

PCA Impact Comparison Study:

Report of Findings

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Executive Summary

This study assessed the impacts of Positive Coaching Alliance's Double-Goal Coach® training on coaches and athletes including athlete retention and the quality of experience. PCA received surveys from 4,379 coaches (18% female, 7% response rate to emailed survey invitation) who were actively working with youth and/or high school athletes in the 2012 and 2013 season. Forty-three percent of study participants had taken PCA training prior to the 2012 and 2013 season (18% online and 25% live). Study participants had a wide range of coaching experience across a variety of sports at the youth and high school level. The authors of this report advised PCA on survey design and analyzed the surveys.

In sum, the results of this study suggest that PCA Double-Goal Coach® training influences coaches to change their coaching behavior, enabling them to more positively influence the experiences of the athletes on their teams. Summaries of specific results enumerated below:

- 1) Coaches reported that PCA training had a positive influence on athlete experience (mean response = 4.09, *SD* = 0.61, on a 5-point scale where 4 = "positive influence" and 5 = "strong positive influence") and performance (mean response = 3.86, *SD* = 0.65, on the same scale).
- 2) PCA training had a positive effect on retention of coaches (mean response = 3.54, *SD* = 0.76, on a 5-point scale where 3 = "no impact" and 4 = "more likely to keep coaching"), with a stronger impact reported by coaches with fewer years of experience.
- 4) Athlete retention was higher among PCA-trained coaches than coaches untrained by PCA overall, with some differences observed by age group, gender, coach experience, and sport.
- 5) PCA training had a positive effect on infractions by coaches (mean response = 3.35, *SD* = 0.77 a 5-point scale where 3 = "no change" and 4 = "decrease") and athletes (mean response = 3.45, *SD* = 0.73, on the same scale).
- 6) Qualitative results indicated that PCA-trained coaches made changes to their coaching by using PCA material (e.g., gaining social and emotional skills and adopting a more athlete-focused perspective), and also saw changes in team culture and the athletes themselves.
- 7) Most coaches described the PCA Double-Goal Coach® training as valuable, and many commented that it should be more widely required. A minority had negative opinions.
- 8) Even many of the coaches who said that they already coach in ways compatible with PCA described the training as a useful reminder and reinforcement of their practices.

This study provides important information about the coach-perceived value of PCA Double-Goal Coach® training and the impact this training can have on coaches and athletes at the youth and high school level. Both qualitative and quantitative results indicated that coaches and their teams benefited from participating in the PCA training.

Study Purpose and Content

The Comparison Study of PCA Impact was designed by Jennifer Agans (Cornell University), Courtney Pollack (PCA), and Tina Syer (PCA) to expand on a prior survey and to gather retention data that could be compared across PCA-trained and untrained coaches. The study, which was approved by the Tufts University Institutional Review Board, involved an online survey and consent form distributed to coaches through several national organizations who have partnerships with PCA. The survey included coach demographic information (state and zip code, gender, years of coaching experience, age-level coached, sport coached, and gender of athletes coached) and information about the team they coached in the 2012-2013 season (number of athletes, and number of athletes retained the following year). For those who received live or online PCA training, the survey asked about the influence of PCA training on athlete experiences, athlete performance, their decision to continue coaching, and coach or athlete infractions (ejections, warnings, red cards), as well as providing the opportunity to give general feedback about their PCA training. For full text of survey questions, see Appendix 1.

Participants

The National PCA-Certified Coach survey was distributed via email to a total of 182,081 coaches. Specifically, the survey was distributed to all current coaches by US Lacrosse (33,662 emailed), Pop Warner Football (8,125 emailed), and US Club Soccer (53,691 emailed); to a portion of the current coaches by Little League International Baseball and Softball (7,500 emailed); and to all 2012-2013 coaches by the Amateur Athletic Union (AAU) (78,450 emailed), and US Kids Golf (653 emailed). Participants in the study were 4,379 coaches (18% female, 7% of the 14,667 to whom the email was successfully delivered). Of these coaches, 76% coached youth under 14 and 37% coached high school (some work with both age groups). 51% coached only boys, 35% coached only girls, and 14% coached both boys and girls, and had been coaching for up to 21 years (mean experience = 8.13 years, *SD* = 6.61). Those who provided email addresses were entered in a raffle to win one of ten \$50 Amazon gift cards.

Analysis Method

For the quantitative analyses, the effects of the PCA Double-Goal Coach® training on outcomes of interest were assessed using analysis of variance (ANOVA) with Bonferroni post-hoc tests or Kruskal-Wallis tests. For the qualitative analyses, two coders (Jennifer Agans and Caroline Stack) read the responses to the three open-ended questions and coded them based on the integrative coding scheme developed for the first PCA-Certified Coach survey. Both coders analyzed 20% of the data and achieved an inter-rater reliability of $k=0.64$ (indicating strong agreement¹). Based on this strong inter-rater reliability, the remaining data were divided between the two coders, with Caroline Stack coding 2/3 and Jennifer Agans coding 1/3.

¹ According to Landis and Koch (1977), agreement between $k=0.61$ and 0.80 is considered “substantial.”

Quantitative Findings:

The quantitative analyses examine athlete retention rates and coach perceptions of the effects of the PCA Double-Goal Coach® training on a variety of outcomes. Because coaches were not required to answer all survey questions, the sample sizes (or Ns) vary across analyses.

Athlete retention was calculated using coach responses to the following three questions: “How many athletes were on your team during the 2012-2013 season?” (or “the season you completed PCA’s Double-Goal Coach® training”), “How many of your athletes came back to play this SAME SPORT WITH YOU the 2013-2014 season?” (or “the year after your PCA training”), and “How many of your athletes came back to play this SAME SPORT WITH ANOTHER COACH/TEAM the 2013-2014 season?” (or “the year after your PCA training”). Retention rates were only calculated for those coaches who indicated that they were “somewhat sure” or “very sure” of their estimates. Two retention rates were calculated: the number of athletes continuing with that same coach divided by the number of athletes on the team that season, and the number of athletes continuing with that same coach plus the number of their athletes who continued playing that sport with another coach, divided by the number of athletes on the team that season.

The non-PCA trained coaches in this study reported working with a total of 2,351 athletes, or an average of 22 athletes per coach ($SD=16.1$). The PCA trained coaches in this study reported working with a total of 1,714 athletes, or an average of 24 athletes per coach ($SD=19.5$).

1. General athlete retention rates:

- a. Overall retention for untrained coaches (N=1,522) = 88%
- b. Overall retention for PCA-trained coaches (N=1,072) = 90%
 - i. Overall retention for coaches with live PCA training (N=643) = 90%
 - ii. Overall retention for coaches with online PCA training (N=429) = 90%
 1. Significant difference in coach-reported overall retention [$H(2) = 11.76, p < .01, r = .07$]²³. Specifically, coaches with both live and online PCA training reported higher retention rates than untrained coaches.
- c. Retention with same coach for untrained coaches (N=1,967) = 73%
- d. Retention with same coach for PCA-trained coaches (N=1,497) = 78%
 - i. Same-coach retention for coaches with live PCA training (N=887) = 77%

² Because retention data are non-normally distributed (i.e., more than twice as many coaches reported 100% retention as reported any other retention rate) Kruskal-Wallis tests were used in retention analyses. Whereas ANOVAs assess differences between mean scores, the Kruskal-Wallis test examines all scores and determines whether differences exist in the distribution of high and low scores in each group. In this report we use the appropriate test (Kruskal-Wallis or ANOVA) for each analysis.

³ **Effect size** is a measure of the size of the difference between two means, as opposed to a **p value**, which indicates only whether or not the observed difference was likely to be due to chance. An effect size of $r = .10$ or above is considered “small,” but informative, an effect size of $r = .30$ and above is considered “medium” and an effect size of $r = .50$ or above is considered “large.”

- ii. Same-coach retention for coaches with online PCA training (N=610) = 79%
 - 1. Significant difference in coach-reported retention to the same coach [$H(2) = 39.86, p < .001, r = .10$]. Coaches with PCA training (live or online) had higher retention rates than untrained coaches ($p < .05$). Online-trained coaches reported higher retention than live-trained ($p < .05, r = .05$).

2. Athlete retention rates by age group:

		Overall Retention	Same Coach Retention
High School	Untrained Coaches	N=552, Retention: 83%	N=680, Retention: 75%
	All PCA-Trained Coaches	N=454, Retention: 87%	N=600, Retention: 79%
	Live-Trained Coaches	N=267, Retention: 87%	N=350, Retention: 78%
	Online-Trained Coaches	N=187, Retention: 87%	N=250, Retention: 82%
Youth	Untrained Coaches	N=1,132, Retention: 90%	N=1,502, Retention: 73%
	All PCA-Trained Coaches	N=787, Retention: 92%	N=1,140, Retention: 78%
	Live-Trained Coaches	N=479, Retention: 91%	N=691, Retention: 78%
	Online-Trained Coaches	N=308, Retention: 92%	N=449, Retention: 78%

Among high school coaches, statistically significant differences were observed in overall athlete retention [$H(2) = 16.63, p < .001, r = .13$] with coaches who received live or online PCA training having higher retention rates than untrained coaches. Significant differences were also observed for athlete retention to the same coach [$H(2) = 22.33, p < .001, r = .12$], with coaches who received live or online PCA training reporting higher retention rates than untrained coaches.

