

RECREATION ACTIVITY SPACE: UNIVERSITY STUDENTS IN NORTHEAST PENNSYLVANIA

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ABSTRACT: *This paper examines the recreation activity space and travel gradients of students at Bloomsburg University of Pennsylvania. Seventy-eight students, 34 female and 44 male, kept a recreation/space-time diary for a total of 30 days during the fall of 2000. The frequency, duration, travel distance, and activity destinations of the respondents will be discussed. Some general findings were that most activities required no travel, and that females on average spent more time recreating on a daily basis than males. Recreation was concentrated in watching television, visiting family or friends, relaxing or napping, "other" activities, and sports practice. Overall, student recreation activity space was primarily local suggesting a strong distance decay relationship. The irregular shape of the activity space demonstrated the diversity of student spatial interaction, and the clustering of leisure movement illustrated Zipf's Principle of Least Effort.*

INTRODUCTION

George Zipf is known in the field of linguistics for his Principle of Least Effort (Zipf, 1949). The principle simply states that most people will avoid even modest life hurdles that could be overcome with some effort. To be undertaken, human action must be relatively effortless or come with some substantive reward. This notion fits comfortably with the geographic concept of distance decay, that interaction between places will be weaker when located further apart. Most geographers recognize these ideas simply as Tobler's "first law of geography" (Tobler, 1970). Clearly, an effort – be it cost, time, or distance – must be overcome for interaction to occur. This effort or cost will generally be avoided, especially if other alternatives exist. Leisure participation and the places it occurs demonstrate similar patterns.

The objective of this paper is to examine some facets of college students' recreational activity space. This objective implies that a period of leisure time exists that is free from work, studies, or other responsibilities. It also suggests that there are a set of recreational activities that will ensue as well as some

space on the earth's surface where these activities take place. The specific purpose of this research is to study the use of recreational time and determine the distance people are willing to travel for a specific activity.

The concept of activity space has been discussed and expanded upon since the early 1970s (Tobler, 1970; Horton and Reynolds, 1971; Jakle et al., 1976; Eldridge and Jones, 1991). Mitchell and Vincent (2003) recently proposed a symbolic model to serve as a description of recreation activity space:

$$\text{RAS} (f) \text{ RA} + \text{SE} + \text{I} \rightarrow \text{C} * \text{D}$$

Where:

RAS = Recreation Activity Space; RA = Recreational Activity;

SE = Social-Economic Characteristics; I = Ideology or Value System;

C = Cost; D = Distance; and \rightarrow = Relate to.

In their words, "this simple model proposes that recreation activity space ... [is] a function of a given recreation activity or set of activities, plus the social-economic characteristics of the individual or group involved, plus the ideology or value system of

the individuals or groups as they are related to the spatial, economic, or psychological costs of the friction of distance.”

This paper investigates portions of this symbolic model, the social-economic characteristic of gender, and distance traveled. Research questions investigated included:

- What is the size and range of recreational activity space for university students? Does it vary by gender?
- How does travel distance vary for the top five recreational activities? Does this vary by gender?

These questions are explored through the analysis of a survey of Bloomsburg University students in the fall of 2000.

GEOGRAPHY AND LEISURE

Anglo-American geographers have investigated recreation and tourism geographies since the 1930s (Hall and Page, 1999). Beset by many stops and starts, the sub-specialty within geography slowly moved forward despite laments by its practitioners about the lack of theoretical direction and prestige. Encouragingly, an increasing number of geographers are involved in the field and lending their expertise from other areas of the discipline. GIS, for example, are being used to identify ecologically sensitive areas and to plan tourist development. Other

potential uses include: locating new trails; specifying fire zones in parks; locating public facilities; monitoring environmental impacts; and visualization to simulate future change (Pigram and Jenkins, 1999). Recreational resource inventories and mapping are also prevalent (Boyd and Butler, 1996; Williams et al., 1996). Research into the geography of sport also shows growth (Bales, 2003).

This research investigates leisure time generally, and therefore deals with tourism, recreation, and sport to some degree. Tourism typically refers to travel as an economic phenomenon rooted in the private domain, while recreation has been viewed a resource concern for the public (Hall and Page, 1999). Sport too has separate connotations (Bales, 2003), but is thought of here as an organized athletic recreational activity. While definitionally distinct, the three are not investigated as such in this paper. The primary focus is to apply earlier geographic concepts (distance decay, travel behavior) to a new population (college-age students) using newer technologies (geographic information systems). Investigations into the effects of distance – and its concomitant decay process – persist throughout this geographic sub-discipline (Hanink and White, 1999; Carmichael, 2002; McKercher and Lew, 2003).

