over 285 clubs in seven regions of Costa Rica, 35% of which are running projects in CTPs. In the study described herein, we specifically examined the impact of CTP-based programs on indicators of PYD.

## Methods

### Participants

The sample consisted of a convenience sample of 544 students, aged 12 years and older, from 28 CTPs in Costa Rica. Students in these schools had either self-selected into 4-S programming ( $n = 311$ ) or did not participate in 4-S ( $n = 233$ ). We used these naturally occurring groups to perform a quasi-experimental comparison.

In both study groups (4-S and non-4-S), the highest proportions of participants were in the ninth grade (22% and 31%, respectively). Fifty-five percent of 4-S youths were male, and 52% of non-4-S youths were male. Also,

the groups had high percentages of participants who identified themselves as Mestizos (54% and 48%, respectively) and Trigueños/White (28% and 36%, respectively). (The term *Mestizo* describes individuals with mixed European and Indian lineage, particularly those with one parent of each race. The term *Trigueño* translates into English as "dark yellow like of mature wheat." In the context of our study, the Trigueños/White category included individuals with lighter skin tones.) Participants indicated their age by selecting one of several age-range options, and the modal response suggested that the average age was between 14 and 16 years.

In general, participants' parents had completed primary education. Fathers' incomes were typically between 301,000 and 600,000 colones (U.S. \$567 to U.S. \$1,130) per month, whereas mothers' incomes were typically between 101,000 and 300,000 colones (U.S. \$190 to U.S. \$565) per month. Chi-square tests indicated that the two study groups did not significantly differ in terms of gender,  $\chi^2(1) = .47, p = .50$ ; paternal income,  $\chi^2(5) = 2.66, p = .75$ ; or maternal income,  $\chi^2(6) = 6.97, p = .32$ ; however, 4-S participants were significantly older than non-4-S participants,  $\chi^2(3) = 50.60, p < .001$ .

## Procedures

With approval of CONAC 4-S, we initially contacted the seven regional directors of clubs and equipment who serve on the national board of CONAC 4-S, asking them to send two sets of letters in Spanish on our behalf. We addressed the first set of letters to directors of the professional technical schools to recruit participants for the study. We addressed the second set of letters to parents of youths who participated in 4-S clubs. This second set of letters explained the reason for our research and included an informed consent statement parents were asked to sign. The institution that supported this research (Centro Agronomico Tropical de Investigacion y Ensenanza) does not have an institutional review board. Instead, ethical oversight of research conducted at the university must be approved by a committee consisting of four professors and one dean. This committee approved all research protocols for our project.

Our strategy led to a national sample of CTPs that included 4-S programming. Data came from seven regions in Costa Rica: Pacifico Central (all nine clubs in the region participated), Chorotega (six of seven clubs participated), Brunca (two of four clubs participated), Central East-West (two of six clubs participated), South Central (two of four clubs participated), Huetar Atlantic (two of four clubs participated), and Huetar Norte (three of four clubs participated).

## Youth Survey

The survey we used combined an adapted short-version five Cs questionnaire (Geldhof, Bowers, Boyd et al., 2014) with protocols from Bautista et al. (2010) and Lewis (2007). The questionnaire also measured sociodemographic characteristics, such as gender, age, region of residence, ethnicity, education level, and parents' monthly income. The average time participants took to complete the survey was 30 min. The first author on our team translated the five Cs questionnaire into Spanish, and a panel of content experts reviewed items to ensure that the translation retained face validity.

The survey targeted six constructs (the five Cs of PYD plus community contribution) via 43 questions. Thirty items measured the five Cs and asked youths to respond regarding their own perceptions using a 4-point Likert-type scale. Item response options ranged from 4 = *muy cierto* (*very true* in English) to 1 = *nada cierto* (*not true at all* in English). We computed the mean of items representing each C and computed an additional composite

measure of PYD by averaging of each participant's scores on all items measuring the five Cs. Because the Cs were indicated by so few items, and because each C is itself multidimensional, the five Cs exhibited moderate reliability (as assessed by applying Cronbach's alpha; competence = .78, confidence, = .59, character = .66, caring = .71, connection = .74; overall PYD = .81).