Among youth coaches, statistically significant differences were only observed in athlete retention to the same coach [$H(2) = 26.28, p < .001, r = .10$] with coaches who received live or online PCA training reporting higher retention rates than untrained coaches.

Among PCA-trained coaches, coaches of youth or both youth and high school had higher overall retention than coaches who only coach high school [$H(2) = 49.37, p < .001, r = .23$ and $r = .21$, respectively]. Retention to the same coach was higher for coaches of both youth and high school than for coaches of only youth or only high school [$H(2) = 22.66, p < .001, r = .13$ and $r = .19$, respectively]. This same retention pattern was observed among untrained coaches [Overall: $H(1) = 143.71, p < .001, r = .32$ and $r = .31$; Same coach: $H(1) = 6.56, p < .05, r = .12$ and $r = .22$].

Summary: PCA-trained coaches retained more athletes (both youth and high school) than did untrained coaches. Retention differences among PCA-trained coaches mirror those of untrained coaches and are thus unlikely to reflect differences in applicability of PCA training.

3. Athlete retention rates by team gender:

		Overall Retention	Same Coach Retention
Male	Untrained Coaches	N= 769, Retention: 88%	N= 1,009, Retention: 71%
	All PCA-Trained Coaches	N= 516, Retention: 90%	N= 737, Retention: 76%
	Live-Trained Coaches	N= 290, Retention: 90%	N= 420, Retention: 75%
	Online-Trained Coaches	N= 226, Retention: 90%	N= 317, Retention: 78%
Female	Untrained Coaches	N= 544, Retention: 87%	N= 664, Retention: 75%
	All PCA-Trained Coaches	N= 415, Retention: 90%	N= 538, Retention: 78%
	Live-Trained Coaches	N= 251, Retention: 90%	N= 312, Retention: 77%
	Online-Trained Coaches	N= 164, Retention: 90%	N= 226, Retention: 81%
Both	Untrained Coaches	N= 203, Retention: 89%	N= 284, Retention: 76%
	All PCA-Trained Coaches	N= 137, Retention: 90%	N= 214, Retention: 80%
	Live-Trained Coaches	N= 99, Retention: 89%	N= 149, Retention: 81%
	Online-Trained Coaches	N= 38, Retention: 91%	N= 65, Retention: 79%

Overall retention of male athletes did not differ across PCA-trained and untrained coaches at a statistically significant level, but coaches with PCA training (both live and online) working with only male athletes had higher retention to the same coach than did untrained coaches of male athletes [$H(2) = 23.70, p < .001, r = .11$]. For coaches of only female athletes, retention to the same coach was also higher for coaches with PCA training (live or online) than for coaches without PCA training [$H(2) = 15.40, p < .001, r = .10$] as was overall female athlete retention [$H(2) = 8.18, p < .05, r = .09$]. For coaches working with both male and female athletes, no statistically significant differences in retention were observed between PCA-trained and untrained coaches.

Among all PCA-trained coaches, there was no significant difference in overall athlete retention across coaches who work with athletes of different genders. However, retention to the same coach did differ [$H(2) = 6.71, p < .05$] with coaches who work with athletes of both genders reporting higher retention than coaches of only male athletes ($p < .05, r = .08$).

Among untrained coaches, there was also no significant difference in overall athlete retention across coaches who work with athletes of different genders. Retention to the same coach did differ [$H(2) = 16.05, p < .001$] with coaches who work only with male athletes reporting lower retention rates than coaches of only female athletes ($p < .05, r = .06$) and coaches who work with athletes of both genders ($p < .05, r = .10$). Coaches both male and female athletes also reported higher retention than coaches who work only with female athletes ($p < .05, r = .06$).

Summary: For coaches who work only with male athletes or only with female athletes, retention to the same coach was higher among PCA-trained coaches than untrained coaches. Among PCA-trained coaches, the highest retention rates were observed among coaches who work with athletes of both genders, compared to those working only with male athletes.

4. Athlete retention rates by coach gender:

		Overall Retention	Same Coach Retention
Male	Untrained Coaches	N= 1,226, Retention: 88%	N= 1,605, Retention: 73%
	All PCA-Trained Coaches	N= 866, Retention: 90%	N= 1,221, Retention: 78%
	Live-Trained Coaches	N= 511, Retention: 90%	N= 714, Retention: 76%
	Online-Trained Coaches	N= 355, Retention: 90%	N= 507, Retention: 79%
Female	Untrained Coaches	N= 287, Retention: 85%	N= 345, Retention: 72%
	All PCA-Trained Coaches	N= 197, Retention: 88%	N= 261, Retention: 77%
	Live-Trained Coaches	N= 125, Retention: 88%	N= 162, Retention: 76%
	Online-Trained Coaches	N= 72, Retention: 89%	N= 99, Retention: 78%

Coach-Athlete Gender ratios (PCA-trained): 82.4% of female coaches work with female athletes, 5.7% with male athletes, and 11.9% with athletes of both genders. 25.3% of male coaches work with female athletes, 60.4% with male athletes, and 14.3% with athletes of both genders.

Coach-Athlete Gender ratios (untrained): 83.3% of female coaches work with female athletes, 8.6% with male athletes, and 8.1% with athletes of both genders. 23.6% of male coaches work with female athletes, 61.1% with male athletes, and 15.3% with athletes of both genders.

For male coaches, retention did not differ across PCA-trained and untrained coaches at a statistically significant level. However, same-coach retention was higher among live-trained coaches than among untrained coaches and higher among online-trained coaches than among live-trained coaches [$H(2) = 29.73, p < .001, r = .06$ and $.07$, respectively].

For female coaches overall retention was higher among PCA-trained coaches (both live-trained and online-trained) than among untrained coaches [$H(2) = 7.96, p < .05, r = .13$] as was same-coach retention [$H(2) = 10.28, p < .01, r = .13$].

Among PCA-trained coaches, no significant differences in retention were observed based on coach gender. Among untrained coaches, overall retention was higher for male coaches than for female coaches [$H(1) = 19.88, p < .001, r = .11$].

Summary: Coach-athlete gender ratios are similar across PCA-trained and untrained coaches, with the majority of female coaches working exclusively with female athletes and approximately 60% of male coaches working with male athletes. Female coaches seem to benefit the most from PCA training, with higher retention than untrained female coaches both overall and to the same coach, compared to male coaches for whom no differences were observed. In addition, whereas untrained female coaches also have lower retention rates than their male colleagues, PCA-trained female coaches have the same retention rates as trained male coaches.

5. Athlete retention rates by how long their coach has been coaching:

		Overall Retention	Same Coach Retention
0-1 years	Untrained Coaches	N= 199, Retention: 86%	N= 263, Retention: 68%
	All PCA-Trained Coaches	N= 99, Retention: 84%	N= 129, Retention: 68%
	Live-Trained Coaches	N= 71, Retention: 83%	N= 88, Retention: 67%
	Online-Trained Coaches	N= 28, Retention: 87%	N= 41, Retention: 72%
2-5 years	Untrained Coaches	N= 549, Retention: 89%	N= 722, Retention: 72%
	All PCA-Trained Coaches	N= 341, Retention: 90%	N= 505, Retention: 78%
	Live-Trained Coaches	N= 213, Retention: 90%	N= 307, Retention: 78%
	Online-Trained Coaches	N= 128, Retention: 91%	N= 198, Retention: 79%
6-10 years	Untrained Coaches	N= 347, Retention: 89%	N= 451, Retention: 75%
	All PCA-Trained Coaches	N= 282, Retention: 91%	N= 392, Retention: 78%
	Live-Trained Coaches	N= 156, Retention: 92%	N= 219, Retention: 77%
	Online-Trained Coaches	N= 126, Retention: 90%	N= 173, Retention: 80%
11-15 years	Untrained Coaches	N= 177, Retention: 87%	N= 211, Retention: 73%
	All PCA-Trained Coaches	N= 139, Retention: 88%	N= 183, Retention: 80%
	Live-Trained Coaches	N= 74, Retention: 92%	N= 92, Retention: 79%
	Online-Trained Coaches	N= 65, Retention: 91%	N= 91, Retention: 81%
16-20 years	Untrained Coaches	N= 95, Retention: 84%	N= 121, Retention: 76%
	All PCA-Trained Coaches	N= 78, Retention: 90%	N= 105, Retention: 77%
	Live-Trained Coaches	N= 43, Retention: 89%	N= 63, Retention: 79%
	Online-Trained Coaches	N= 35, Retention: 86%	N= 42, Retention: 76%
21+ years	Untrained Coaches	N= 146, Retention: 84%	N= 188, Retention: 76%
	All PCA-Trained Coaches	N= 127, Retention: 90%	N= 174, Retention: 78%
	Live-Trained Coaches	N= 84, Retention: 89%	N= 115, Retention: 78%
	Online-Trained Coaches	N= 43, Retention: 91%	N= 59, Retention: 80%

For coaches in their first year of coaching, or with 6-10 years of experience, athlete retention did not differ by PCA training. However, for coaches with 2-5 years of experience, same-coach retention was higher among coaches with PCA training (both live and online) than among untrained coaches [$H(2) = 23.03, p < .01, r = .13$]. The same pattern was observed for coaches with 11-15 years of experience [$H(2) = 9.60, p < .01, r = .15$]. For coaches with 16-20 years of experience, no same-coach retention differences were observed, but overall retention was higher among live-trained coaches than among both untrained and online-trained coaches [$H(2) = 6.10, p < .05, r = .19$ and $r = .25$, respectively]. Coaches with 21 or more years of experience also showed no same-coach retention differences by PCA training, PCA-trained coaches (both live and online) had higher overall retention than untrained coaches [$H(2) = 8.34, p < .05, r = .17$].

