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Romantic relationships and the built environment: a case study of a U.S. college town

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ABSTRACT

Romantic relationships are a special type of relationship that affect happiness and wellbeing, but little is known about how romantic couples use the built environment to perpetuate their bond. We conducted a survey of 124 geolocated individuals in romantic relationships in State College, Pennsylvania, and used a mixed-method geographic information systems (GIS)/qualitative research framework to show how couples use the built environment. We illustrate their favorite places, the characteristics of these places, and how the town's amenities and design helps their bond. Our results show that pedestrian and transportation infrastructure and a variety of proximal, affordable activities, (primarily restaurants and nature/outdoor spaces) are important for couples. We also find that on-campus attractions, not just those of the town, play an important role for romantic outings. We use these findings to encourage and recommend infrastructure for supporting romantic relationships in the future.

KEYWORDS

Couples; romantic partners; points of interest (POIs); collegetown; third places; romance

Introduction

A well-defined paradigm in urban planning is designing to support community needs. Urban Design Guidance (UDG) protocols suggest that designing inclusive places means recognizing difference in lifestyle and the lifecycle (Paranagamage et al. 2010), which can be addressed by meeting community demand for facilities such as schools and parks, emphasizing access to amenities, configuring walkable streets, and promoting mixed land use (Talen 1998, 2002; Congress for the New Urbanism 2000).

The concept of demand most often refers to the needs of the individual, household, or community. Quantitative methods for assessing access to and demand for facilities represent the *individual* or *household* as a point or areal unit of demand for proximal amenities (Talen 1998; Kwan and Weber 2008). Other methods address the *community* as a unit, and show which types of landscapes lead to increased social capital through bridging, bonding, or linking ties (Talen 2002; Cabrera and Najarian 2015; Mazumdar et al. 2018). Another set of studies broadly describe the need for places and spaces to

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Note: this work was primarily performed at Pennsylvania State University while Clio Andris was a member of the faculty there.

 Supplemental data for this article can be accessed [here](#).

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support *social life*, which can be codified and measured as visible interactions between humans (Gehl 1987) or simply the presence of a streetscape's seating and shelter (Mehta and Bosson 2010).

These vantage points do not capture the perspective of individuals engaging in joint activities (Fan and Khattak 2009), which is a subset of social life. As such, we argue that the *personal relationship* is an overlooked but promising unit of analysis with which to study demand in the built environment. Relationships such as family, friends, couples, and even professional ties, need available meeting places, activities, and facile transportation; changes in the built environment or availability to meet in person can impact the quality of these relationships. Recently, planners have suggested building with interpersonal relationships in mind for happy, healthy cities (Pfeiffer and Cloutier 2016), and subsequent research affirms that the health and vitality of relationships is influenced by planning efforts to support walkability and accessible green space (Mouratidis 2018b).

Romantic relationships are a special type of relationship that is of particular interest because of the intense effect that romantic love has on personal wellness. Romantic relationships have strong positive impact on happiness (Argyle 2001; Baumeister and Leary 1995; Diener and Seligman 2002; Dolan, Peasgood, and White 2008; Myers 2000), subjective well-being (Blanchflower and Oswald 2004; Dolan, Peasgood, and White 2008; Helliwell 2002; Lucas and Dyrenforth 2006), and personal health (Barr, Culatta, and Simons 2013). Romantic ties facilitate travel, consumption, and impact decisions where to live (Kim and Agrusa 2005; Hang-Hyun et al. 2014). A recent survey shows that more than 60% of US citizens are involved in romantic relationships (Statista 2017). Although not all romantic relationships yield increased happiness (Hudson, Lucas, and Donnellan 2020), high quality companionship is a prominent component of happiness in romantic relationships (Demir 2008). Yet we know little about which amenities and urban design features help support and encourage features like companionship in romantic relationships. For instance, features such as a basketball court or sidewalks are rarely associated with romance but may indeed be important for couples; not having such elements may put a strain on romantic ties. To better address the needs of romantic relationships and support healthy romantic ties, we must first know what kinds of amenities and design features are most important to couples. Accordingly, we pose three specific research questions:

Where do couples spend quality time together? What are the characteristics (place type, location, interior/exterior architectural descriptors) of these places?

Does couples' distance to dense commercial areas (i.e. a downtown area) affect patronage to these areas?

How does an area support romantic relationships and how can it be improved?

To respond to our research questions, we conducted an online survey of 124 couples in both local and long-distance relationships in the semi-rural State College, Pennsylvania, USA, region (town pop. 60,000, 2018). State College is home to the Pennsylvania State University (i.e. Penn State). The survey collected information on couples' residential address(es), demographics (age, gender, length of relationship), where they like to spend time together, and the attractive features of these places. The survey also asked respondents where they created their best memories with their partner and what could be improved about the area to better support their relationship. We analyzed the data with a mixed-methods approach using GIS, OLS regression, and qualitative coding, and

we visualized the spatially embedded relationships in a novel way, by geolocating the respondents and their partners' addresses. Then, we examined whether home distance to downtown and distance between partners affect usage of the downtown and campus. Lastly, we used qualitative coding to find common themes in open-ended questions about memories and potential improvements to the area.