Thirteen items measured the "sixth C" of contribution. We adapted these items from the protocols of Bautista et al. (2010) and Lewis (2007) to use a 4-point Likert-type scale. As with the five Cs of PYD, a composite measure of contribution was computed as the average of all 13 contribution items ( $\alpha = .90$ ).

## Data Analysis

The primary goal of our study was to compare PYD and contribution scores of Costa Rican youths enrolled in 4-S programming with those of youths not enrolled in 4-S. Because the outcomes were highly correlated, we first computed Hotelling's  $T^2$  statistic to determine whether group differences existed on any of the outcomes. We then computed a series of analyses of covariance to examine group differences on each outcome separately (specifying a Bonferroni correction to the Type-I error rate). To account for the possibility that socioeconomic factors can lead to between-group differences, we controlled for gender, age, paternal income, and maternal income in all analyses. Data for these covariates were categorical, and missingness was included as an analyzed category.

## Results

We first computed descriptive statistics for all variables we analyzed. Table 1 provides means and standard deviations for each variable across the two groups. Most outcome variables were positively correlated with each other, highlighting the need to conduct a preliminary multivariate analysis (i.e., the  $T^2$ ) prior to making group comparisons on individual outcomes.

**Table 1.**

Five Cs of PYD and Contribution Means and Standard Deviations for Youths in 4-S Programming and Youths Not in 4-S Programming

| Construct    | 4-S      |           | Non-4-S  |           |
|--------------|----------|-----------|----------|-----------|
|              | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Competence   | 2.98     | 0.60      | 2.96     | 0.61      |
| Confidence   | 3.12     | 0.49      | 3.10     | 0.48      |
| Character    | 3.47     | 0.33      | 3.29     | 0.40      |
| Caring       | 3.49     | 0.42      | 3.31     | 0.49      |
| Connection   | 3.23     | 0.47      | 3.09     | 0.53      |
| PYD          | 3.27     | 0.28      | 3.16     | 0.30      |
| Contribution | 3.47     | 0.42      | 3.12     | 0.50      |

*Note.* PYD = positive youth development, an average of all five Cs.

Results of the multivariate analysis suggested between-group differences in the outcomes,  $\lambda = .89$ ;  $F(6, 522) = 10.84$ ,  $p < .001$ . Follow-up analyses of covariance then supported between-group differences for character, caring, connection, overall PYD, and contribution, controlling for participant age, gender, and parental incomes (see Table 2). Although the effect sizes were typically small (the largest eta-squared was .12), these results suggest that youths involved in 4-S displayed significantly greater levels of PYD and made significantly greater contributions to their communities than youths who were not involved in 4-S.

**Table 2.**

Analysis of Covariance Results for the Five Cs of PYD and Contribution on 4-S Participation

| <b>Construct</b> | <b>F(1, 527)</b> | <b>p (unadjusted)</b> | <b><math>\eta^2</math> (partial)</b> |
|------------------|------------------|-----------------------|--------------------------------------|
| Competence       | 0.07             | .79                   | 0.00                                 |
| Confidence       | 0.33             | .56                   | 0.00                                 |
| Character        | 23.74            | <.001                 | 0.04                                 |
| Caring           | 12.95            | <.001                 | 0.02                                 |
| Connection       | 10.52            | .001                  | 0.02                                 |
| PYD              | 15.00            | <.001                 | 0.03                                 |
| Contribution     | 61.31            | <.001                 | 0.10                                 |

*Note.* PYD = positive youth development, an average of all five Cs. Effects are statistically significant if the unadjusted  $p$  value is less than .007.

## Discussion

The five Cs model hypothesizes that youths who experience positive interactions with their contexts will exhibit five indicators of thriving: competence, confidence, character, caring, and connection. The five Cs should then promote the emergence of a sixth C: contribution. Due to the empirical support for 4-H programming and its associations with higher levels of the five Cs in the United States, we hypothesized that 4-S programming in Costa Rica would be similarly associated with positive youth outcomes. Our results supported this hypothesis. Even after controlling for age, gender, and income, youths enrolled in 4-S exhibited higher levels of character, caring, and connection than other young people from Costa Rica. Youths who participated in 4-S and youths not enrolled in 4-S did not differ in their self-assessed levels of competence and confidence.