Among all PCA-trained coaches, overall retention was lower among new coaches (0-1 year of experience) than among coaches with all other levels of experience [$H(5) = 17.04, p < .01, r = .12$]. Retention to the same coach showed the same pattern, with lower retention among new coaches (0-1 year of experience) than among all other coaches [$H(5) = 28.75, p < .001, r = .14$].

For coaches who received online PCA training, no significant differences in retention by coach experience were observed. The significant differences observed across PCA-trained coaches with different levels of experience was likely based on differences observed in coaches with live training (of whom there were many more in the sample). For live-trained coaches, overall retention was lower among new coaches (0-1 year of experience) than among coaches with all other levels of experience [$H(5) = 18.38, p < .01, r = .16$]. Retention to the same coach was also lower among new coaches (0-1 year of experience) than among coaches with all other levels of experience [$H(5) = 25.90, p < .001, r = .17$].

Among untrained coaches, overall athlete retention had significant differences by coach experience [$H(5) = 14.57, p < .05$]. Specifically, retention was lower among coaches with 21 or more years' experience than among coaches with 2-5 years' experience ($p < .05, r = .09$) or coaches with 6-10 years' experience ($p < .05, r = .13$). Same-coach retention among untrained coaches also had significant differences by coach experience [$H(5) = 26.63, p < .001$]. Specifically, retention was lower among new coaches (0-1 year of experience) than among coaches with all other levels of experience ($p < .05, r = .09$) and lower among coaches with 2-5 years' experience than among coaches with 16-20 years' experience ($p < .05, r = .08$).

Summary: Years of coaching experience were associated with differences in retention between PCA-trained and untrained coaches, but not in a straightforward fashion. No differences were observed for first-year coaches or coaches with 6-10 years of experience. For coaches with 2-5 or 11-15 years of experience, retention to the same coach (but not overall retention) was higher for PCA-trained coaches than for untrained coaches. For coaches with 21 or more years of experience, overall (but not same-coach) retention was higher for PCA-trained coaches than for untrained coaches. Finally, for coaches with 16-20 years of experience, overall retention was also higher for PCA-trained coaches but only coaches with live training.

For both PCA-trained and untrained coaches, the lowest retention rates were reported by coaches in their first year of coaching. This group showed no differences in retention between PCA-trained and untrained coaches.

6. Athlete retention rates by sport⁴:

a. Baseball

		Overall Retention	Same Coach Retention
All Levels	Untrained Coaches	N= 87, Retention: 89%	N= 129, Retention: 57%
	All PCA-Trained Coaches	N= 27, Retention: 92%	N= 35, Retention: 56%
	Live-Trained Coaches	N= 15, Retention: 91%	N= 20, Retention: 62%
	Online-Trained Coaches	N= 12, Retention: 93%	N= 15, Retention: 49%
Youth	Untrained Coaches	N= 86, Retention: 89%	N= 127, Retention: 57%
	All PCA-Trained Coaches	N= 26, Retention: 92%	N= 33, Retention: 56%
	Live-Trained Coaches	N= 14, Retention: 92%	N= 19, Retention: 62%
	Online-Trained Coaches	N= 12, Retention: 93%	N= 14, Retention: 48%

No statistically significant differences in retention were observed among baseball coaches. The sample may be too small to detect a difference, if such a difference is present in the population.

b. Basketball

		Overall Retention	Same Coach Retention
All Levels	Untrained Coaches	N= 46, Retention: 87%	N= 51, Retention: 75%
	All PCA-Trained Coaches	N= 78, Retention: 95%	N= 96, Retention: 83%
	Live-Trained Coaches	N= 72, Retention: 95%	N= 84, Retention: 82%
	Online-Trained Coaches	N= 6, Retention: 100%	N= 12, Retention: 86%
High School	Untrained Coaches	N= 23, Retention: 83%	N= 26, Retention: 69%
	All PCA-Trained Coaches	N= 36, Retention: 94%	N= 45, Retention: 82%
	Live-Trained Coaches	N= 34, Retention: 94%	N= 40, Retention: 80%
	Online-Trained Coaches	N= 2: not sufficient	N= 5, Retention: 90%
Youth	Untrained Coaches	N= 26, Retention: 90%	N= 29, Retention: 80%
	All PCA-Trained Coaches	N= 56, Retention: 96%	N= 72, Retention: 85%
	Live-Trained Coaches	N= 51, Retention: 95%	N= 61, Retention: 85%
	Online-Trained Coaches	N= 5, Retention: 100%	N= 11, Retention: 85%

Significant differences were observed in basketball coaches' overall retention [$H(2) = 10.09, p < .01$] such that coaches with PCA training (live and online) reported higher retention rates than untrained coaches ($p < .05, r = .25$). No differences were observed between trained and untrained basketball coaches in retention to the same coach. The same pattern was observed for youth coaches [$H(1) = 4.02, p < .05, r = .22$] and for live-trained versus untrained high school basketball coaches [$H(2) = 6.46, p < .05, r = .30$].

c. Cheerleading/Poms

⁴ Reporting here only sports whose coaches made up more than 1% of the overall data set. In addition, in sub-sport analyses, results are only reported when 4 or more coaches fit the criteria.

		Overall Retention	Same Coach Retention
All Levels	Untrained Coaches	N= 36, Retention: 75%	N= 45, Retention: 67%
	All PCA-Trained Coaches	N= 36, Retention: 76%	N= 45, Retention: 65%
	Live-Trained Coaches	N= 31, Retention: 75%	N= 38, Retention: 66%
	Online-Trained Coaches	N= 5, Retention: 81%	N= 7, Retention: 63%
Youth	Untrained Coaches	N= 36, Retention: 75%	N= 45, Retention: 67%
	All PCA-Trained Coaches	N= 35, Retention: 78%	N= 44, Retention: 67%
	Live-Trained Coaches	N= 30, Retention: 77%	N= 37% Retention: 67%
	Online-Trained Coaches	N= 5, Retention: 81%	N= 7, Retention: 63%

No statistically significant differences in retention within cheerleading / poms coaches. The sample may be too small to detect a difference, if such a difference is present in the population.

d. Football

		Overall Retention	Same Coach Retention
All Levels	Untrained Coaches	N= 64, Retention: 85%	N= 86, Retention: 67%
	All PCA-Trained Coaches	N= 30, Retention: 90%	N= 45, Retention: 73%
	Live-Trained Coaches	N= 26, Retention: 90%	N= 35, Retention: 68%
	Online-Trained Coaches	N= 4, Retention: 94%	N= 10, Retention: 91%
High School	Untrained Coaches	N= 8, Retention: 79%	N= 9, Retention: 54%
	All PCA-Trained Coaches	N= 1: not sufficient	N= 4, Retention: 99%
Youth	Untrained Coaches	N= 58, Retention: 86%	N= 80, Retention: 68%
	All PCA-Trained Coaches	N= 30, Retention: 90%	N= 44, Retention: 72%
	Live-Trained Coaches	N= 26, Retention: 90%	N= 35, Retention: 68%
	Online-Trained Coaches	N= 4, Retention: 94%	N= 9, Retention: 90%

No significant differences were observed in football coaches' overall retention or retention to the same coach. However, the subgroup analysis of retention to the same coach showed online-trained coaches having higher retention rates than untrained or live-trained coaches [$H(2) = 9.77, p < .01, r = .33$ and $r = .38$, respectively]. There was insufficient data to examine retention specifically among high school coaches, so the overall findings mainly reflect results for youth coaches; where online-trained coaches reported higher same-coach retention rates than untrained or live-trained coaches [$H(2) = 7.39, p < .05, r = .29$ and $r = .35$, respectively].