The purpose of this research is to describe the amenities and features that best support romantic relationships and to provide a proof of concept for a survey-based assessment to help cities support couples. The results of this study can be used to help prioritize certain amenities over others when building new spaces, in order to generate partner-friendly spaces in college towns. It also points to the ways in which couple-focused activities drive economic spending and patronage in public space. This research is a descriptive analysis of a single case study, and the survey does not compare couples' responses to the opinions and experiences of residents who are not in romantic relationships. However, this study makes a new contribution by eliciting the behaviors of couples instead of social life conceptually, and further narrowing this focus to romance. The result is a new perspective on the city's role in helping romantic pairs enjoy each other's company, create memories and perpetuate their bond, as well as a proof of concept for studying relationships as an atomic unit of demand that serves as a positive fixture in the city.

This manuscript proceeds as follows. We briefly review related literature on the topics of social life in the built environment, romantic relationships, use of the built environment, and the nature of long-distance romantic relationships. We then describe our dataset for the State College case study survey and methods used to analyze survey results. Following, we report our findings and engage in a discussion on the relevance and implications of our results.

Literature review

Social life and the built environment

Landscapes with certain design features and amenities, particularly parks, walkability and dense clusters of local points of interest (POIs), foster relationships more effectively than others (Leyden 2003; Lund 2003; Wood et al. 2008). Specifically, compact, dense urban form provides more opportunities to meet new people and to socialize more frequently. Residents living in these environments tend to have more close relationships than those living in sparser residential settings (Mouratidis 2018a). Walkable neighborhoods lead to higher local social interaction and foster local social relationships (Mouratidis and Poortinga 2020; Boessen et al. 2017; Nguyen 2010). Access to stores and green space also enhance neighbor social ties (Lund 2003), though presence of local commercial destinations may negatively impact neighbor social ties (Wood, Frank, and Giles-Corti 2010; Mouratidis and Poortinga 2020).

Certain types of POIs known as "third places" (i.e. not work or home) (Oldenburg 1989), also help support relationships and social life in the built environment. POIs allow for joint activities (such as going to the zoo or to the park) that are key for maintaining relationships and creating memories, leading to higher relational satisfaction (Crawford et al. 2002; Zuo 1992). A dense environment with POIs such as cafés, restaurants, bars, and community centers are linked to more opportunities to meet new people (Mouratidis

2018a; Williams and Hipp 2019). In choosing which amenities can meet relationships' demand for activities and outings, there is not a single recipe, as different populations demand POIs that provide a variety of convenience, affordability, and culture (Zukin 1998; Hickman 2013). For example, lesbian, gay, bisexual, transgender and queer or questioning (LGBTBQ+) and ethnic communities may have different romantic needs from the built environment; lesbian populations have reported taking extra steps to find locations where they felt comfortable (Valentine 1993, 112) and that they relied on word-of-mouth to create new relationships. In addition, different ethnic groups and enclaves may also have different needs for amenity types to help facilitate romantic connections. In one study of dance clubs in Los Angeles, certain clubs attracted Asians and Latinos, while other clubs attracted white patrons, and patrons would travel farther to attend their chosen club (Hong and Duff 1997).

In addition to build environmental factors, exposure to nature improves mood and sociability, and has been linked to "pro-social" and "unselfing" behaviors (Zhang et al. 2014). In a review describing how nature facilitates social connectivity, Goldy and Piff (2020) relate that trees and foliage can lead to feelings of "tight-knit" community via (Holtan, Dieterlen, and Sullivan 2015), generosity, and feelings of orientation away from the self and towards others. Their review ultimately attributes pro-social reaction to nature to the "awe" that nature and greenery evokes (as in Anderson, Monroy, and Keltner 2018).

Romantic relationships and the built environment

Romantic dates occur in public places and often involve consumption (of food, beverages, or goods) (Kuperberg and Padgett 2016). Few have enumerated the most important activities for romantic couples, though *American Time Use Survey* results illustrate that married couples prefer leisure, sports, eating and drinking (Fein 2009). Cultural events, dining, and attending parties have also remained common couple activities since the 1960s in the U.S. (Voorpostel, Van Der Lippe, and Gershuny 2010).

The specific POIs used for romantic relationships have changed alongside evolving technology and cultural practices. Through the 20th Century, dating sites shifted from the home's front porch or parlor near the turn of the century, to the automobile in the 1950s-1960s, to shopping malls in the 1980s, amid consumer goods, fast food, and the public eye (Bailey 1989). Today, digital technology has changed how romantic relationships use the built environment, as at-home activities such as streaming entertainment services, online gaming, delivery food services, and video chat have replaced former dating-centric POIs such as movie theaters. Couples frequently meet through online and mobile dating apps: in 2017, 39% of heterosexual couples and 60% of same-sex couples in the U.S. met online (Rosenfeld et al. 2019) but the built environment still provides places to help online couples meet in person. Concurrently, today's romantic relationships are shorter in duration and more informal in terms of commitment expectations (Smith et al. n.d.) which may spur demand for dating spots that cater to new relationships.

The life course context of a romantic relationship can dictate which parts of the city or destinations may be used for romance. Middle aged couples with children are drawn to convenient suburban POIs, while single or childless couples tend to favor denser, urban environments (Frenkel, Bendit, and Kaplan 2013; Fincher and Gooder 2007). Yet, for

special occasions such as anniversaries, couples tend to visit only a few restaurants in the urban core (Rahimi, Andris, and Liu 2017). One interpretation of these findings is that convenience is key, but that certain areas of a city are known attractions where couples spend special time together. In terms of distant destinations, couples also demand destination weddings and honeymoons, which comprise a growing part of economic development strategies for some local economies (Kim and Agrusa 2005; World Tourism Organization 2012).

