Coffee, Community, and Closeness: Espresso-ing the Impact of Cafe Proximity on Student Communities

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Abstract

Through geographical perspective, this study explores the recent rise in cafe culture and its effects on sense of community (SoC) via a case study of three different student apartments in Groningen. Following distance decay principles, farther things would be less affected leading to the hypothesis that the farther student housings would have less SoC. The research is conducted with a mixed method approach that shows statistically insignificant results and a reverse trend of SoC, but revealing important themes in the qualitative aspect. It is found that proximity does not have a great effect on SoC, but propinquity which incorporates time to proximity affects the building of socialisation, which can lead to building SoC. Proximity also distorts views of accessibility through additional external factors that are considered when things are farther.

Tables and Figures

1. Introduction

Covid-19, the world-wide pandemic has affected the modern society's fabric. Public spaces' perception suffered due to Covid-19, with issues like social distancing exacerbating the numerous challenges caused by the pandemic (Honey-Rosés et al., 2020). With the need to endure social distancing rules worldwide for most of the three years that this pandemic had struck society, most people flocked to the internet for communication and connection to counter the feeling of isolation (Vogels, 2020). Debates on "the end of public space" are more relevant now than ever with the acceleration of the digitalization of society in the pandemic era (Paköz et al., 2021; Jaumotte et al., 2023). Covid's social isolation effects have brought upon problems such as the epidemic of loneliness among the younger generations of people, social skill stunting, and not feeling like they truly belong in the place where they are (Skopeliti, 2023).

A weapon that society has that can counteract this epidemic are third places. A third place is a term coined by Oldenburg (1999) which he has defined as a place of neutral ground, a leveller, having conversations as a centrepiece, always accessible, a home away from home, and having a playful mood. Such examples are cafés, bars, barbershops, parks, and etc. Human connection is a vital ingredient in a society and third places are the catalysts that promote human connection. According to Oldenburg, a home would be considered a first place and work is considered as the second place. It has been shown through research done in different types of communities that the mere presence or chance of attending a third place has a positive relationship on perceptions of quality of life (Jeffres et al., 2009). A third place is therefore the perfect tool to combat the young generation's loneliness epidemic by fostering a community to unite. The most popular kind of third place throughout the different types of communities are cafés according to Jeffres et al. (2009) cafés can almost be said that it is the quintessential third place.

The current rise of café culture is also an interesting research in the economic geography field (Ferreira, 2016). What is important about a new economic geography is that it might also lead to changes in the way people interact with each other. The field of planning has only recently delved into mental health research and treating planning as a way to increase the feelings of community and quality of life. This research attempts to explore more of the emotional, mental, and community focused side of planning as it is also important to see the effects that an unforeseen event such as Covid-19 has really affected us and most importantly the younger generations. Therefore it is important to explore these phenomena on university students going through a crucial developmental period that can send them on different life trajectories.

A setting that is perfect for this research is Groningen as it is a popular student city in the Netherlands with nearly 25 percent of the population of 240,000 being students. With an abundance of students it makes sense to conduct the research here. It is also fitting that there are also abundance of cafés for the students to not only socialise with everyone else but also as a place to study for some as well.

1.1 Problem Statement

In the past few years more articles have been published on the seemingly declining mental health of people, especially the younger generation. Simultaneously there is an increase in café culture which according to multiple studies can act as a community builder. Some have researched a loss of third places in modern times and that it affects the society's fabric. Increasing the number of cafés or third places in general should help affect social lives in a positive way. In this research, an investigation on the accessibility of café and their effects on the sense of community will be done as there is not much research in this field. This research will fill in the research gap by spatialising this phenomena and doing so through a mental health and community cohesion lens. The students in Groningen with different accessibility to these third places will be compared and this will provide an explanation to whether going to a café can change someone's sense of community. Therefore, the following research questions are proposed.

1.2 Central Research Question:

"To what extent does proximity from Groningen student housing to cafés affect the sense of community among university students?"

