Keeping Pace: A Study of the Pace of Play Model on the Golf Course

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September 2024

1 Abstract

In many places across the world there are millions of people who enjoy the game of golf. Its a generational game that has been around since the 15th century and has only grown larger as a sport to date. The thing that makes the game of golf so special is the technicality of the game, in both the way that you play and the way that the environment around you affects the way you play. One key element of environments in golf is time. The amount of time that it takes for players to play a round has shown that overall the players performance can be affected if they are forced to wait too long to complete their shot sequence. This is where the pace of play model comes in. The pace of play model on a golf course is a guide for the inevitable human error when it comes to time management. The reason models like this exist is solely due to the need to produce a satisfactory experience for the player. This literature review aims to prove the importance of the pace of play model on the course and provides insight into how certain technology exists to combat the hindrance of that slow play.

2 Reference to Literature

With the many hours out of the day that it takes to play a round of golf and the many different groups of people that are playing in a round it should be no surprise that sometimes there are waits to progress through the course. A study done by Dennis O. Leahy, *Leahy, D. O. (n.d.). Pace of Play in Golf. Fisher Digital Publications. https://fisherpub.sjf.edu/sportundergrad/3/* proves that the importance of the pace of play on the course is crucial to keeping the game of golf alive and well. In this report the author takes more of a psychological and sociological approach as to why the concept of keeping pace is so important. Leahy mentions losing golf balls from errant shots as one of, if not, the main hurdle in the game when it comes to slow play. This argument plays mainly into the idea that golf has a large variety of diversity in the game when it comes to skill levels. This is where a marshall comes into view. A marshall's primary

purpose on the course is to be that guiding hand that the system notifies that the courses queue is backed up and behind. Leahy also argues that with those wait times to play holes through the course that it diminishes the value and quality of experience of the course on a social level due to the ignorance to the obvious issue. In short, when it comes to pace of play, no marshall, no satisfaction.

Another report, *Fu, Q., Whitt, W. (2015, January 1). Analyzing the pace of play in golf. Journal of Sports Analytics. https://content.iospress.com/articles/journal-of-sports-analytics/jsa0004* touches on the importance of how scientifically and mathematically examining how different factors in the game and the influence of time is crucial in improving the overall course experience. The approach this group took was analyzing the par numbers for each hole as stages. Then, once those holes stages are laid out, they are then mathematically used within a stochastic model and mathematically calculated using a series of equations. These equations find the best case scenarios in how different shots on different holes come together to make a fast or slow round. In all of the research however, it can be seen that the overall best case scenario to running an effective pace of play model as a golf course is by considering the shots in a par 4 or a par 5 that lie in between the tee shot and the final putt. These stages are crucial to the pace as they are the stages of holes where the players typically, statistically and according to the study, lose golf balls the most. This study gives great insight into how the par structures of each hole can help to mold the model of pace of play for any given course.

Lastly, the final report, *Using simulation to help manage the pace of play in golf. (n.d.). http://www.columbia.edu/ ww2040/GolfManaging042917.pdf* examines how computing technology can be used on a finite level to improve the overall quality/experience of playing on that course due to slow play. In the golf world where skill levels based on handicaps can be very diverse from a high handicapper in the 30s all the way down to a low handicapper in the +1-5s, it is pertinent to keep track of groups regardless of skill, without denying that the skill of the player is a major factor in the way the round runs. One large premise throughout this report is that the skill level of a group largely has nothing to do with whether the group completes the hole in standard timing. The author of this report does a great deal of simulation runs utilizing the same premise of the report discussed prior in taking a stochastic approach but through their study they observe that individual stages that are used per hole and their individual times can actually be correlated to the skill of the group and how effectively a group can play and finish the hole in good time.They found that in using this average formula the lower the skill level, the higher the overall stochastic data rose in the results, so after all skill is very important and even more so is a dependant variable in the equation.

In doing research for this project I reached out and did a bit of personal, qualitative research in an informal interview with a local PGA licensed professional and owner of a golf course named Ashton Hills Golf Club. This gentleman's name is Bryan Raines and he has been in the golf course business for well over 20 years all at the same golf course that has undergone many overhauls to the course, the clubhouse, all the way down to the name. In our brief conversation

I got a gauge of how he manages to run a successful golf course, appeasing both members and visitors near and far. Amongst our conversation, the emphasis on pace of play was immense, where he explained the business repercussions in owning a golf course when you have a slower paced day and people are just refusing to pick up based off of the system notification reminders in the carts. He explained that on these slower paced days where the course is busy, there are times where certain tee time slots may not be able to be filled or there is an existing pain of having to fit a group in if necessary. For this reason they incorporate a ten minute time block on every hour at around the :30 mark to facilitate a gap so certain groups will not have to unnecessarily wait. This primarily handles that issue on a day with little to no hiccups. These are all key factors in how the course runs and operates and how it produces the ultimate end goal of a golf course-financially, more revenue and socially, an enjoyable community experience.

For this project, the goal of my model and simulation is to run baseline tests based on the pace of play model and implement this in theory by using random number generators to generate random times amongst groups on the course. Obviously, by human nature the average group of golfers playing 18 holes are going to have completely random times that they complete any hole regardless of the par. The theoretical goal is to implement a marshall, someone who enforces a bit of pick-up in pace, to traverse the course and find lame actors that might be prohibiting certain groups from enjoying their rounds. These groups will only meet the marshall if the total time that they are behind pace is at 5 minutes. The marshall(an integer variable), once arriving at the location of the lame actors, will aim to take off 1 minute per hole after. If that group is no longer behind pace the programs marshall variable then moves to another group that is being slow in pace when it is called. All in all this will be a rather simplistic approach to simulating the pace of play model, and will display the overall function of the different roles that exist on a golf course when it comes down to how the rounds are conducted and completed.

3   Citations

Leahy, D. O. (n.d.). Pace of Play in Golf. Fisher Digital Publications. https://fisherpub.sjf.edu/sport$_u$ndergrad/3/

Fu, Q., Whitt, W. (2015, January 1). Analyzing the pace of play in golf. Journal of Sports Analytics. https://content.iospress.com/articles/journal-of-sports-analytics/jsa0004

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