Romantic relationships and distance

Distance between partners also affects their ability to maintain a relationship. This distance could be at a very small scale: an early sociological study found that marriages between individuals in urban Philadelphia were most concentrated when parties lived within a few blocks of one another (Bossard 1932). Today, fewer studies examine the neighborhood scale, and instead, examine long distance romantic relationships (LDRRs). Long distance is defined by not living in the same city (Helgeson 1994), distance or travel time to meet (Carpenter and Knox 1986; Schwebel 1992; Knox et al. 2002), or time spent together, such as two (Holmes 2004) or four (Rabe 2001) nights apart during the week. Carole and Roberts (2011) distill LDRRs into living more than 25 miles apart, being unable to meet every day due to distance, or being employed/attending college in different cities.

In LDRRs, significant distance between partners hinders face-to-face meetings, though these meetings are essential for maintaining a romantic relationship (Stafford 2005; Aylor 2003). For partners in LDRRs, meeting necessitates transportation infrastructure and travel time/cost, which are significant external stressors on couples (Maguire and Kinney 2010; Aylor 2003). Accordingly, LDDR partners also have pressure to make face-to-face time more special (Aylor 2003) and local amenities and activities can help support these efforts. Our college town case study captures a number of LDRRs. These relationships are likely between students who attend different colleges, as 25–50% of college students are estimated to be part of a LDDR at any given time (Dainton and Aylor 2002; Stafford 2005) and 75% of college students have participated in a LDRRs (Dargie et al. 2015).

Materials and methods

Case study

To discover the role the built environment plays in supporting romantic relationships, we created an online survey that was given to residents in the State College, Pennsylvania area. State College is a small monocentric town in a semi-rural area that is home to the main campus of Pennsylvania State University (Penn State), a public school with over 40,000 undergraduates and 6,000 graduate students (The Pennsylvania State University 2019) (Figure 1). The jobs, intellectual property, and tourism created by Penn State drives much of the local economy. The adjacent, pedestrian-friendly downtown area of State College hosts a cluster of shopping, eating, and service (e.g. salons) facilities in historic buildings. Sporting events, especially



Figure 1. Photos of State College, PA Area. Clockwise from top left: *Aerial view of State College*, by Jon Dawson (license: CC BY-ND 2.0). *Bars on College Avenue in downtown State College*, by Stilfehrer (license: CC BY-SA 4.0), *A Penn State student says goodbye to his girlfriend as she returns to Hunter College in New York City after a weekend in State College*, by Penn State (license: CC BY-NC 2.0). *The Alumni Pond on campus is a popular spot to relax and spend time together alongside ducks and turtles*, by Penn State (license: CC BY-NC 2.0).

football, bring tourists from many locations, as do music concerts and the local Arts Festival in the summer. The town is relatively far from the coast and major cities (roughly 3.5 hours' drive), but has local hiking locations (including the popular Mount Nittany), nearby lakes, official state parks and a ski area. We divide the town's areas into three categories: "downtown" (0.32 km²), "campus" (4.2 km²), or "surrounding area" (17.3 km²); most commercial and community amenities are concentrated in the downtown and campus area.

Survey and data

We used the Qualtrics survey platform and listed our study through Penn State's StudyFinder website (studyfinder.psu.edu). (See Appendix A for survey.) StudyFinder is an online "message board" for scientific studies led by Penn State researchers, and is open to any member of the public who is interested in finding studies in which to participate. Once a participant clicked on our study link, they were directed to our Qualtrics survey link, wherein directions were given, IRB protocols were explained, and the participant could then immediately answer questions on the online form. The survey was released in June and was available until the following May, and the exact year of the study is undisclosed to protect privacy but was in the date range of 2015–2019. Upon survey

completion, each participant was given a \$5 Amazon.com gift card via e-mail. After controlling for quality in responses, i.e. removing bots, surveys from those who lived outside the area, and unfinished surveys, $n = 124$ responses were used.

The survey contained questions on general demographics (questions 1–6), the couples' approximate residential address(es) (7–9) (as non-marital cohabitation has become increasingly prevalent in 20–29 year olds (López-Gay et al. 2014)), and relationship characteristics, such as relationship duration (10–12). Survey-takers were then asked to list ten places where they spend quality time with their partner (question 13). They were also asked to select the best features of the places they listed (for both indoor and outdoor spaces, based on Wardono, Hibino, and Koyama (2011)) (questions 14–16). Finally, users were prompted with open-ended questions (17–19) asking where some of their best moments (outside the home) occurred, how the area supports their relationship, and what improvements they would make.

Analysis methods

We divided couples into four groups: (a) cohabiting; (b) in town (both partners live in the State College area); (c) short distance (one lives outside SC but not farther than 50 km); (d) long distance (one is farther than 50 km from the SC area). We divided respondents into younger (the average age of the couple is under 22 years old) and older (over 22 years old) couples, and assume that the younger group is undergraduate students. We classified respondents' points of interest (POIs) using a bottom-up typology from given responses that included bar, city, coffee shop, education, multi-purpose, outdoors, recreation/sports, religious, restaurant, shopping, and other (e.g. auditorium, car, etc.). Generic answers like "coffee shop" or "library" were omitted from the geolocating process but included in subsequent frequency counts. We geolocated addresses using the Google Maps API, and manually found coordinates for places that were not found by the geocoder (many were apartment complex names), given local knowledge. We added random noise to the coordinates to mask actual home location and retracted the location names of long-distance partner residences in smaller cities to preserve privacy.