STUDY AREA

The study was centered on Columbia County, Pennsylvania, a rural area situated within the

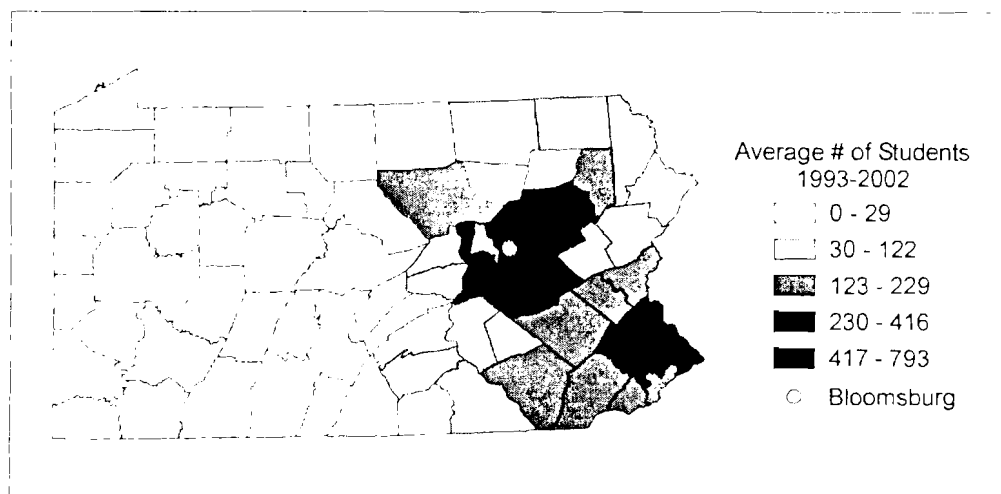


Figure 1. Bloomsburg University Student Source County, 1993-2002 Average.

Table 1. Recreational Activities Categories

Attend Sports Events	Indoor social games (video, pool)
Dancing, Nightclub, Circus	Other pastimes (zoo, sunbathe)
Movies	Listen to radio
Visit Theater, concert, opera	Listen to albums
Visit Museum, exhibitions	Watch TV
Visit friends	Read books
Attend party	Read newspaper
Visit café, bar, restaurant	Read magazines
Attend receptions	Conversations (including telephone)
Sports practice, exercise	Correspondence
Excursions	Relax, do nothing
Walking for pleasure	Shopping (for fun)
Hobbies, collecting	Dating
Sculpture, painting, writing	Other
Sing, musical instrument	

foothills of the northern Appalachians. The county had a population of approximately 64,000 in 2000 (U.S. Census). The county seat, Bloomsburg, had about 12,000 residents; 5,500 were Bloomsburg University students. The student source area is shown in Figure 1; most call Columbia, Northumberland, Luzerne, Bucks, and Montgomery counties home. University students have an array of recreational opportunities available to them on campus, ranging from social clubs to a well-equipped athletic facility.

The major employment sectors in the area are manufacturing, education, and health services. A number of recreational amenities, both natural and 'artificial', are also found locally. For example, Ricketts Glen State Park is one of the larger parks in the state and Knoebel's Amusement Resort is highly regarded and attended during its summer season. The Bloomsburg Fair, held every year in late September, is also one of the largest of its kind in the United States; typically over 600,000 visitors attend the fair during its eight-day run.

METHOD

The data for this study were collected through an on-campus survey of university students.

The results were then analyzed within a geographic information system (GIS). A number of comparable studies were conducted simultaneously (Althausen et al., 2003; Mitchell and Vincent, 2003; Moudy and Althausen, 2003) and comparisons to their initial results will also be made.

Survey

The survey sample consisted of seventy-eight Bloomsburg University undergraduate students, 34 female and 44 male. Each student kept a recreation/space-time diary for 30 days during the fall 2000 school semester. Within this diary the students kept track of their recreational activities, travel destinations, and the amount of time spent participating in those activities. The survey design was based upon similar work by Mitchell (1986; 1990). The participants categorized their activity using a classification scheme developed by Chubb and Chubb (1981) (Table 1). The data were then organized for analysis using a GIS.