1.2.1 Secondary Research Questions:
1. How does going to a café affect one's sense of community and social capital?
2. How does proximity affect likelihood of visiting a café?
3. How does proximity affect social interactions?

1.3 Structure of the Thesis

The structure of this research will start off with the theoretical framework which will discuss theories of social capital, sense of community, and proximity. Following those divisions is the synthesis of all the theories to create a conceptual framework and hypothesis that will serve as a basis for further analysis. The methodology section that follows will include several divisions, at first it will describe how the data collection is done and the research ethics that are followed. The next divisions are the independent and dependent variables and it will show how those variables are

collected according to the theories. The last section in the methodology is the data analysis which will explore the analysis tools used in the analysis software SPSS and Atlas.ti. Results will be presented after which will provide descriptions of both the quantitative and qualitative results. The discussion will bring back the theory that was established and will be used to explain the insignificance of the quantitative and explore deeper in the qualitative aspect. Lastly the conclusion will act as a summary of the research process and provide some suggestions for further research.

2. Theoretical Framework

To answer the research question and their subsidiary questions a basis of theories needs to be established. This section will serve as a guide for the following research steps and provide much needed groundwork for the latter analysis. A literature review is conducted on theories of social capital, sense of community, and lastly the role of proximity.

2.1 Social Capital

One of the most important theories in the field of sociology is Social Capital (SC) theory which can be described as the glue that holds all of the community together (Pooley et al., 2005). One of the oldest concepts of social capital was formulated by Pierre Bourdieu. Bourdieu's SC comes in his explanation of different capital in a society which are economic, cultural, and social. His definition of social capital is quoted as "aggregate of the actual or potential resources which are linked to the possession of a durable network of more or less institutionalised relationships of mutual acquaintance and recognition". Or simply the potential to mobilise an action due to a person's social network. He uses this theory of capitals as an explanation for the presence of social classes due to differences in symbolic power (Bourdieu, 1986).

Coleman produced a SC theory that departs from Bourdieu's SC as he bases his theory on the rational "thinking" man economic principle. Coleman also argues that SC comes from social structure and networks similar to Bourdieu, but where they differ is in their perspective of SC as a cause for divide due to it being a private in Bourdieu's sense while Coleman sees it as a public good. In Coleman's theory people would engage within the society as it benefits them all as a whole and not because one can gain more SC for their own gain (Coleman, 1988). Putnam, one of the most recent theorists in SC, builds upon Coleman's idea that SC is a public good and that SC strengthens the fabric of society through trust and voluntary associations to produce a moral resource in society. To trust in a community suggests that a person will do good not because of their relations to everyone in their community but because of a common belief that their goodwill is going to be rewarded. Trust in itself has two components that intertwine each other, that is reciprocity and voluntary associations. To have trust in a particular person denotes the reciprocal trusting relationship between each other creating a bigger macro scale of trust within the community. This creates a cycle and is quoted: "trust creating reciprocity and voluntary associations, reciprocity and associations strengthen and produce more trust" (Sisiiainen, 2003). As for Coleman and Putnam, there is very little explanation how their theories could explain social divides as they only focus on an idea of an ever regenerating and strengthening social tie.

2.2 Sense of Community

Sense of community (SoC) is commonly used in the psychological field but it now has made its way into more interdisciplinary research. One of its most referred authors in SoC is McMillan and Chavis (1986) who defined it as "a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together". Nowell and Boyd (2014) built upon their definition of psychological sense of community (PSOC) to be "a member's feeling of being part of an interdependent community, a feeling that one is part of a larger dependable and stable structure that will meet key needs, and a sense of responsibility for the well-being of that community and its members".