To examine the effect of home location on choice of amenities for dating, we carried out ordinary least squares (OLS) regression tests regressing a couple's average residential distance to downtown or to campus with the number of reported favorite POIs located downtown or on campus. We used GIS to add context to our participants' landscapes, visualize the data to convey how relationship ties are embedded in the town, and measure distance to answer our research question of whether couples' distance from the downtown and the campus affected their usage of amenities. We measured the shortest Euclidean distance between each residential location to the closest edge of the downtown polygon. We conducted GIS analysis in Esri ArcMap and OLS regression analyses in the R Statistical Computing Environment.

To communicate what the respondents reported most often, e.g. hiking or The Tavern Restaurant, we used frequency counts, and we used qualitative coding to analyze topics mentioned in the survey's three open-ended questions. We created a set of codes for high-level themes, grouped responses under themes, and counted the frequency of mentions per theme. If a response mentioned one theme multiple times, each mention was added to the total tally.

Table 1. Respondent statistics.

Variable	Notes	Mean	Range (st. dev.)
Gender	Female = 1	0.75	0–1
Cohabitation Status	Cohabiting = 1	0.435	0–1
Heterosexual	Heterosexual = 1	0.975	0–1
Marital Status	Married = 1	0.137	0–1
Age of Partners and Respondents	Age in years	23.8 (respondents) 24.4 (partners)	18–56 (st. dev. = 6.1)
Length of Time in Relationship	Duration in years	2.9	0.08–12.5 (st. dev. = 3.2)
Distance Between Non-cohabiting Partners	Distance in kilometers	176.4	0.62–6517 (st. dev. = 802.9)

Respondent characteristics

Respondent statistics are found in [Table 1](#). Twenty (16.1%) couples reported being in a relationship for less than 6 months, 18 (14.5%): 6 months to a year, 52 (42.0%): 1–2 years, 31 (25%): 5–10 years and 3 (2.4%): more than 10 years. Thirty-four (27%) couples were the same age, another 40 (32%) were born about one year apart (see Appendix B). Forty-seven (37.9%) couples met a college or graduate school; 16 (12.1%) met online; 18 (14.5%) met in high school or before; 16 (12.9%) met through friends and 7 (5.6%) met at a bar or restaurant. The remainder (20) met through family, neighbors, church/religious groups, community groups, at a party, or at work. Of non-cohabiting couples, 29 (23.4%) respondents said that both partners lived in the State College area. Forty-three (34.7%) couples lived less than 5 km from each other. Seven (5.6%) respondents' partners lived outside Pennsylvania, including one living abroad. Older couples were more likely to cohabitate (see Appendix B) and long-distance relationship ages ranged from 20–30. Of couples who lived apart, most lived less than 17 km away, one couple lived at 60 km distance, and the remainder (16) lived over 100 km away.

Results

In this section, we describe the POIs that couples use for quality time and the characteristics of these places. We also examine whether distance to POIs affects usage and how State College supports relationships, according to respondents.

Places used for quality time

Respondents reported 1,128 total POIs where they spent quality time together, comprised of POIs in the downtown ($n = 401$), campus (290), surrounding area (393), or unknown (44) ([Figure 1](#)). Places in the surrounding area included places outside downtown or campus (for example Otto's Restaurant, which is three miles north of campus) (Maps are provided in [Figure 4](#) and Appendix B). The downtown area was the most popular locale for POIs, given its size in area, but the surrounding area was also popular for couples, despite the relatively few POIs available ([Figure 2](#)). Older and younger couples used the downtown similarly, but 30% of young couples reported locations on campus compared with 21% of older couples. Forty-one percent of older couples' chosen locations were in the surrounding area compared with 29% of young couples' locations (see Appendix B), suggesting

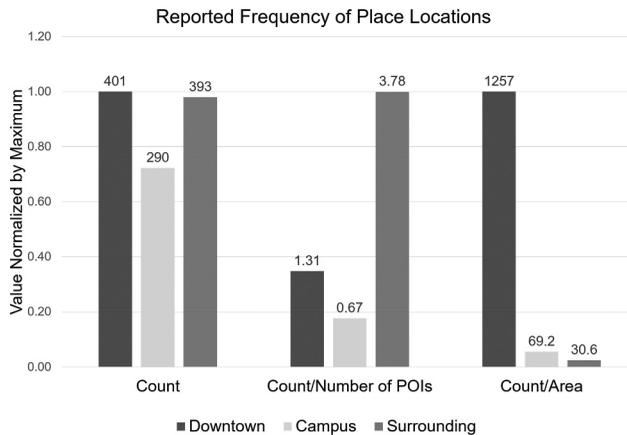


Figure 2. Respondents listed important places in three different areas as raw counts (left), counts normalized by POIs in the area (305 in the downtown, 435 on campus and 290 surrounding), and normalized by the total area in square kilometers (right). It is likely that car ownership may perpetuate use of the surrounding area.

that romantic life may be separated into different parts of the town depending on student or non-student status, following known behaviors of town-gown divisions (Ehlenz 2019). Accordingly, one respondent sought *“more options in the area for individuals who are not students ... the majority of the town is dedicated to the student body. We are often discouraged from going downtown because it feels out of place ...”* Another mentioned that *“there should be more/better bars and restaurants cater[ing] to young professionals in contrast to either families or students.”*

