ABSTRACT
Summer learning loss describes students’ tendencies during summer vacation to forget material learned during the previous school year. Easton Weed and Seed's 2013 Summer Nights program included a curriculum component intended to reduce attendees’ summer learning loss. My thesis analyzes DIBELS test score data from the Easton School District to determine whether this curriculum helped reduce summer loss. While the sample size was small, I was able to use several statistical methods to compare results for Summer Nights attendees to those of other Paxinosa students. I also look at factors that are associated with repeat attendance, such as characteristics of curriculum activities and distance of student’s home from Centennial Park. Finally, I discuss the challenges of data collection in a community setting and use this to provide ideas for further research.

ABOUT SUMMER NIGHTS
• Held June 24-August 15, 2013 from 4-7pm Mon-Thurs at Centennial Park in Easton’s West Ward.
• Each night included a free dinner followed by a curriculum activity and an activity run by a community partner (YMCA, Kellyn Foundation, Cops and Kids, etc)
• This year, the curriculum element was added in an effort to reduce summer learning loss in elementary students
• The program also focuses on the Search Institute’s Family Assets Framework, a set of assets proven to improve the quality of life for those families and communities that have more of them

Summer Nights was started to address several community needs. The West Ward is an economically disadvantaged neighborhood where many children lack access to structured summer activities, transportation, and regular meals. There are few activities for children between 4 and 7 p.m., and many of them would otherwise be unsupervised during that time.

DIBELS AND BENCHMARKS
The DIBELS exam is scored differently based on grade level and time of year, due to changes in the difficulty of the questions proportional to grade level . There are three levels into which students are classified based on their scores. These are well below benchmark, below benchmark, and at or above benchmark.

The following tables depict how many students are at each benchmark in Spring 2013 and Fall 2013 and the conditional probabilities of a student being in a particular benchmark in the fall, given the benchmark he/she was in during the spring.

RESULTS
These graphs suggest that summer learning loss is occurring in the sample. Each grade has a higher maximum score than the previous one on the DIBELS scale. If students’ reading proficiencies all progressed as they should, the other graphs would look like Grade 1 and shifted to the right. The flattening of the curves tells us that some students progress while others continue to score on the lower end. The red lines mark the three benchmark levels.

LIKELIHOOD OF ATTENDANCE
Students are more likely to attend the program again after they attend once. The probability of any given Paxinosa student attending Summer Nights one night is

\[ \text{Likelihood of attendance} = \frac{\text{number of attendances}}{\text{number of possible attendances}} \]

which comes out to 0.008 or 0.8%. The probability of a student attending again after attending once is modeled solving for \( p \) in the following binomial distribution:

\[ (1-p)^i \times p \]

where \( i \) is the number of attendances by student \( j \) after the first attendance, and \( y \) is the number of days not attended by student \( i \) after the first attendance. A computer program finds the solution to be 0.124, or 12.4%, which is much higher than the probability of random attendance.

CONCLUSIONS
• It is difficult to come to a conclusion about Summer Night’s effect on Paxinosa students’ learning loss due to small sample size
• Students that attended Summer Nights are more likely to stay at the same benchmark levels from spring to fall
• Paxinosa students at the below benchmark designation are slightly more likely to move up in benchmark
• Those who attend Summer Nights at least once have a higher likelihood of returning

FUTURE STUDIES
• Improve attendance measures
• Focus on measuring Summer Nights’ impact on Family Assets
• Program is moving indoors to Easton Area Community Center, could examine difference in effect due to this change

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