There are four elements in McMillan and Chavis' (1986) SoC which are Membership, Influence, Integration and fulfilment of needs, and shared emotional connection. As Nowell and Boyd (2014) based their PSOC on McMillan and Chavis they share these four elements but they have also added a fifth component of responsibility. The first element is *membership* which symbolises emotional safety, boundaries (who is in or out of the community), the right to belong, personal investment, and a common symbol system. The second component is *influence* which emphasises the capacity to make an impact within those involved while being valued and reciprocated. The third aspect refers to *integration and fulfilment of needs*, signifying that through their committed membership in the group their needs can be met through group resources. The Fourth and last component for McMillan and Chavis' SoC, is a *shared emotional connection*, reflecting the strong bond through shared history and experiences (1986). The additional element *responsibility* entails a commitment to the wellbeing of the group and its individual members. (Nowell and Boyd, 2014).

While Nowell and Boyd have made advances in the field of PSOC McMillan and Chavis' four factor model still remains the most widely used framework for SOC. The newer theories on SOC also have not developed a widely used measurement tool to be used in different fields. Mcmillan and Chavis' SOC is complete enough to factor into interdisciplinary research for example it is used in a research in gated communities in Qatar (El-ekhteyar & Furlan, 2016).

2.3 Proximity

Distance is the bread and butter of geography as Waldo R. Tobler's first rule of geography states that "all things are related but near things are more related than far things". In an urban setting distance rules the accessibility of a certain city's function, an example is as simple as needing to travel to a grocery store, the closer

one would be more accessible. A theory directly related to this rule is the theory of distance decay. This theory is used to determine effects of the interaction between two things at a certain distance. The theory can be summed up with an equation of $I = 1/d^2$. I is the interaction and d is the distance. It has an inverse relationship meaning that with more distance a place or event has less of an influence on other things (Pun-Cheng, 2016). Most economic geography theories follow this principle like Christaller's central place theory. The central place theory is concerned with the concept of market area where a place has a certain amount of area of attraction. Coffeeshops in this case have a high demand but low capacity, meaning a smaller market area hence why there are multiple coffeeshops in a city. Meanwhile a stadium has a larger market area and higher capacity which is why most cities only need one, These market areas are illustrated as hexagons in Christaller's case.

Now, an emphasis on the social aspect of proximity is needed as this research is also interested in how this can affect social interactions. The theory that presents itself as the social aspect of proximity is propinquity. Propinquity aims to explain how the closeness of two people in a certain time and space provides more opportunities to develop relationships (Reagans, 2011). The closeness in this sense is not only physically but also extends to closeness in emotional and idealistic terms. The social networks and connections have followed this distance decay theory where social networks from different datasets have shown that they have a Newtonian gravitational model similar to Pun-Cheng (Levy & Goldenberg, 2014).

2.4 Synthesis of theories

In this research the main concern is the force that can tighten and create a stronger cohesiveness in a community. Which is why the social capital framework that is applied in this research will mostly be based on Putnam's SC theory as the divide between social classes of Bourdieu need not be discussed here. Putnam's SC has Trust and Voluntary associations as its main component and this is difficult to create a study on. Which is why McMillan and Chavis' SoC is brought upon in this research as a framework that can act as the components of SC while also being in a cyclical relationship with each other. This is evident in the main themes of these theories being feelings of connectedness for SoC and how this feeling can be utilised in SC. Like how social capital's cycle of trust and reciprocity contributes to the goodwill of society, a sense of community also reinforces the collective commitment to meet each member's needs through their cohesion and resilience. Thus, social capital and sense of community is a cyclical process where social capital entices the building of a sense of community through voluntary associations and trust and sense of community automatically creates a larger social capital by having people feeling of membership, influence, integration, and emotional connection.