In terms of POI type, respondents listed restaurants ($n = 388$), followed by recreation/sports (192), the outdoors (170), and shopping (73) as the most common types of places that support their relationships (accounting for 75% of all POIs) (Figure 3). Cohabiting couples did not list restaurants as often as non-cohabiting couples. Next, respondents listed bars ($n = 59$), multi-purpose (mostly intramural student facilities including campus dining commons and sports facilities) (56), coffee shops (53), education (29), arts (29), religious institutions (7) and other cities (3). Forty-nine responses were categorized as *other*, and included someone’s house, in a car, or destinations for a trip (i.e. the beach). Younger couples were less likely to list bars (7.01% for older couples vs. 3.67% for younger couples), perhaps because individuals under 21 are not allowed to drink alcohol according to federal law. Specifically, the most common places listed were Penn State’s Arboretum ($n = 44$), movie theater (31) (with additional responses listing a more specific theater), The Hub (*Penn State’s student center*) (30), Penn State’s Beaver Stadium (24), Chipotle (17), Webster’s Bookstore Café (16), Otto’s Brewery (16), Penn State’s Berkey Creamery (15), Mount Nittany (15), and Starbucks (15) (see Appendix B for full list). Although chain restaurants such as Chipotle and Dunkin’ Donuts were popular locales, many couples reported visiting independent outlets. Respondents wrote: *“We love that there are still a large number of non-chain stores and restaurants”* and *“I think there is too much emphasis on bringing in franchised businesses now than there used to be. Instead of a Buffalo Wild Wings, State College would benefit from more emphasis on local businesses.”*

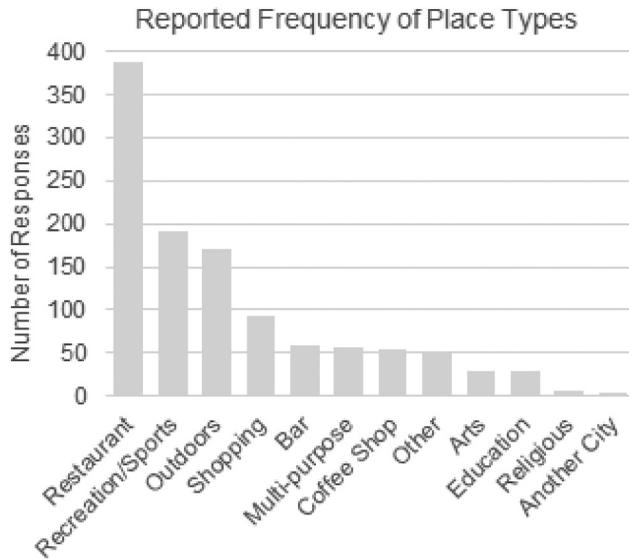


Figure 3. Survey respondents reported that restaurants were the most popular place type for supporting their romantic relationships, followed by recreation/sports venues and outdoor locales.

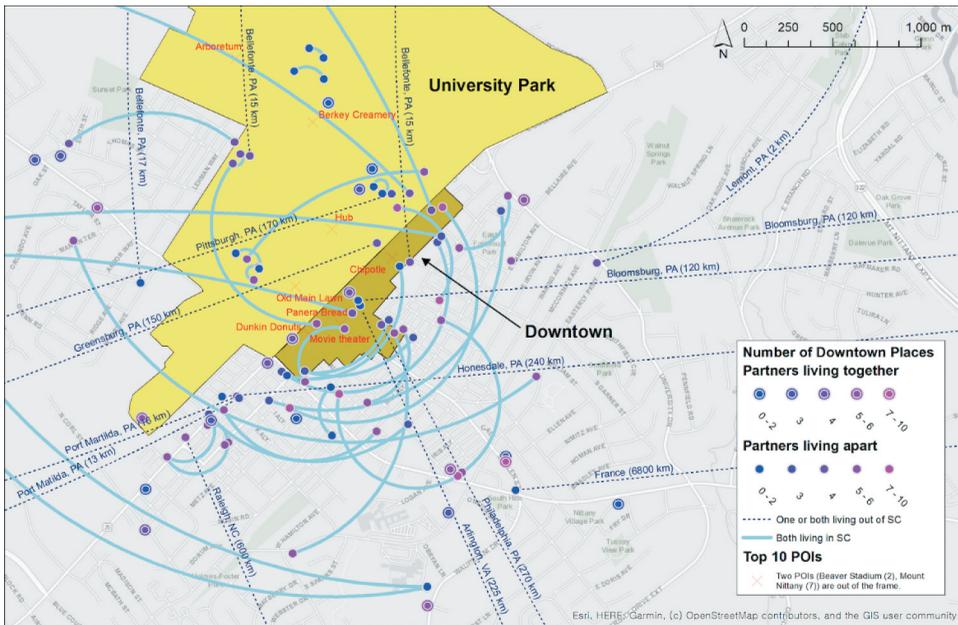


Figure 4. A map of home locations in the center of State College and campus (called University Park, Penn State’s official postal name) shows ties skirting the downtown. There is not a clear pattern of downtown amenity usage by couples’ home location(s). The grey area is comprised of parks and residential neighborhoods.