e. Golf

		Overall Retention	Same Coach Retention
All Levels	Untrained Coaches	N= 12, Retention: 89%	N= 26, Retention: 80%
	All PCA-Trained Coaches	N= 24, Retention: 88%	N= 46, Retention: 85%
	Live-Trained Coaches	N= 23, Retention: 88%	N= 44, Retention: 85%
High School	Untrained Coaches	N= 8, Retention:85%	N= 17, Retention: 81%
	All PCA-Trained Coaches	N= 20, Retention: 89%	N= 31, Retention: 85%
	Live-Trained Coaches	N= 19, Retention: 89%	N= 30, Retention: 86%
Youth	Untrained Coaches	N= 11, Retention: 90%	N= 25, Retention: 81%
	All PCA-Trained Coaches	N= 21, Retention: 88%	N= 42, Retention: 85%
	Live-Trained Coaches	N= 20, Retention: 89%	N= 40, Retention: 85%

No statistically significant differences in retention within golf coaches. The sample may be too small to detect a difference, if such a difference is present in the population.

f. Lacrosse

		Overall Retention	Same Coach Retention
All Levels	Untrained Coaches	N= 791, Retention: 86%	N= 1,011, Retention: 73%
	All PCA-Trained Coaches	N= 703, Retention: 89%	N= 983, Retention: 78%
	Live-Trained Coaches	N= 355, Retention: 89%	N= 492, Retention: 77%
	Online-Trained Coaches	N= 348, Retention: 89%	N= 491, Retention: 78%
High School	Untrained Coaches	N= 375, Retention: 82%	N= 452, Retention: 74%
	All PCA-Trained Coaches	N= 300, Retention: 85%	N= 392, Retention: 79%
	Live-Trained Coaches	N= 136, Retention: 83%	N= 174, Retention: 76%
	Online-Trained Coaches	N= 164, Retention: 87%	N= 218, Retention: 81%
Youth	Untrained Coaches	N= 495, Retention: 90%	N= 658, Retention: 72%
	All PCA-Trained Coaches	N= 481, Retention: 92%	N= 701, Retention: 77%
	Live-Trained Coaches	N= 247, Retention: 92%	N= 361, Retention: 77%
	Online-Trained Coaches	N= 234, Retention: 91%	N= 340, Retention: 78%

Significant differences were observed in lacrosse coaches' overall retention [$H(2) = 16.22, p < .001, r = .10$] such that coaches with coaches with PCA training (live and online) report higher retention rates than untrained coaches. The same pattern was observed in retention to the same coach [$H(2) = 34.60, p < .001, r = .13$]. For high school lacrosse, coaches with online PCA training report higher rates of overall retention than untrained coaches [$H(2) = 14.72, p < .01, r = .16$] and higher same-coach retention rates than both live-trained and untrained coaches [$H(2) = 22.11, p < .001, r = .18$ and $r = .12$, respectively]. For youth coaches, no significant differences were observed in overall retention, but coaches with both live and online PCA training report higher same-coach retention rates than untrained coaches [$H(2) = 16.01, p < .001, r = .10$].

g. Soccer

		Overall Retention	Same Coach Retention
All Levels	Untrained Coaches	N= 411, Retention: 92%	N= 524, Retention: 79%
	All PCA-Trained Coaches	N= 59, Retention: 95%	N= 84, Retention: 86%
	Live-Trained Coaches	N= 14, Retention: 94%	N= 23, Retention: 83%
	Online-Trained Coaches	N= 45, Retention: 96%	N= 61, Retention: 87%
High School	Untrained Coaches	N= 96, Retention: 93%	N= 122, Retention: 84%
	All PCA-Trained Coaches	N= 18, Retention: 96%	N= 23, Retention: 91%
	Live-Trained Coaches	N= 4, Retention: 93%	N= 7, Retention: 84%
	Online-Trained Coaches	N= 14, Retention: 96%	N= 16, Retention: 95%
Youth	Untrained Coaches	N= 367, Retention: 92%	N= 468, Retention: 79%
	All PCA-Trained Coaches	N= 53, Retention: 95%	N= 78, Retention: 86%
	Live-Trained Coaches	N= 12, Retention: 95%	N= 21, Retention: 83%
	Online-Trained Coaches	N= 41, Retention: 96%	N= 57, Retention: 87%

No significant differences were observed in overall retention. Soccer coaches with online PCA training reported higher same-coach retention rates than untrained coaches [$H(2) = 10.57, p < .01, r = .13$]. This pattern was observed among high school coaches [$H(2) = 10.29, p < .01, r = .27$] and youth coaches [$H(2) = 9.03, p < .05, r = .13$]. PCA-trained (live and online) youth coaches also reported higher overall retention than untrained coaches [$H(1) = 4.22, p < .05, r = .10$].

h. Volleyball

		Overall Retention	Same Coach Retention
All Levels	Untrained Coaches	N= 21, Retention: 76%	N= 25, Retention: 60%
	All PCA-Trained Coaches	N= 39, Retention: 93%	N= 53, Retention: 61%
	Live-Trained Coaches	N= 39, Retention: 93%	N= 53, Retention: 61%
High School	Untrained Coaches	N= 15, Retention: 71%	N= 17, Retention: 59%
	All PCA-Trained Coaches	N= 28, Retention: 92%	N= 38, Retention: 63%
	Live-Trained Coaches	N= 28, Retention: 92%	N= 38, Retention: 63%
Youth	Untrained Coaches	N= 11, Retention: 79%	N= 14, Retention: 63%
	All PCA-Trained Coaches	N= 19, Retention: 97%	N= 29, Retention: 66%
	Live-Trained Coaches	N= 19, Retention: 97%	N= 29, Retention: 66%

Volleyball coaches' live PCA training reported higher overall retention than untrained coaches [$H(1) = 11.89, p < .01, r = .45$] but the result is based on a relatively small sample. The sample size was insufficient to assess online-trained coaches' retention. No differences were observed between trained and untrained volleyball coaches in retention to the same coach. This pattern was also observed for high school coaches [$H(1) = 11.38, p < .01, r = .51$] and youth coaches [$H(1) = 6.02, p < .05, r = .45$].

7. Mean-level effects of PCA Double-Goal Coach® training:

a. Athlete experience

- i. Mean = 4.09 ($SD = 0.61$) on a 5-point scale where 4 = “positive influence” and 5 = “strong positive influence,” indicating that PCA training had a positive effect on athlete experience.

b. Team performance

- i. Mean = 3.86 ($SD = 0.65$) on a 5-point scale where 3 = “no influence” and 4 = “positive influence,” indicating that PCA training had a positive effect on athlete performance.

c. Coach infractions

- i. Mean = 3.35 ($SD = 0.77$) on a 5-point scale where 3 = “no change” and 4 = “decreased,” indicating a neutral effect to a reduced level of coach infractions.

d. Athlete infractions⁴

- i. Mean = 3.45 ($SD = 0.73$) on a 5-point scale where 3 = “no change” and 4 = “decreased,” indicating a neutral effect to a reduced level of athlete infractions.

e. Decision to continue coaching

- i. Mean = 3.54 ($SD = 0.76$) on a 5-point scale where 3 = “no impact” and 4 = “more likely to keep coaching,” indicating that PCA training had neutral to positive effect on coaches’ decisions to keep coaching.

8. Influence of PCA Double-Goal Coach® training on athlete experience:

a. Coach gender

- i. Non-significant relationship between coach gender and the reported effects of PCA training on athlete experiences [$F(1, 1,757) = 3.23, p = .07$].

b. Time in coaching

- i. Significant relationship: coaching for 16-20 years was associated with reporting less positive effects of PCA training on athlete experience compared to coaching for 2-5 years ($r = .13$) or coaching for 6-10 years ($r = .13$) [$F(5, 1,765) = 4.38, p < .01$]. The mean response for those who had coached for 16-20 years was 3.92, compared to 4.13 for those who had coached for 2-5 years and 4.12 for those who had coached for 6-10 years.

c. Age level coached

- i. Non-significant relationship between age level coached and the reported effects of PCA training on athlete experiences [$F(2, 1,770) = 1.34, p = .26$].

d. Sport

- i. Significant differences were observed across the eight most common sports in the influence of PCA training on athlete experience [$F(7, 1,643) = 3.18, p < .01$]. However, no particular differences reached significance, so no specific effect sizes were calculated. Mean responses ranged from 3.92 for volleyball coaches to 4.21 for baseball coaches.

9. Influence of PCA Double-Goal Coach® training on team performance:

a. Coach gender

- i. Non-significant relationship between coach gender and the reported effects of PCA training on team performance [$F(1, 1,750) = 2.47, p = .16$].

b. Time in coaching

- i. Significant relationship: coaching for 16-20 years was associated with reporting less positive effects of PCA training on team performance compared to coaching for 2-5 years [$F(5, 1,759) = 3.00, p < .05, r = .12$]. The mean response for those who had coached for 16-20 years was 3.70, compared to 3.91 for those who had coached for 2-5 years.

c. Age level coached

- i. Non-significant relationship between age level coached and the reported effects of PCA training on team performance [$F(2, 1,763) = 0.66, p = .52$].

d. Sport

- i. Non-significant relationship between sport and the reported effects of PCA training on team performance [$F(7, 1,639) = 1.86, p = .07$].

