

## **A Systematic Pedagogy to Increase Goals to Shots on Goal for Soccer Athletes - Experimental Design Phase II Results**

**F Roberts<sup>1</sup>, M Demko<sup>2</sup>, J Lee<sup>3</sup>, D Parsons<sup>1</sup>, and R Yearout<sup>1</sup>**

<sup>1</sup>Department of Management and Accountancy  
The University of North Carolina at Asheville  
Asheville, North Carolina 28804 USA

<sup>2</sup>Department of Athletics  
The University of North Carolina at Asheville  
Asheville, North Carolina 28804 USA

<sup>3</sup>Department of Mathematics  
The University of North Carolina at Asheville  
Asheville, North Carolina 28804 USA

Corresponding author's Email: [yearout@unca](mailto:yearout@unca)

**Authors' Note:** Ferriss Roberts is a university research scholar who presented Phase I to the 1<sup>st</sup> Conference of SISE. Michelle Demko, a former University of Maryland soccer student athlete, is the head soccer coach at UNC Asheville. Jimin Lee, Assistant Professor of Statistics, has published a significant number of articles in statistics and bio-statistics. She has also published in international industrial engineering journals and conference proceedings. Donna Parsons is in the process of finishing her Ph.D. Saint Mary's University, Halifax Nova Scotia. In addition to publishing numerous business articles, she has published in international industrial engineering journals and proceedings. Robert Yearout, Professor of Industrial Engineering and Management, has published a significant number of articles in national and international journals and proceedings.

**Abstract:** UNC Asheville's Women's Soccer season (2011) had the highest number of shots-on-goal in the Big South Conference. However, the ratio of goals scored to shots-on-goal was less than 19.8% which was the lowest percentage of any opponent and significantly below the international average (30%). This two phase research's purpose was to devise a pedagogy that would improve goals to shots-on-goal percentage by targeting the far corner posts rather than the goal's center. Four scorers volunteered to be Phase I subjects (Spring 2012). "A Systematic Pedagogy to Increase Goals to Shots on Goal for Soccer Athletes, Experimental Design and Phase I-Pilot Study", (Roberts, Demko, Lee, Parsons, and Yearout, 2012) was presented at the first Industrial and Systems Engineering World Conference in September. Lessons learned were incorporated into the 2012 season pedagogy (Phase II). The purpose of this paper is to report the results of the implementation and goal to shot on goal improvements for the fall 2012 intercollegiate season. Six forwards and mid-fielders volunteered. Of the six, three were freshman who did not play in 2011. The 2012 team result for shots to shots-on-goal was 51% and goals to shots-on-goal improved to 24.2%, which is a 26% increase. Of the three participants in 2011, the combined result was goals to shots-on-goal ratio of 29.5%, which was an improvement of 64%. This result is not significantly different from the international average of 30%. The results from the three subjects (forwards and mid-fielders) who did not participate in 2011 were not significant. The experimental design and pedagogy will be used this coming fall (2013 season) to validate the current results.

**Keywords:** Pedagogy, Goals, Shot on Goal, Results