Characteristics of places used for quality time

Affordability and proximity were the most important characteristics of favorite POIs, followed by fun activities and the consistency and regularity of visiting the place (Table 2, see Appendix B for full list). Friend recommendations were less popular, perhaps because the available options in the small town are well-known to residents. Regarding indoor locations, respondents preferred friendly, sparsely-crowded, welcoming places, and favorable lighting (as in Wardono, Hibino, and Koyama 2011). Regarding outdoor POIs, exposure to nature and no admission cost were top answers. There was little difference in the importance of different characteristics between younger and older age groups.

Trends in home location, distance, and amenity usage

We mapped home locations at three different scales: in-town (Figure 4), surrounding area, and the regional scale (Appendix B). In the scope of Figure 4, 22 of 72 couples lived together, representing a smaller proportion of cohabiting couples than the universal sample. Few couples linked across College Avenue (the street boundary between campus and downtown), indicating that on-campus residents tended to date other on-campus residents and off-campus residents dated other off campus residents. On-campus residents dated within their dorms or dorm blocks, showing that hyper-proximity may lead to romantic ties.

For non-cohabiting couples in the downtown/campus area, it is relatively easy to see one another as connecting paths do not cross a highway or areas that are not pedestrian-friendly (Figure 4). One respondent commented that *"safety is great. My girlfriend can stay over pretty late and go back to her house."* Walking, nature, and street lights arose as important elements of how the town supported ties, and this map, while representing a small sample of relationships, can guide planners towards new walking paths, lights, or late-night shuttles that roughly align with a bundle of relationship vectors.

Couples who lived far from downtown listed fewer campus/downtown locations, although this correlation is weak (Table 3). For non-cohabiting couples, distance to downtown, average age, and distance between partners did not significantly affect the couple's preference for places located in the downtown/campus area (Table 4). Yet, couples with local partners were more likely than couples in LDRRs to prefer places downtown or on campus. This implies that convenience drives patronage to this area, and that when out-of-town partners visit, the downtown/campus area is not necessarily the preferred destination for spending time together.

Relationships bridge the State College area with nearby towns and cities and create demand for either personal cars or transportation services. One respondent wrote that they *"live a little outside the town and buses are very infrequent"* and another wrote, *"I wish the CATA [public] bus near my house ran more frequently so that I wouldn't have to plan my dates with my girlfriend so much."* Older respondents (non-undergraduates) are more likely to own cars, and can access locations outside the campus and downtown. During 2014–2018, 68.5% of State College area residents drove to work (USF 2019) but only 12% of students drove to school. The remainder walked or biked (33%) or rode the bus or a campus shuttle

Table 2. Top 5 features of preferred places (see Appendix B for full list).

Rank	Feature (General)	Respondents	Feature (Indoor)	Respondents	Feature (Outdoor)	Respondents
1	Nearby	100	Friendly staff	95	Exposure to natural elements (e.g. sun/water/vegetation etc.)	97
2	Easy to get to	100	Quiet, peaceful, not overcrowded	78	Freely available	84
3	Affordable	99	Warm and welcoming lighting	69	Nice foliage—plants/trees and flowers	84
4	Fun activity (pottery/dancing/bird watching ...)	78	Walls and furniture have appealing colors/materials	37	Away from crowd and urban life	76
5	Lets us spend time together just the two of us	77	Great view	31	Allows for healthy activities	76

Table 3. OLS model results predicting number of places used in the downtown/campus.

Dependent variable = Number of Places in Downtown & Campus	Coefficient	SE	t value	p value
(Intercept)	6.235	1.192	5.230	0.000 ***
Distance to downtown (km)	-0.358	0.140	-2.565	0.012 *
Average age	0.059	0.058	1.017	0.311
Cohabiting = yes	-0.993	0.469	-2.118	0.037 *
Length of time in relationship (year)	-0.189	0.087	-2.176	0.032 *
Marital status = married	0.370	0.746	0.496	0.621
Number of observations	115			
Adjusted R ² (OLS)	0.174			

*p < 0.05, **p < 0.01, ***p < 0.001. This sample includes 115 couples with least one partner living in the State College region. Distance to downtown is measured from the closest partner and the nearest downtown edge. SE stands for standard error.

Table 4. OLS model results predicting number of places used in the downtown/campus (Non-cohabiting couples only).

Dependent variable = Number of Places in Downtown & Campus	Coefficient	SE	t value	p value
(Intercept)	8.650	2.305	3.752	0.000 ***
Distance to downtown (km)	0.210	0.214	0.983	0.329
Average age	-0.114	0.103	-1.094	0.278
Distance between partners (km)	-0.004	0.002	-2.167	0.034 *
Both living in SC = yes	1.486	0.605	2.457	0.017 *
Length of time in relationship (year)	-0.177	0.115	-1.536	0.130
Marital status = married	5.008	1.730	2.894	0.005 ***
Number of observations	68			
Adjusted R ² (OLS)	0.258			

*p < 0.05, **p < 0.01, ***p < 0.001.

(55%) (AASHE 2014). To support relationships without car usage, individuals must live on or near campus, or use the bus. Some couples in LDRRs could use inter-city bus service to visit one another, as there is bus service to New York City, Chicago, Harrisburg, Philadelphia, and Pittsburgh, while others may have to rely on having a car or airplane.

Supporting romantic relationships and potential improvements

When asked how State College supports their relationships, respondents mentioned the following themes: amenities (n = 84), activities (76), variety (62), good transportation and accessibility (57), quality of community (38), and affordability (37). Respondents said that State College provided places where they and their partner could: hang out with others (n = 14), be in quiet and not overly-crowded environments (9), spend time alone together (6), be active (5), get to know each other (4), try new things (4), and escape daily life (3).