Our results suggest that the extended learning opportunities provided by 4-S programs can complement the curricula of professional technical high schools in Costa Rica by promoting aspects of the "whole child" that are often overlooked (i.e., character, caring, and connection). This whole-child approach is consistent with the PYD perspective. Therefore, practitioners and policy makers in Costa Rica should support the integration of out-of-school-time activities, such as those provided through 4-S, as complementary to school curricula for promoting PYD in a comprehensive manner (Weiss, Little, Bouffard, Deschenes, & Malone, 2009). In addition, across the globe, these capacities are often linked to workforce success, such as employment, job performance, and income (Lippman, Ryberg, Carney, & Moore, 2015). Thus, incorporating programming such as 4-S into professional technical high schools may help "developing-but-not-yet-developed" (Andrew, 2011, p. 12) and lower-income

countries promote economic growth by reducing unemployment among young people (the Human Development Index for Costa Rica was .776 in 2016; United Nations Development Programme, 2016). Finally, youths engaged in 4-S programming reported greater levels of contribution to their communities. Therefore, although professional technical schools may already benefit communities through reduced unemployment and increased economic opportunities, with the addition of 4-S programming, young people attending these schools are more likely to contribute to the well-being of their communities more directly.

## Implications for Extension

As the reach of 4-H and related programs continues to extend internationally, it is important that such programs be adapted to the needs of youths in diverse contexts. With these adaptations comes the need for evidence supporting their impact in local settings; it is insufficient to assume that because United States–based programs are effective, their adaptations in new contexts will also promote youth thriving. The results of our study, therefore, highlight how United States–based 4-H programming can serve as a model for similar programs worldwide. By providing empirical support for the effectiveness of PYD programming in Latin America, our results support and encourage continued expansion of extension PYD programming throughout Central and South America.

Our work also provides a possible bridge between youth programming in Latin America and Extension services in the United States. As increasing numbers of Latinos have migrated to the United States from Latin American countries (Zong & Batalova, 2015), Extension has been at the forefront of providing services to this growing population (Hobbs, 2004). However, many Extension educators have expressed a lack of preparation for providing quality programming to clients from immigrant Latino populations (Herndon, Behnke, Navarro, Daniel, & Storm, 2015). Our finding that 4-S programming is linked to positive impacts for youths in Latin America could provide guidance for the type of programming Extension educators might implement with newly arrived immigrant youths (see also Lippert & Rembert, 2012). Future research should more deeply examine the structure, content, quality, and implementation of 4-S programming to identify which aspects are linked to PYD benefits in Costa Rican youths. Considering the aspects of youth programming in a young person's native country may improve the cultural competence of Extension staff in engaging these youths and their families (Simpkins & Riggs, 2014). Culturally competent practices, however, would recognize that Latin American youths who immigrate to the United States may differ in individual and contextual factors from youths living in Latin America.

## Limitations

Our research helped strengthen support for the notion that youth development programs can help young people thrive. The work is not without its limitations, however. First, and most importantly, we were unable to truly randomize youths to receive versus not receive 4-S programming. Although we controlled for age, gender, and income, myriad other factors may have caused youths with higher-than-average levels of PYD and contribution to self-select into 4-S. Thus, future research should address the factors that lead some young people, but not others, to participate in 4-S and clarify how those factors may affect positive youth outcomes.

Last, the study's measure relied on self-report data rather than direct observation. For instance, the questions related to academic skills did not include measures of actual school performance. Additional research is therefore needed in order to compare and corroborate methodologies.

## Conclusion

Our study illustrates the impact of CONAC 4-S on youth development. It provides a baseline for future longitudinal research and exemplifies how the 4-H model can be replicated internationally. Our results suggest that 4-S program clubs in Costa Rica can help enrich the lives of youths, strengthening both their own development and the impacts they have on their communities.

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