The role of proximity in this case is crucial as the closeness of something affects how strong and attractive things are when interacting with each other. This principle extends to social interactions as well, as propinquity sheds light on physical and time closeness fosters development of relationships by providing more opportunities for interactions. Thus, proximity and propinquity forms the basis of creating social networks and connections. What is also important to note is that the sense of community's presence is not bounded by geography. While the community can be bounded by geography, the feeling of being a part of one is omnipresent. So, while proximity is not directly linked to a sense of community and social capital, it does affect the opportunity and chance to interact with people and the mediums to build social capital and sense of community, which in this case is cafés. And by being close to one another in the café they could build a sense of community and social capital through spontaneous interactions as described by propinquity. The aforementioned theories and interactions are summarised in the conceptual model below.
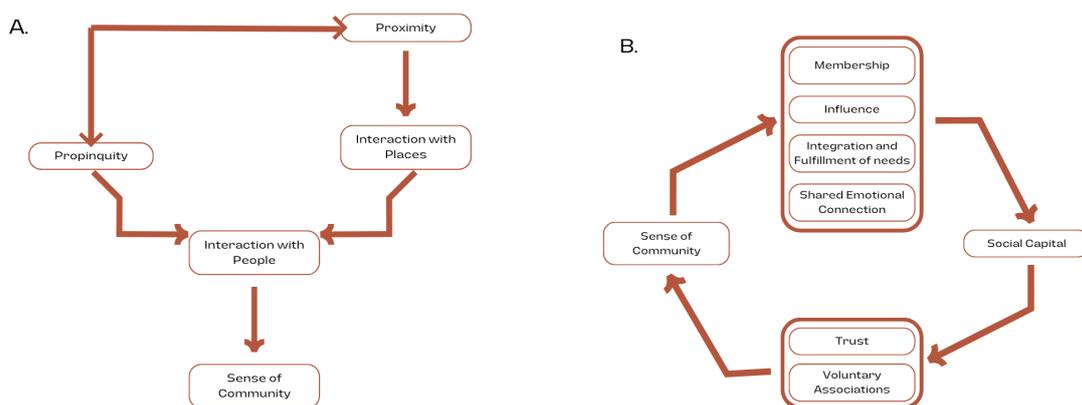
(*Figure 1. A. Conceptual Model, B. Closer look at interaction of Sense of Community and Social Capital*)

To end this chapter with having a deeper understanding of the theories a hypothesis for this research must be drawn. The hypothesis of this research is: The closer people are to cafes, the more likely they are to interact with cafes and by proxy people to build a stronger sense of community.

3. Methodology

3.1 Data Collection and context

Mixed method approaches will be used because there are established statistical frameworks to measure sense of community. However, it never explains the whole story which is why an element of qualitative research is also implemented to get more nuanced answers and add an explanation. The research will follow a cause and effect type of investigation on the independent variable distance which can be varied through case studies and sense of community will be the dependent variable which would have the observable effect. The participants in this research are only university students and they are collected through a non-random sampling method. They are picked because of their housing location which are: Xior Westerhaven, Xior Zernike, and Libertas. These housings are the archetypal modern student apartments which are dense, because of their similarity in build being a high-rise there is some level of control of the variables while only highlighting the independent variable as they differ in distance to cafés. The figure below shows the different accessibilities that the housings have with the buffer rings representing distances of 400m and 1km (see figure 2). The reason for choosing these distances is based on the US standards for the distances of walking trips by purpose (Yang & Diez-Roux, 2012). 400 metres is the average max amount of distance people are willing to walk to transit stops and 1 kilometre is the average distance for leisurely walks. To maximise the responses and to fit into the research design a survey was conducted and distributed by approaching the housings and giving away cards with QR codes to conduct the survey, posters are also put on the housing's bulletin board. The inclusion of any data will not be unchanged or manipulated in any way to make sure the data is as transparent as can be.