10. Influence of PCA Double-Goal Coach® training on coach infractions:

a. Coach gender

- i. Non-significant relationship between coach gender and reported effects of PCA training on coach infractions [$F(1, 621) = 0.75, p = .39$].

b. Time in coaching

- i. Significant relationship: coaching for 2-5 years was associated with reporting less positive effects of PCA training on coach infractions compared to coaching for 6-10 years [$F(5, 624) = 2.49, p < .05, r = .14$]. The mean response for those with 2-5 years of experience was 3.19, compared to 3.44 for those who had coached for 6-10 years.

c. Age level coached

- i. Significant relationship: coaching only youth was associated with reporting less positive effects of PCA training on coach infractions compared to coaching both youth and high school [$F(2, 628) = 3.57, p < .05, r = .10$]. The mean response for coaches of youth was 3.28, compared to 3.48 for those who coach both age groups.

d. Sport

- i. Significant relationship: coaching football or cheerleading/poms was associated with reporting less positive effects of PCA training on coach infractions compared to coaching lacrosse ($r = .20$ and $r = .10$, respectively) or basketball ($r = .42$ and $r = .25$, respectively) [$F(7, 594) = 5.75, p < .001$]. The mean response for football coaches was 2.79, and the mean response for cheerleading/poms coaches was 2.55 compared to 3.43 for lacrosse coaches and 3.50 for basketball coaches.

11. Influence of PCA Double-Goal Coach® training on athlete infractions:

a. Coach gender

- i. Non-significant relationship between coach gender and reported effects of PCA training on athlete infractions [$F(1, 964) = 0.52, p = .47$].
- b. Time in coaching**
 - i. Non-significant relationship between years spent coaching and reported effects of PCA training on athlete infractions [$F(5, 965) = 1.53, p = .18$].
- c. Age level coached**
 - i. Significant relationship: coaching only youth was associated with reporting less positive effects of PCA training on athlete infractions compared to coaching both youth and high school [$F(2, 970) = 4.60, p < .05, r = .09$]. The mean response for coaches of youth was 3.39, compared to 3.58 for those who coach both age groups.
- d. Sport**
 - i. Significant differences were observed across the eight most common sports in the influence of PCA training on athlete experience [$F(7, 925) = 4.38, p < .001$]. Mean responses ranged from 2.92 for cheerleading/poms coaches to 3.54 for golf coaches.

12. Influence of PCA Double-Goal Coach® training on decision to continue coaching:

- a. Coach gender**
 - i. Non-significant relationship between coach gender and the reported effects of PCA training on coaches' decisions to keep coaching [$F(1, 1,757) = 0.10, p = .75$].
- b. Time in coaching**
 - i. Significant relationship: coaching for one or fewer years was associated with reporting more positive effects of PCA training on the decision to continue coaching compared to coaching for 16-20 years ($r = .23$) and coaching for 2-5 years was also associated with reporting more positive effects on the decision to continue coaching compared to coaching for 16-20 years ($r = .15$) or 21 or more years ($r = .12$) [$F(5, 1,765) = 5.47, p < .001$]. The mean response for those who had coached for one or fewer years was 3.66 and the mean response for those who had coached for 2-5 years was 3.62, compared to 3.33 for those who had coached for 16-20 years and 3.43 for those who had coached for 21 or more years.
- c. Age level coached**
 - i. Non-significant relationship between age level coached and reported effects of PCA training on coaches' decisions to keep coaching [$F(2, 1,770) = 2.72, p = .07$].
- d. Sport**
 - i. Non-significant relationship between sport and the reported effects of PCA training on coaches' decisions to keep coaching [$F(7, 1,643) = 0.93, p = .49$].

Qualitative Findings⁵:

We conducted qualitative analyses to examine patterns in PCA-trained coaches' responses to three open-ended questions: "Do you believe that your PCA Double-Goal Coach® training influenced the experience of the athletes on your team?" "Do you believe that your PCA Double-Goal Coach® training affected your team's performance during competitions?" and "Please provide any additional feedback about the impact of PCA's Double-Goal Coach® training." The results of these thematic analyses are reported with the number of responses that fit within that theme (*Note*: many responses fit more than one theme, and were coded at all themes applicable). Themes with more responses can be understood as reflecting more common experiences or opinions across the sample, but even those arising from only a few responses should be viewed as important representations of participants' experiences with PCA training.

1. What do coaches say about how PCA training impacted their athletes' experiences?

Out of the 695 coaches who responded to this question, the most common theme that emerged was *Coach Change*, with 271 coaches (39%) describing how PCA impacted their athletes' experience through the ways in which they changed their own coaching. The most common way in which these coaches experienced change was through **changes in their own social and emotional skills**, with 91 coaches (34%) describing these changes and their impact on athletes' experience (e.g., "Made me think more about what I was doing and how I was doing it. The training made me take more into account my actions and how they affected others"). Many coaches also described **incorporating PCA material into their work**, with 85 coaches (31%, including both new and veteran coaches) stating that using PCA material positively impacted their athletes' experience (e.g., "Bringing the mindset of an emotional tank was new to me and helped me focus on bringing positive energy to each practice rather than expecting the players to bring it"). Many responses were **vague**, with 43 coaches (17%) providing answers such as "I think the PCA program is had a positive effect on my coaching." However, coaches also discussed changing to be **more developmentally-oriented in their coaching** (e.g., "strengthened emphasis that the coaches on our team put on player development and using sports to teach life lessons"), and 5 coaches (2%) described the **particular benefits of PCA for new coaches** (e.g., "It was my 2nd year as a head coach and taking the PCA course early in my coaching career helped shape me"). Thus, from these responses it is clear that coaches understood that their own coaching practices influence their athletes' experiences, and appreciated the tools provided by PCA training.

Other themes that emerged in at least 5% of the responses to this question included:

⁵ See Appendices 2 and 3 for additional positive and negative feedback (across all three questions). Note that all qualitative data are reported as written by survey respondents and have not been edited for spelling or grammar.

⁶ Only PCA-trained coaches were offered the opportunity to answer these open-ended questions.

Already Doing It (emerged in responses of 105 coaches, 15% of item respondents)

- Forty-eight coaches described the PCA training as a good reminder or reinforcement of existing practices and values (e.g., “I already used the coaching methods encouraged by PCA. but it was still good to just review”).
- Forty-one coaches suggested that they didn’t need the training (e.g., “The training itself had no influence on the athletes. I didn't learn anything I wasn't already doing as a coach. My coaching was consistent with PCA standards”).
- Sixteen coaches expressed appreciation for the PCA training validating their existing practices (e.g., “Reaffirmed my coaching style when most criticized me/us”).

Value of PCA (emerged in responses of 71 coaches, 10% of item respondents)

- Coaches with responses in this category described the PCA training as useful and beneficial (e.g., “The PCA tools for the players and especially the guidelines for parental involvement has been very useful”).

Team Culture (emerged in responses of 67 coaches, 10% of item respondents)

- Many coaches emphasized the role of positivity and fun in enhancing athletes’ experiences and preventing them from being worried about making mistakes (e.g., “We provide a safe environment that allows kids to not worry about mistakes.”)

Athlete Change (emerged in responses of 62 coaches, 9% of item respondents)

- Coaches with responses in this category mainly focused on changes in athletes’ attitudes and mental game (e.g., “made the kids feel good about themselves, got along with each other very well learned to deal with their problems in a positive way and made them try harder to do better”).

Not Useful (emerged in responses of 40 coaches, 6% of item respondents)

- Thirty-five coaches pointed out reasons why the training did not affect their athletes’ experience, including problems with the training (e.g., “Very generic, unrealistic and not practical”) or its lack of applicability to their situation (e.g., “Although a very good coaching aid, mostly the information is geared toward team events, like baseball, football etc, and not directed to a team of individual competitors”).
- Five coaches also suggested that the training was not useful because it was “common sense” (e.g., “A lot of the information seemed "common sense" to me simply because it is part of my character to treat players as stated in the training”).

Big Picture Focus (emerged in responses of 36 coaches, 5% of item respondents)

- Coaches with responses in this category discussed having a focus on athlete growth and development (e.g., “The PCA does a good job of repositioning a coach's focus on individual skill development and growing a kid's general love of sports”).

2. What do coaches say about how PCA training impacted their team's performance?

Of the 533 coaches who responded to this question, only 21 coaches (4%) discussed *Winning* in their answers, most describing their scoreboard success as a direct result of PCA (e.g., "absolutely! I know keeping the focus on having fun and playing to their best ability helped them in close games and in the playoffs"). Although team performance is generally measured by scoreboard success, it is clear from the infrequency of this theme in the data that coaches placed more emphasis on other factors.