GIS Data Processing

Determining the student's recreation activity space required additional information. Specifically, destination coordinates were needed. The geographic

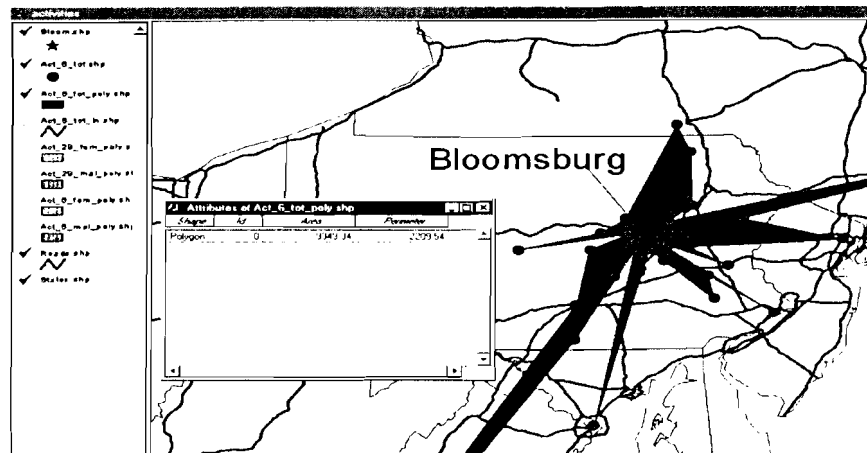


Figure 2. Mapping Recreational Activity Space within a GIS framework.

coordinates for the center of each destination municipality were derived from existing GIS layers or print atlases. Each location was then plotted by ESRI's *ArcView* from a text file and then converted into a point shapefile. Next, a line layer that would connect each location to the central point of Bloomsburg was produced. This layer provides an approximation of the distance traveled in a straight path. While not entirely accurate regarding the actual path traveled, it provides a reasonable basis from which to derive a coarse representation of recreational activity space. The final step was the construction of a polygon layer that would provide the area and perimeter associated with each recreational category. Each record from the point layer was connected to create the polygon layer (Figure 2).

RESULTS AND ANALYSIS

General Findings

Most certain to chagrin fitness enthusiasts, Watching Television was the top recreational activity. This was followed by Visit family/friends, Relax/Nap, 'Other', and Sports practice. Females spent more time recreating on a daily basis than males (6.4 vs. 5.9 hours), though the activities vary slightly, an area we will turn to later. These time differences were not found to be significant for this small sample (*t*-test). Past research has demonstrated that female and male college students are not significantly different with regard to frequency of participation in recreation activities (Mitchell, 1990), and this holds true for this sample as well. We find that like most activities, the recreational travel of

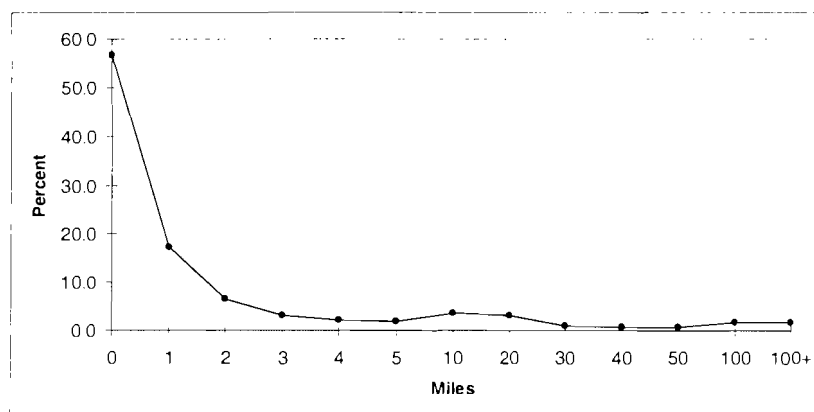


Figure 3. Percent of Activities Requiring Travel and the Distance Traveled.