Regarding the locations where couples had their best moments and memories, 66 of 117 (56.4%) of respondents mentioned places outside the State College area and fifty-three mentioned places in the State College area. These locations were commonly in nature (38.7%), including Mount Nittany (the 8th most listed POI supporting relationships) and other state parks, followed by food establishments (24.6%), and recreational POIs (22.5%). One respondent wrote, “We love going to Mount Nittany, there is just something about hiking and being outdoors,” and another said they enjoyed “Walking around campus, feeding the squirrels, and eating ice cream.” One respondent said they and their partner liked being “near nature and just the two of us,” and a separate respondent wrote that “it is

nice to get away from the loudness and everyone while outdoors, not to mention that the mountain itself is a beautiful and quiet place to be compared to the busy downtown area of State College.” Only 3.5% of respondents’ best memories were made on campus, followed by partner or friends’ homes (3.5%), and shops (1.4%).

Common occasions for best moments included vacation, first date (or memorable date), and spending time alone together in everyday life. While memories of vacation mostly occurred on vacation from State College, dates and alone time frequently occurred on campus and in-town—allowing residents to frequently revisit these happy memory sites in person. Vacations allowed couples to escape the daily routine and try new things together: “Vacation to the beach was one of the best moments because we were given a chance to break outside of our usual routine and explore unfamiliar territories together.”

In terms of how State College could better support relationships, respondents were generally satisfied with how the town supports romance. Respondents called for more restaurants/bars/cafes (n = 28), more things to do (27), more affordable/free activities (21), and more parks/paths/trails (22), though responses varied by age groups (Figure 5). Three respondents mentioned poor weather and four respondents described a lack of access to information about events. Responses also revealed differences between the college population and other residents: ten respondents wanted more amenities that were not centered around undergraduates. One wrote that “Sometimes the crowds of undergraduate students make it difficult to go [to] some places without feeling unwelcome/out of our element in some establishments.” Four respondents said they enjoyed the summer time, when students were out of town, and having places separate from student areas.

Participants noted the changing environment and suggested infrastructure improvements. One suggested that “adding more ways for pedestrians to easily get around, such as underground sidewalks, would be really helpful, especially with the abundance of high rises

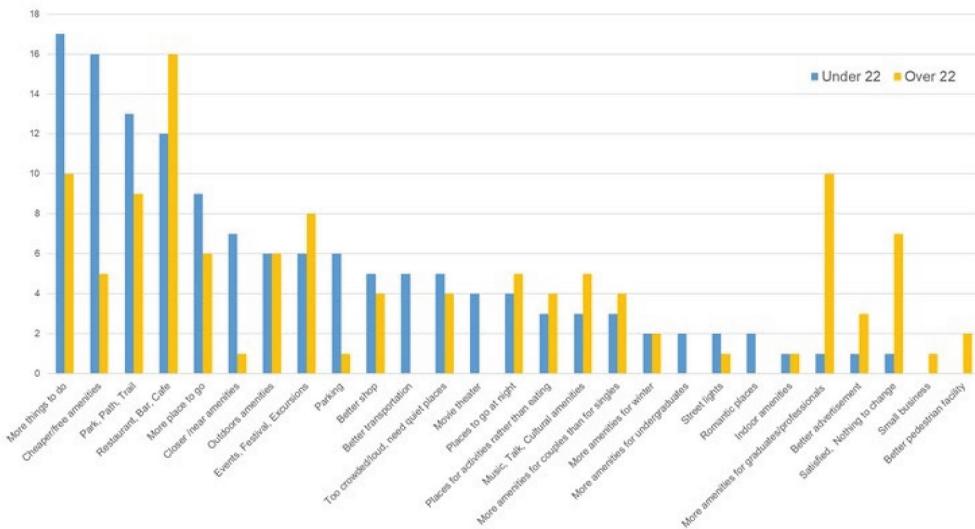


Figure 5. Responses to the question: How can State College better support your relationship? College-age respondents cited more affordable and free amenities, while older couples cited amenities for graduates and professionals. Older couples were more satisfied with available activities, while younger couples wanted more things to do.

going in downtown.” Another wanted the city to “enforce traffic laws, have more (and safer) bike lanes on main roads (it’d be nice if there was some kind of divide between the bikers and the speeding cars, even if it’s just a rumble strip) . . . more bike trail networks.” Finally, this project brought attention to the needs of populations such as LGBTQ+ communities. There was one request for more LGBTQ+ friendly places in the area, and it was also reported that “(the area) feels safe to us as a queer couple”; [the residents] “don’t discriminate against us.”

Discussion

In this study, we examined how romantic couples use the built environment. While prior studies have captured demands of the individual, household, or community upon the built environment (or elements of the built environment that spur social life) we find that the paradigm of demand is also important for personal relationships, namely the romantic ties that are crucial part of individuals’ wellbeing. We showed that couples benefit from restaurants, natural areas, safe areas, walkable streets, and a wide variety of activities. We discovered that couples of all ages undertook similar activities (especially visiting restaurants and physical activity), but the location of these activities varied depending on student or non-student status. These findings align with previous literature on the built environment and relationships, where high walkability, access to stores, and green space were linked to strong social ties (by collecting information about Mouratidis and Poortinga 2020). However, respondents did not list gatherings at others’ homes (e.g. dinner parties) or religious institutions as much previous research would have suggested (Fischer 1982).