Instead, the three themes that emerged most prominently in responses to this question were *Team Culture*, *Athlete Change*, and *Coach Change*. Thus, coaches' responses suggest that while the influence of PCA training on team performance may not be direct, changes in team performance are a result of the changes teams, athletes, and coaches make when they use the PCA model.

The theme of *Team Culture* included responses from 132 coaches (25%). These responses emphasized the impact of PCA training on their team's perspective, fun, and general atmosphere (e.g., "My players really came together as a unite and we created a positive, fun atmosphere between the coaching staff and players, as well as between just the players. This gave them a healthy sense of competition as well as a desire to work hard for one another"). From these responses it is clear that coaches view team culture as a key component of team performance, and one that PCA training influences positively.

Another 100 coaches (19%) gave responses that were coded under *Athlete Change*, mostly focusing on the mental aspects of the game (e.g., "It made them work harder and focus more" and "When children are not afraid to make mistakes and feel joy when playing, they take risks, they are intrinsically motivated and that intangible quality of playing with heart emerges"). These responses align directly with the PCA model, where athletes are encouraged to focus on effort and attitude over talent.

The theme of *Coach Change* included responses from 95 coaches (18%), and reflected a wide variety of ways in which coaches had changed as a result of the PCA training. For example, coaches learned new skills (e.g., "Enhanced the skills I had to communicate before, during and after matches"), changed their perspective (e.g., "I went from a coach who focused on the x's & o's to one who cared about creating a positive playing environment focused on building a winning attitude/culture in my program that did not revolve around the scoreboard") and gained confidence (e.g., "It gave me confidence to guide them in the direction of how a team works together, helped me build their confidence as players & to trust & respect each other and the coach"). These responses to this question point to coaches' understanding of the impact of their own socioemotional skills on team performance.

Other themes that emerged in at least 4% of the responses to this question included:

Common Sense (emerged in responses of 38 coaches, 7% of item respondents)

- All the coaches with responses in this category had responses that were statements of common sense or statements about success in sport (e.g., “Winning isn't everything, doing your best is” and “success is relative”).

Already Doing It (emerged in responses of 29 coaches, 5% of item respondents)

- In response to this question, coaches who described themselves as already using PCA-style coaching either simply stated that fact (e.g., “I already coach in the manner described”) or saw the PCA training as nevertheless beneficial (e.g., “already used methods, but good to review”).

Not Useful (emerged in responses of 24 coaches, 5% of item respondents)

- Eight coaches mentioned that they didn't use the PCA training, and therefore it did not affect their teams (e.g., “I do not think I coaches any differently, and they did not perform any differently because of the course” and “I probably didn't do a very good job of including enough of by PCA Double-Goal Training in my programs”)
- The rest of the coaches with responses in this category did use the material, but still found it to not be useful. Some because of constraints (e.g., “They didn't seem to grasp their end while on the field. I attribute it to their age mostly”) others because other factors were more influential (e.g., “I think our team's talent and mentality was strong, with or without PCA Coach training”), and many without giving a reason (e.g., “Did not have any impact”).

Value of PCA (emerged in responses of 21 coaches, 4% of item respondents)

- Coaches with responses in this category simply pointed out that PCA was useful or beneficial without explicitly connecting it to any of the other themes (e.g., “It's a very powerful program” and “Good tips and reinforcement”).

3. What additional feedback do coaches have about the impact of PCA training?

Of the 597 coaches who responded to this question, 318 (53% of all item respondents) used this opportunity to give comments about the *Value of PCA* (e.g., “I found PCA's training to be an excellent tool to teach athletes the value of competition, learning life's lessons and honoring the game”). Of these, 57 coaches (18%) thought **the training should be more widely required** (e.g., “I think all coaches should be required to take this training. It improves the experience for the coach, the player and the parent”) and 19 coaches (6%) pointed to specific **benefits for new coaches** (e.g., “Good for beginner coaches new to coaching”). These comments provide clear support for the program.

Other themes that emerged in more than 4% of the responses to this question included:

Coach Change (emerged in responses of 79 coaches, 13% of item respondents)

- Coaches whose answers were coded in this category provided additional information about the ways in which they had changed as a result of PCA training (e.g., “The program made me realize that I was focusing on myself and not what was best for the players, the program made me realize that in the end the girls don't remember whether they won or lost, they remember how you made them feel and the relationships that they fostered with their teammates”).

Complaints About Others (emerged in responses of 53 coaches, 9% of item respondents)

- Coaches with responses in this category either used the opportunity to vent frustration about others' behavior (e.g., “PCA training reinforced many of my goals as a coach. Unfortunately, few coaches seem to take it or, if they do, pay attention to it. I still see screaming coaches and an undue emphasis on winning”) or to describe people who held them back from implementing the PCA model (e.g., “Our head coach never practiced positive coaching. He never took any other coaches or parents concerns about team management only his way was ever done”).

Program Suggestions (emerged in responses of 43 coaches, 7% of item respondents)

- A full list of coaches' recommendations for PCA can be found in Appendix 4, which includes feedback given in response to all of the open-ended questions. This feedback often contains specific suggestions (e.g., “Its was good just took a little to long” and “streamline it more for the student athlete of today: meaning that everything is going to apps (cell, tablets, etc.) they would receive it much faster”).

Already Doing It (emerged in responses of 39 coaches, 7% of item respondents)

- Responses in this category included both statements of fact (e.g., “We were doing a lot of the DGC things before our coaches took the course”) and appreciation for the course despite already espousing the philosophy (e.g., “It's a good reminder for why we're coaching kids”).

Big Picture Focus (emerged in responses of 37 coaches, 6% of item respondents)

- Coaches with responses in this category described how their PCA training helped them to focus on their athletes' experiences and development (e.g., "I think it's good to take a step back and focus on our responsibility as coaches in regard to teaching life lessons and instilling self confidence").

Not Useful (emerged in responses of 34 coaches, 6% of item respondents)

- Responses in this category were the most negative of any responses in the survey, including coaches who felt they should not have had to take the PCA training (e.g., "This would be good for a parent entering into coaching. As a teacher and coach of more than 50 seasons under my belt I found the experience to be somewhat annoying and time consuming"), coaches who felt that the material did not apply well to their sport (e.g., "The material did not apply all that well to the martial arts"), and coaches who were clearly antagonistic toward the training and its philosophy (e.g., "I believe PCA's Double Goal Coaching is ruining competitive sports. It is dumbing down sports so that nonathletic people can pay dues to the governing bodies and compete under modified rules. Competition is not about equality..." and "Had no impact or influence. It's a political correct coaching program that has positives but is pushed on programs. Good luck with your product").

Helped Parents (emerged in responses of 23 coaches, 4% of item respondents)

- Coaches with responses in this category pointed specifically to the impact of the PCA training on parents, both for the parents of the athletes they are coaching (e.g., "Excellent for the parents- helps them see the big picture. We have created a strong bond as a culture- thanks to the PCA") and for their own parenting (e.g., "This training has improved my coaching and makes me a better fan/parent on the teams I'm not coaching").

Conclusions

This study examined the perspectives of over four thousand coaches who had worked with youth or high school athletes in 2012-2013. Almost half of the survey participants took the PCA Double-Goal Coach® training prior to the 2012-2013 season. The sample included coaches from a wide variety of sports, coaches working at both the youth and the high school level, and coaches with a wide range of coaching experience, from first-time coaches to 20-year veterans.

Overall, PCA-trained coaches reported that 90% of their athletes continued in the sport after playing in 2012-2013, whereas untrained coaches retained 88% (this difference is statistically significant but has a very small effect size). Some differences in retention were observed by age group, gender, coach experience, and sport, and in some cases differences were observed between live training and online training, but in no cases did untrained coaches retain significantly more athletes than coaches with PCA training. We therefore conclude that PCA training may be especially helpful for increasing retention in certain cases (e.g., for female coaches) although in some cases where no differences were observed it may be due to small sample sizes in the subgroups being compared.

In this study, coaches reported generally beneficial effects of the PCA Double-Goal Coach® training, with the most positive influence being on the experiences of the athletes. Coaches' views on the influence of the PCA training varied to some extent based on the number of years they had spent coaching, the age of the athletes they coached, and their particular sport, with no clear pattern of one sub-group of coaches having a particularly positive overall view. Rather, the sub-groups reporting particular benefit varied by question. Thus, it is likely that different aspects of the PCA training appeal to coaches working in different situations, with each trainee benefiting in accordance with their needs.

In responses to the short-answer qualitative questions, PCA-trained coaches explained in more detail how they saw the PCA training impacting their athletes' experience and their team's performance. Themes emerging from these data included coach change, PCA's influence on team culture, and the overall value of PCA. Coaches also provided feedback on the training, including ways in which the training was not useful to them and barriers to the effectiveness of PCA training, and frequently called for the training to be more widely available or required. Although some coaches did provide negative comments, the majority of both coaches who were already using a positive approach and coaches for whom this approach represented a significant change indicated that PCA-training had a positive influence on their coaching.