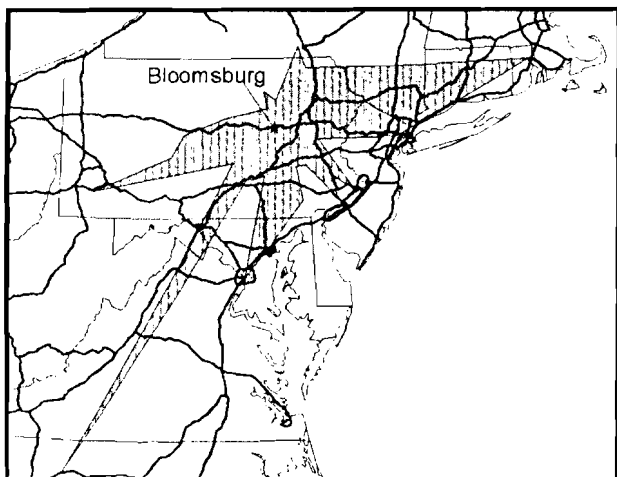


Figure 4a. Recreational Activity Space: Female.

these college students was highly sensitive to distance. Fifty-seven percent of the activities required no travel, and nearly 74% of activities occurred within 1 mile of the respondent's residence (Figure 3). The inference then is that the frictionless zone for most recreational activity has about a one-mile radius (the outer boundary of which would constitute the 'critical distance'). Overall, student recreation activity space was primarily local with only 6% of all activities requiring travel of more than 20 miles. These general findings were consistent with other studies as well (Althausen et al., 2003; Moudy and Althausen, 2003; Mitchell and Vincent, 2003).

Activity Space by Gender

The first research question asked about the size and range of recreational activity spaces for Bloomsburg University students. It further questioned whether variations might exist by gender. This analysis required the separation of activities by type, the creation of activity spaces within a GIS, and then the comparison of those spaces by gender.

Overall we find that females traveled a longer distance and covered a larger area, but males traveled a further distance per recreation occurrence (Figures 4a, 4b). This analysis, however, is skewed toward longer-distance recreation activities. As the survey process progressed, respondents became more careless with their data entries. In particular, short-distance trips became un-mappable. Where long-distance trips were listed with definitive points of origin and destination, short-distance trips were typically recorded as "went to a friends house" or "at

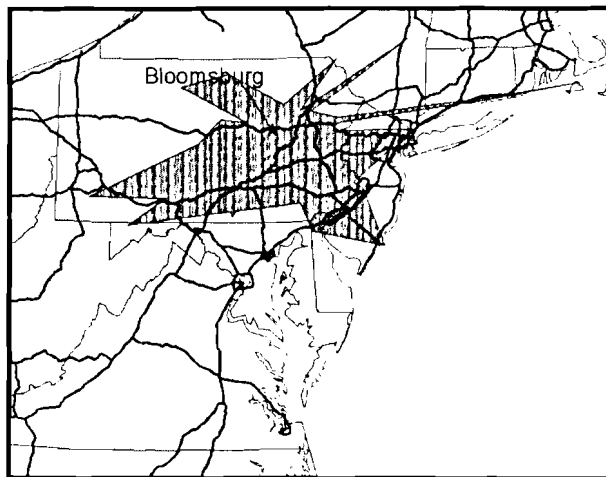


Figure 4b. Recreational Activity Space: Male.

a party." This lack of detail made spatial analysis for these frequent short-distance happenings impossible. The findings for the size of the recreational activity space should be considered, therefore, as a very coarse approximation. One can observe, referring back to Figure 1, that the generalized recreation activity space for both males and females corresponds with the university's student source area.

Travel Distances by Activity and Gender

The second research question investigated the travel distance for the top five recreational activities. These variations were also explored by gender. Again the top five activities were Watching Television, Visit family/friends, Relax/Nap, 'Other', and Sports practice. As one might expect, considerable travel difference were evident depending upon the activity chosen. Watching Television and Relax/Nap required little to no travel; better than 95% of these activities resulted in no movement. Approximately 70% of the Visit family/friends trips occurred within three miles of the respondent's residence. Each category of activity displays a distance decay process except for Sports practice. This activity can be described in terms of distance accretion, whereby a peak in travel distance occurs away from the point of origin (Figure 5). For this activity, 66% of the trips occurred within two miles of the point of origin, however, most required at least one mile of travel. This may be attributed to the nature of the Bloomsburg University campus; its residence and academic buildings are housed on a