We also showed that the local university, Penn State, provides programming and facilities that produce spillover effects that act as a public good for local residents, and this linkage indicates a healthy town-gown partnership. Universities help the local community by serving as socio-cultural hubs by hosting community activities and support the local economy by creating jobs, developing real estate, and offering advice to local industries (Ehlentz 2019) and this work adds to this narrative by showing how the university provides space and programming for couples, which may be a relatively subtle but important contribution.

The major implication of this study for urbanists and planners is that by examining relationships as a vantage point for serving the needs of locals and visitors, planners can play an active role in the success of romance and happy, healthy couples in their areas. Planners and cities are developed to support different phases of the lifecycle, often through housing needs (e.g. Smith and Olaru 2013), and this study offers a new way to support different phases of the lifecycle: by listening to the needs of couples, and representing couples as stakeholders in urban planning decisions through data analysis of their experiences. While we do not prove that relationship-oriented POIs help prevent breakups or improve domestic tranquility, this study shows that romantic ties have their own voice and needs, and that these needs are indeed similar to those of the general public (i.e. need for access to recreational amenities (Payne and Schaumleffel 2008; Johnson and Backman 2010)).

In terms of specific policy recommendations, we recommend reallocating funds from the public bus express route that connects downtown with the Tussey Mountain ski hill (P-route) (CATA 2021), to the hiking trail at Mt. Nittany instead, as few couples reported skiing, but over a dozen mentioned hiking at Mt. Nittany. To our knowledge, no bus services Mt. Nittany, which is closer to downtown (CATA 2021). Areas with proximal relationships but low levels of cohabitation may especially benefit from well-lit paths and sidewalks to travel in the evening. We recommend more parks interspersed with residential housing developments, with picnic tables for seating, and paths for walking or recreation (such as biking or rollerblading). Few couples mentioned golf courses or tennis courts, although two golf courses are situated on campus, but building areas where couples can spend quiet time among trees and other plants would likely be popular. Nevertheless, the public golf course spaces may still be attractive to couples because they have wide walking paths. Respondents cited a lack of activities and lack of access to information about activities, suggesting that POIs should have associated, well-publicized programming. State College has a Community Calendar (<https://www.statecollege.com/events/>) and publicizing these events to couples may help them find activities. Since study respondents tended to describe POIs in their responses, these responses did not reveal clear policy recommendations for zoning and residential design.

There were a number of limitations to our study. First, we did not assess the validity and reliability of the survey questionnaire. Instead, the questionnaire was designed to capture basic demographic information, reflect known principles of interior and exterior spaces, and elicit natural, conversational responses. We also had trouble distinguishing the implications of studying married couples vs. non-married couples, as marriages have been replaced by unmarried cohabitation in many parts of the world, including the U.S. (Le Bourdais and Lapierre-Adamcyk 2004; Cherlin 2004; Kuperberg 2014). Next, response validity was difficult to gauge because we were unable to control for multiple responses from the same individual (due to privacy considerations, we asked for no identification). Another limitation of this study is that State College offered a small variety of POI types compared with those offered in a large city. If the studied region was in a metropolitan area or a separate location, perhaps entities such as museums, symphony orchestras, the beach, theaters, etc. would appear as important POIs for relationships. Because these entities are small or missing in State College, we were unable to test the attractive role of these POIs. In addition, friends' homes, dinners, and parties were rarely mentioned but such answers may have been more common if our survey had asked for such instances more forthrightly. The survey also did not capture State College as a destination for tourists and couples on vacation, although it attracts many visitors each year.

Finally, there were sample biases in our survey. Elderly populations did not participate in the study, ostensibly because they may not visit the StudyFinder website. The median age in State College is 32.3 (American Community Survey 2019) and the average age of participants in our study was 23.8. In State College, 22.2% of the population is 19 and under, 16.7% are 20–24, 30.1% are 25–50 (American Community Survey 2019). However, in our sample, only two respondents (<2%) were over 50. Future work should survey couples in older age ranges to determine what kinds of amenities can best serve relationships of later-stage families and retirees.

In addition, future work includes administering this study to a control group of individuals who are not in relationships to find whether their needs from the built environment are similar to those who are in relationships. We would also like to extend this question to a larger sample of couples in long-distance relationships to evaluate long distance transportation needs. Future work can also include in-depth interviews with couples about how outings and the built environment have helped make their relationships stronger, more resilient and more meaningful. The interview structure would allow for more open-ended responses and responses to questions that were not explicitly asked the questionnaire, and allow the couple to build their responses collaboratively.

In conclusion, we find that social relationships can be used as a unit of analysis for studying demand on the built environment, and that planning can help foster strong couples and healthy romantic relationships amid changing patterns of increased in-home entertainment, food delivery, etc., especially in terms of dating during the coronavirus disease of 2019 (COVID-19) pandemic (see below). And, of course, planners should heed heartfelt quotations from romantic relationship survey respondents such as: *“a petting zoo would only make our love stronger.”*

A note on COVID-19

The COVID-19 pandemic challenged romance and dating outside the home with the closure of activities like restaurants, movie theaters, bars, and bowling alleys. Outdoor walks became a popular first date choice, followed by outdoor picnics, small gatherings, or outdoor restaurant seating (Rubin 2020). Moreover, for cohabitating couples, relationship dynamics were tested and strained (Kraft 2020) and lack of access to the built environment may have played a role in these changes. Future research may be able to show the effects of “missing infrastructure” during COVID-19 on romantic health.

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