In sum, the results of this study show support for the PCA Double-Goal Coach® training as a valuable resource for coaches in youth and high school sport, and indicate that the training benefits both the coaches and the athletes on their teams.

Appendix 1: Survey Questions

The following questions will ask for information about your experience as a youth/high school sports coach a couple of years ago, during the 2012-2013 season.

- Which organization did you receive this email/survey from?
 - Select one of six options, or “other”
- Did you coach during the 2012-2013 season?
 - Yes or No (If “no” redirected to “thank you” page)
- In which US state do you live?
 - Select a state
- What is your gender?
 - Male or Female
- How many years of coaching experience did you have going into the 2012-2013 season?
 - Enter a number
- Which sport were you coaching for the 2012-2013 season? (If you coached multiple sports that year, select the sport you coached for the organization that sent you this survey.)
 - Select one of 26 options
- Which age level did you coach for this sport during the 2012-2013 season?
 - Youth (<14), High School, or Both Youth and High School
- What was the gender of the athletes on your team during the 2012-2013 season?
 - Male, Female, or Both Male and Female
- Had you completed Positive Coaching Alliance's Double-Goal Coach® training at any time prior to the 2012-2013 season?
 - Yes or No (If “no” answered the following questions, if “yes” skipped ahead to PCA-specific questions)
- How many athletes were on your team during the 2012-2013 season?
 - Enter a number
- How sure are you that the number you entered above accurately reflects the number of athletes on your team the 2012-2013 season?
 - Not sure, Somewhat sure, or Very sure
- Did you return to coach the same sport the following season (2013-2014)?
 - Yes or No
- How many of your athletes came back to play this SAME SPORT WITH YOU the 2013-2014 season?
 - Enter a number
- How sure are you that the number you entered above accurately reflects the number of athletes who returned to play the same sport the next year (2013-2014) with you?
 - Not sure, Somewhat sure, or Very sure
- How many of your athletes came back to play this SAME SPORT WITH ANOTHER COACH/TEAM the 2013-2014 season?

- Enter a number
- How sure are you that the number you entered above accurately reflects the number of athletes who returned to play the same sport the next year (2013-2014) with another coach/team?
 - Not sure, Somewhat sure, or Very sure
- If any athletes did come back to play the SAME SPORT WITH ANOTHER COACH/TEAM, why did they leave your team?
 - Select all that apply: Went to next age group, Moved to a new town, Went to more/less competitive team, Wanted a different coach, Had friends on another team, League redraft, Other (please explain in text box provided)
- Since the 2012-13 season, has your number of coach/athlete infractions (ejections, warnings, etc.) changed?
 - Not sure, Increased, Stayed the same, Decreased
- Since the 2012-13 season, has the number of athlete infractions (ejections, warnings, red cards etc.) on your team changed?
 - Not sure, Increased, Stayed the same, Decreased
- How many athletes were on your team the season you completed PCA's Double-Goal Coach® training? [Only for coaches who indicated they had taken PCA training]
 - Enter a number
- How sure are you that the number you entered above accurately reflects the number of athletes on your team the season you completed PCA's Double-Goal Coach® training?
 - Not sure, Somewhat sure, or Very sure
- Do you believe that your PCA Double-Goal Coach® training influenced the experience of the athletes on your team?
 - Strong negative influence, Negative influence, Did not influence, Positive influence, Strong positive influence
 - Please explain.
- Do you believe that your PCA Double-Goal Coach® training affected your team's performance during competitions?
 - Strong negative influence, Negative influence, Did not influence, Positive influence, Strong positive influence
 - Please explain.
- Did PCA's Double-Goal Coach® training impact your decision to continue coaching?
 - Made me much less likely to keep coaching, Made me less likely to keep coaching, Didn't impact my decision, Made me more likely to keep coaching, Made me much more likely to keep coaching
- Did you return to coach the same sport the year after your PCA Double-Goal Coach® Training?
 - Yes or No
- How many of your athletes came back to play this SAME SPORT WITH YOU the year after your PCA training?

- Enter a number
- How sure are you that the number you entered above accurately reflects the number of athletes who returned to play the same sport the next year with you?
 - Not sure, Somewhat sure, or Very sure
- How many of your athletes came back to play this SAME SPORT WITH ANOTHER COACH/TEAM the year after your PCA training?
 - Enter a number
- How sure are you that the number you entered above accurately reflects the number of athletes who returned to play the same sport the next year with another coach/team?
 - Not sure, Somewhat sure, or Very sure
- If any athletes did come back to play the SAME SPORT WITH ANOTHER COACH/TEAM, why did they leave your team?
 - Select all that apply: Went to next age group, Moved to a new town, Went to more/less competitive team, Wanted a different coach, Had friends on another team, League redraft, Other (please explain in text box provided)
- Since completing PCA's Double-Goal Coach® training, has your number of coach infractions (ejections, warnings, etc.) changed?
 - Not sure, Increased, Stayed the same, Decreased
- Since completing PCA's Double-Goal Coach® training, has the number of athlete infractions (ejections, warnings, red cards etc.) on your team changed?
 - Not sure, Increased, Stayed the same, Decreased
- Please provide any additional feedback about the impact of PCA's Double-Goal Coach® training.
 - Open-ended

Appendix 2: Additional Positive Feedback

This appendix provides a selection of additional positive feedback, focusing on coaches who provided more comprehensive comments:

- “It is a wonderful program and provides another view of the coaching aspect for families and parents. Assists the coach in thinking about more than wins & losses!”
- “I’ve coached youth hockey for 35+ years and have a Masters level coaching certification from USA Hockey. During the literally hundreds of hours of coaching education that I’ve attended over the decades, I consider the PCA Double-Goal coaching courses to have been the most valuable. I’m grateful that AAU has arranged for PCA training of our coaches. Especially with coaches of younger teams (such as 7U and 8U) these courses had been sorely needed.”
- “Great tool for all coaches to utilize. PCA gives you another perspective of the way you teach the sport. The think tank is great way to keep your athletes excited to play for you. Please continue to educate us coaches through your literature and experiences so we can continue to learn new ways to become positive role models.”
- “Double-Goal training is a great training tool. Many coaches think that all there is to coaching is winning trophies. They don’t understand the people skills that are imperative to coaching kids. My players have never been ejected from games or given warning of ejections. Neither have any of my coaches. But the training is excellent.”
- “The training just helps keep the coach who pays attention to the subject matter grounded. We all like to think that we are acting the right way, but we all need the opportunity to reflect and analyze our performance. The PCA course offers that chance to those coaches who want to improve themselves and there by improving their team.”
- “PCA was great because it just reinforced what I already knew and teach to my players and kids at my school. I wish more coaches coached for the kids...TEACHING life lessons as well as basketball skills!!!!”
- “If Every Coach and Parent could experience this training in some way, shape, or form sports and the world would be a better place!”
- “Amazing program, I have been coaching the same group of kids year round for 4 years now. I believe that the PCA coaching mentality played a large part in having parents asking if their child can join my team after every game. I now have 21 players and have had to split them into two teams, one team plays up an age bracket & one plays their actual age bracket. And these kids LOVE the sport!”
- “PCA is a great way to help new coaches get a positive start. Sometimes it can be hard with stubborn kids, however the approach taught in PCA gives sen the stubborn kids a smile and a way to do better and be better in our classes.”

- “I hope all youth sport organizations require all coaches to take this program. Changed the way I approach coaching and dealing with my players.”
- “I believe that every coach who is involved in youth athletics should be required to complete PCA training. In a world that is so focused on doing whatever it takes to win, whether that is compromising your character or not, we need to make sure that the next generation is passionate about everything they do but have a brighter outlook and are actual good human beings, which is affected a lot by their sports coaches.”
- “Double-Goal coach training has made me vocal and enthusiastic about the need to provide a positive experience for my team. I've made comments on forums about the importance of the training and stress the importance to my assistant coaches. I get lots of positive feedback from parents (and players) about how much players enjoyed their time on my team, and how their players confidence improved over the course of the season (off field, as well as on).”
- “The training is a great resource to help coaches develop a better understanding of the impact of sports on the lives of young people and how their coaching philosophy can have a better influence on their athletes and the sport.”
- “One of the reasons I became a coach was because of the partnership between USL and PCA. I probably wouldn't have continued coaching as long as I have without the guidance I received from PCA”
- “The training reinforces the right way to get the most out of your athletes, help them learn the skills needed to play the sport, while making the game fun, and focusing a coaches expectations on the really important outcomes.”
- “I LOVE IT!! I wish there more opportunities to attend workshops and trainings. I appreciate the chance I get to take the trainings at the annual convention BUT often times it may be at the same time as a session I really want to attend. I coach field hockey as well and would love to see PCA establish a partnership with USFHA.”
- “I feel personally that it should be a requirement in our sport if you want to coach k-12. The classes were high quality and had many helpful tips for new coaches. The impact of instilling a positive mindset is a must. I am tired of Coaches verbally abusing their athletes because they feel they have lost control.”
- “In general it is a good program and helps provide valuable perspective for coaches who can often times get caught up in narrow focus of their system and results.”
- “The effectiveness of PCA is improving player and coach communications and developing trust that players understand their coaches care about them and their progressive development as student-athletes.”
- “I think it is critical in aggressive contact sports like lacrosse that training like PCA is provided to ensure that coaches deliver an experience that is consistent with our league's coaching philosophy and ensures retention of players through their years of eligibility.”