The survey (see Appendix 1) that was conducted included first a consent form, which if the participants signed they consented to having their response saved and that they can withdraw consent at any point. There was also no collection of names to protect the respondents which means all the responses are anonymised. After that, questions are asked to select where the respondents stand in the independent variable like their housing location, frequency of visitation, and purpose of visit were asked and immediately followed with questions regarding the dependent variable sense of community. Details on the variables are going to be included in the next subsections. By the end of the survey the respondents are presented with two short open-ended questions that also relate to the dependent variable. The survey was distributed using posters in the housing's bulletin boards and cards in their mailboxes and also the residents that are coming in and out with a QR code linking it to the survey and resulted in 35 valid respondents, of which 13 came from Libertas

and 11 from both Xiors. The reason for choosing the survey is to be able to reach as many people as possible and while it does not have the nuance of an interview, the two open ended questions are there to correct for the lack of depth. Which is extremely important in a setting where the outcome is a feeling of community.
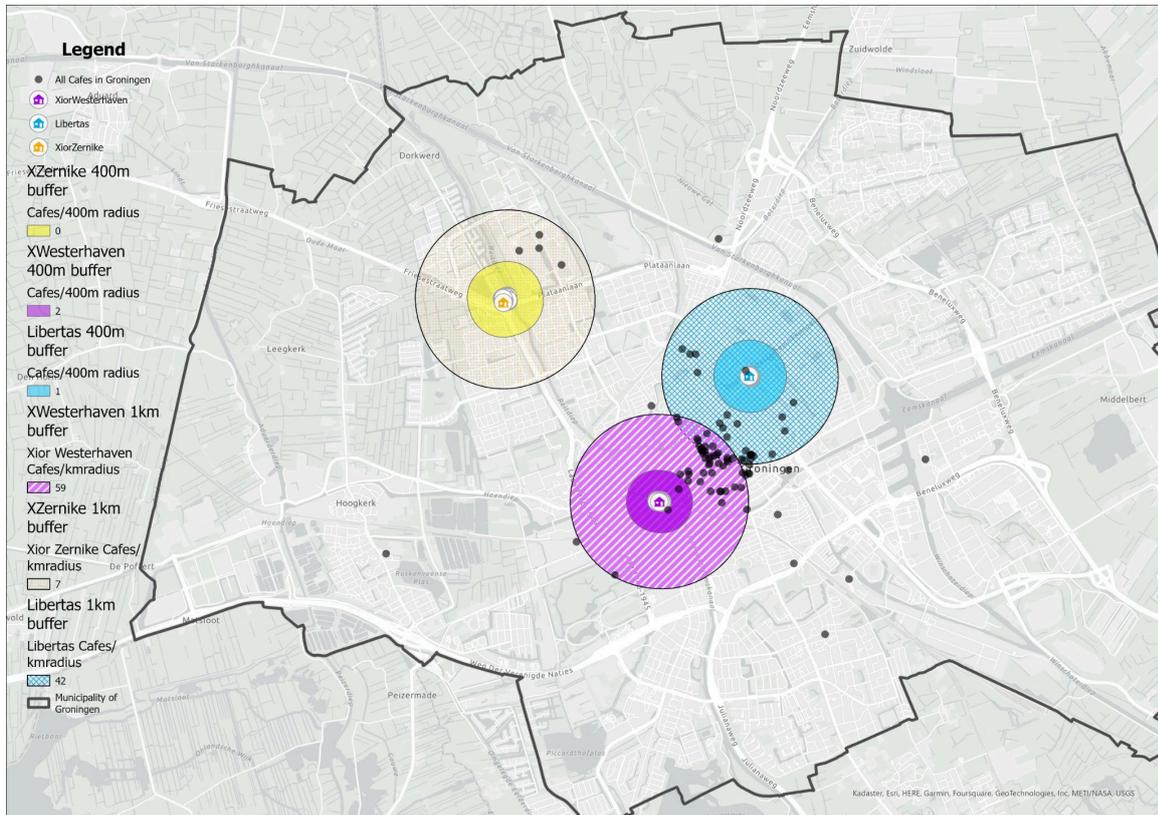
(Figure 2. Housing locations with respect to cafés)