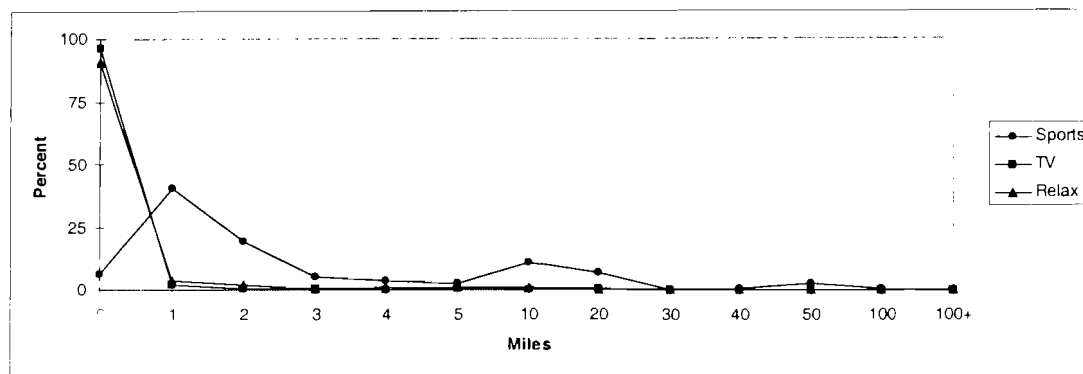


Figure 5. Percent of Activities Requiring Travel and the Distance Traveled: T.V. viewing, Relaxing, Sports Practice.

'lower' campus while its athletic facilities are located on an 'upper' campus approximately one mile away.

The top five activities varied slightly between genders. The top activities for males, in descending order, were Watching Television, Relax/Nap, Sports Practice, Visit family/friends, and 'Other'. For females the activities were Watching Television, Visit family/friends, 'Other', Relax/Nap, and Conversation. For these activities, no significant differences between female and male college students were found with regard to travel patterns. This re-confirms earlier work by Mitchell (1990).

CONCLUSIONS AND DISCUSSION

The survey found the recreation activity space for a sample of Bloomsburg University students existed over much of eastern Pennsylvania; however, this general space does not vary appreciably by gender. The size and direction of the travel appears to mirror the university's student source area. Almost all travel made by students fits into an expected distance decay model, with the majority of all recreational activity requiring no travel or minimal effort within a critical distance of one mile. Zipf's Principle of Least Effort is illustrated by the large numbers of activities that occur at or near the origin. Students tend to minimize their costs of travel, time, and effort in order to maximize their recreation enjoyment. Only one of the top five recreational activities (Sports Practice) varies from the distance decay model. This example of distance accretion may be attributed to the local campus site. Overall, travel distances did not vary by gender.

Other studies targeting recreation time and space show that our findings are within the norm (Bristow et al., 1995; Hall and Page, 1999). Several concerns about our work and future directions

remain. For future work we must review the recording instrument and implement strategies whereby complete results are maintained throughout the survey process, especially for location data. We should also investigate updating the Chubb and Chubb (1981) activity list.

We should also consider gathering more demographic information, such as income or work status. For example, Moudy and Althausen (2003) found that working 15 hours per week appeared to be a critical cutoff for participation. Students that worked more than 15 hours per week were significantly less active than those students that worked less. In addition, students working over 15 hours per week had most of their activities occurring at home. Notably missing is information on access to transportation. Future research must investigate whether access to a vehicle, bicycle, or public transportation was available. This opportunity, along with differing income levels, would surely alter our understanding of the travel choices made.

Local geography should be revisited. Our work examined a very rural setting. An urban setting with potentially more activity opportunities could show markedly different results in willingness to travel. Seasonality should also be considered. This early fall survey eliminates other popular local pastimes such as skiing, but includes significant one-time hallmark events such as the Bloomsburg Fair, an opportunity available for only one week each year.

An important practical application of this work is the sharing of these findings with the university admissions office. Clearly students are finding recreational opportunities within close proximity to campus. This should be an attractive selling point during recruiting, and also for retaining students once enrolled. We must be careful, however, in over-selling this recreational picture. This research has uncovered the activities college students are actively undertaking (actual/effective demand =

current consumption). It does not tell us what recreation activities they want to do but cannot through a lack of opportunities, finances, or facilities (suppressed demand).

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