As Coaching Director and member of our Board of Directors I appreciate the alignment of PCA and our coaching philosophy and support its continued use."

- "It is great program that EVERY youth coach should go through--especially at the HS level. HS kids have too much pressure as it is and coaches should be there to support them on and off the field. Too many head-games are played with youth athletes. For me, PCA makes me rethink how I am going to give feedback to players to reinforce their skills and build their confidence. Playing on a team can be a rewarding experience IF the atmosphere is a positive one!"
- "Very good course. Very important for new, younger coach. I have coached lacrosse for over forty years. I made all the mistakes that PCA is trying to correct."
- "Having a process with which to guide us, behaviorally, and educationally, coaches are empowered to promote a consistent message through our teams, our organizations and our sport. I know personally I have developed as a coach who prides himself on being attentive to the needs of my players, being proactive with parents, knowing the rules of the game to communicate respectfully with referees and continue to learn...PCA principles lead the way."
- "It is extremely important to teach character while coaching sports. PCA's Double-Goal Coach training is a terrific resource for coaches, especially in the sport of lacrosse. Lacrosse has a tradition of honor and integrity, and many coaches have not played the game prior to coaching. PCA's Double Goal Coach training is a way to instill the tenants of lacrosse and at the same time reinforce the importance of teaching character while coaching the game."
- "Part of playing a sport is learning how to act and respond to different situations PCA inspires good habits that are not necessarily learned at school or at home."
- "It provided helpful perspective and actionable "constructs" and tools to guide how I approached the role of coach and ensured a positive experience for all our players."
- "I think there are great messages that all coaches should learn and put into practice regardless of the sport, age, or competitive level. Sports need to be fun and positive, and that does not require abandoning the competitive aspects for individual player development or team performance. I personally like the "fierce but friendly" philosophy... I also use the approach to teaching moments that starts with some complements, and finishes with what they can do to build and improve on this."

Appendix 3: Additional Negative Feedback

This appendix provides a selection of additional negative feedback, focusing on coaches who provided more comprehensive comments:

- “I don't believe you can educate compassion, understanding etc. into a coach in a 1-2 hour class. The coaches traits will dominate. Only life experiences will change how a coach relates to kids. And maybe not even then.”
- “I believe PCA's Double Goal Coaching is ruining competitive sports. It is dumbing down sports so that nonathletic people can pay dues to the governing bodies and compete under modified rules. Competition is not about equality...”
- “I think that the PCA Double Goal Coach training must be enlightening for some, but it was of no particular value to me. And no tournament ever asked for my credentials or certificate.”
- “I have had coaching training before, it was nothing but a waste of my time. The program offers some good information for younger or beginner coaches, but there really needs to be a better vetting system than forcing everyone to take it.”
- “Although a very good coaching aid, mostly the information is geared toward team events, like baseball, football etc, and not directed to a team of individual competitors.”
- “Get rid of it or enforce the rules on ethics during games. I do things like have equal time for my kids, not talk to refs, no conditioning during practices (do all my conditioning by having fun competitive drills). I think PCA is a joke and a legal bandaid to make the folks at corporate feel good about themselves. Come out and see a couple youth games and see if there is any effect of just making a rule that only half the youth coaches out there follow. Why are refs and affiliates of US Lacrosse afraid to discipline adults who break the rules of the game?”
- “PCA is good idea in practice, but little of what is taught is applicable to real world situations or can be accomplished within the period of a single season.”
- “After coaching for over 20 years at all levels of football, boys & girls hockey & lacrosse I thought the PCA was a good laugh. It did not add to my coaching experience in an any way.”
- “Unfortunately I believe the these training courses are more to give townships/counties the piece of mind they are covered against litigation. I'm 0 they are very helpful. Concussion courses are the exception, in my opinion.”
- “Had no impact or influence. It's a political correct coaching program that has positives but is pushed on programs. Good luck with your product”

- “Your question asking if infractions or coaching penalties increased or decreased? Unreal. Refs call more penalties by using PCA as a crutch... thus, I object and so do my players. The game of lacrosse has suffered from the PCA bull. Refing in this country in serious jeopardy at all levels and all sports. Why? PCA style interference. Take accountability for bad calls and own them... don't be given an altar to sit on and not receive any backlash. OWN IT refs... but PCA says no. Honor the Game.... why ? Refs don't. Why no PCA in Canada? They will laugh you out the rink, but have set rules for misconduct from everyone and anyone. PCA is a joke because you make it impossible to object to anything in FEAR of hurting feelings. Sports makes character and the newest generation of helicopter parents and Tiger Moms/Dads makes the sports world weak. PCA wants to give everyone a trophy.... physical or psychologically. You learn a lot more from losing than winning or feeling like you won. Stop carrying this garbage flag and teach kids that life is hard, so are the sports they play. Compete and work hard. Hope for the best in yourself and your team, and maybe.... things work out. This mindset doesn't say anything about winning, but the process it takes to maybe win... or at least compete.. in sport and life. I hope my kids who will coach lacrosse when they are grown will never have heard of PCA or have to deal with the type of athlete it produces.”
- “Some of the terms and analogies were a little weird. I think there was a better way to explain things. The parent sideline coach didn't do anything for us and I think the parents and players are a direct reflection of the coaching staff. It might have been helpful with the men's side of lacrosse, but for my team specifically, it was more of a hassle and another thing to be concerned about.”
- “It was a waste of time but got the certification to place on my resume and to be educated on how others foolishly view youth and high school sports.”
- “This type of training for adults is useful but not of impact. In other words, I don't believe that it influences coaches to be more positive as positivity is subjective to an individual.”
- “I think it is the sort of thing that kind of goes without saying. I think an hour of training could be spend on something more necessary IE First Aid or something like that.”

Appendix 4: Program Feedback

This appendix provides a selection of additional program feedback, focusing on suggestions that were more feasible.

- “The only feedback I could give would be to see a bit more training or articles concerning the game of golf. It is a very unique sport that requires a different outlook when coaching. Please keep up the good work you do, If nothing else, I can say it has helped make me a overall better coach and person and father. - Thank you.”
- “Online training is too long! Needs to be shorter.”
- “To long and boring. Make it shorter and only concentrate on a couple key points.”
- “It's too much directed at team sports”
- “Although a very good coaching aid, mostly the information is geared toward team events, like baseball, football etc, and not directed to a team of individual competitors.”
- “This is more of a challenge to deal with parent expectations and teaching parents how to participate in a positive manner. Teaching kids how to play soccer is easier there needs to be a video program sent to parents on how to positively influence their kids and teach that car talk is unacceptable if it isn't positive.”
- “In theory, a great program. However, it would be great if the program demonstrated that coaching is a spectrum. Some elements of coaching and leadership are not included in the program, and some elements of competitiveness seem to be villainized and placed under a broad "win-at-all-costs" umbrella.”
- “Culture keeper is cheesy concept for high school level”
- “Why all the catch phrase s and creative names , anyone with any sense teaches good sportsmanship etc , I cannot count how kids I've coached in twenty years and don't feel that I training to be as warm and freely as soccer people”
- “I enjoy message posts on Facebook. They are a consistent reminder of why I choose to coach.”
- “Should be a pre-requisite to receiving any coaching license in any state. In fact, more schools and tournaments should actively look out for positive coaches and positive teams and publicly reward them to reinforce the value of PCA teachings. Coaches should receive seasonal newsletters with stories and evidence based practices about positive coaching methods to keep the ideas and messages fresh.”
- “Good on theory, bad on practical solutions.”
- “I would recommend that you use typical situations that coaches would be likely to experience and have them provide how they would respond.”

- “The course covers some good ideas & practices. The teacher makes or breaks the course! I did not have a high energy inspiring teacher either time I attended a PCA training.”
- “I would like to see a refresher course with new topics about coaching the mental game for sports and life skills. (I.e.How to be prepared, how to focus on a skill or task, how to empower players to speak for themselves)”
- “This NEEDs to be a one time thing. I know you guys go back and forth with this but please, please, please do not up the requirements. It scares off enough coaches as is. Please don't make it any harder to become a youth coach.”
- “As an inexperienced coach there was so much information covered in a short time that it was difficult to keep up. I had no clue about coaching and not much more when it came to football, when I started. Some better tools for "getting started" would have been very helpful. As it is I Googled pretty much everything and hoped for the best. A coach's clinic in which beginners could draw from the knowledge and experience of the more seasoned and successful coaches would be a great place to start.”