3.2 Independent variables

3.2.1 Proximity

For the independent variable the most important thing to know is accessibility and how the distance to most cafes in respect to their housings affect frequency. The questionnaire asked first for their housing, followed by their distance to the cafe they visit most often to be used as the maximum distance they are willing to travel. As for frequency, participants are asked in the survey on how often they visit cafes in a week which ranges from 1-2 times, 3-4 times, 5-6 times, and everyday. Those who answered zero times for the frequency will be redirected to the end of the survey and is considered to be an invalid result. This directly links to the second research sub-question on how proximity affects the likelihood of visiting a cafe. As highlighted before in the model a higher chance of interaction with people means a higher

chance of developing a sense of community. One of the open ended questions asked them whether living closer to cafes affected the way they interact with cafes. Additionally the other open ended questions asked whether living closer or farther from cafes affected their social lives in any way.

3.3 Dependent variable

3.3.1 Sense of community & Social Capital

Sense of community must be broken down into its four components and recombined later on to measure. The model in which this is done is based on the paper "creating sense of community: the role of public space" by Francis et al. (2012). In that research they used the sense of community index but as it was not available, the questions presented to the respondents were a mix from El-Ekhteyar & Furlan (2016) and Pooley et al. (2005). Although the questions El-Ekhteyar & Furlan were focused on neighbourhood communities the questions were slightly tweaked to fit into a cafe context. They were asked 3 questions that signified each indicator of sense of community which totals to 12 questions in total regarding sense of community.

For Social Capital only 3 questions were asked regarding trust and voluntary associations. Since a sense of community already informs the presence of social capital there is no need for extensive questions regarding this aspect as it is also covered in the Sense of community questions.. The only questions asked were whether they trust in the community, whether they feel that their goodwill is reciprocated, and whether they often voluntarily associate themselves with people. All the questions regarding sense of community and social capital were on a 5 point likert scale from strongly agree to strongly disagree.

3.4 Data Analysis

To analyse the sense of community and social capital quantitatively a score is given. The score for sense of community and social capital is calculated by the amount of slightly agree (4) to strongly agree (5) answers the respondent has given. Each 4 or 5 answers will be given a score of 1 with the maximum score being 12 because of the 12 questions provided for sense of community and the max score for social capital's indicator trust and voluntary associations is 3. With these numbers it opens up more statistical test options rather than the ordinal and ordinal tests like Chi-square because the dependent variable is now a ratio variable. Thus, the statistical test that is employed in this research is the multiple linear regression as it allows us to add

more independent variables other than the respondents housing group. The variables added are the frequency of their visitations to cafes and the distance they go through to the cafe they visit most often, to analyse how strongly these other independent variables affect the sense of community. The null hypothesis for the multiple linear regression is "in the population, there is no linear relationship between the dependent variable sense of community and social capital and independent variables housing group, frequency of cafe visitation, and distance to the cafe they visit most often." On top of the multiple linear regression a Pearson correlation test is also done to find out if any other variables correlate to one another and its null hypothesis is that in the population the correlation between the variables are 0.

For the qualitative aspect of the survey, Atlas.ti was used as the main analysis software. The responses are coded deductively into different sub groups and this will be represented by a code tree (Figure 3). The first important distinction is whether or not they had mentioned a 'closer' or 'farther' situation. The next distinction is whether their situation had either 'positive', 'negative' or 'no effect' on the respective objective of the question. The first question is on their interaction or utilisation of the cafes which investigates their tendency to go to cafes the next question is on the effects of their social life. The final step of the analysis is to gather a total of the effects from the 'closer' and 'farther' situation and is summarised in a pie chart using Excel.


(Figure 3. Coding tree)

4. Results

4.1. Quantitative

The Sense of community (SoC) score is the cumulative of 4 of its elements: membership, influence, integration and fulfilment of needs, and lastly shared emotional connection. With each of the elements having a max score of 3 the main SoC score will have a score of 12. The mean SoC score is graphically represented in the bar chart below. The highest SoC score is held by Xior Zernike scoring 7.45/12, followed by Xior Westerhaven scoring and the lowest score is held by Libertas.
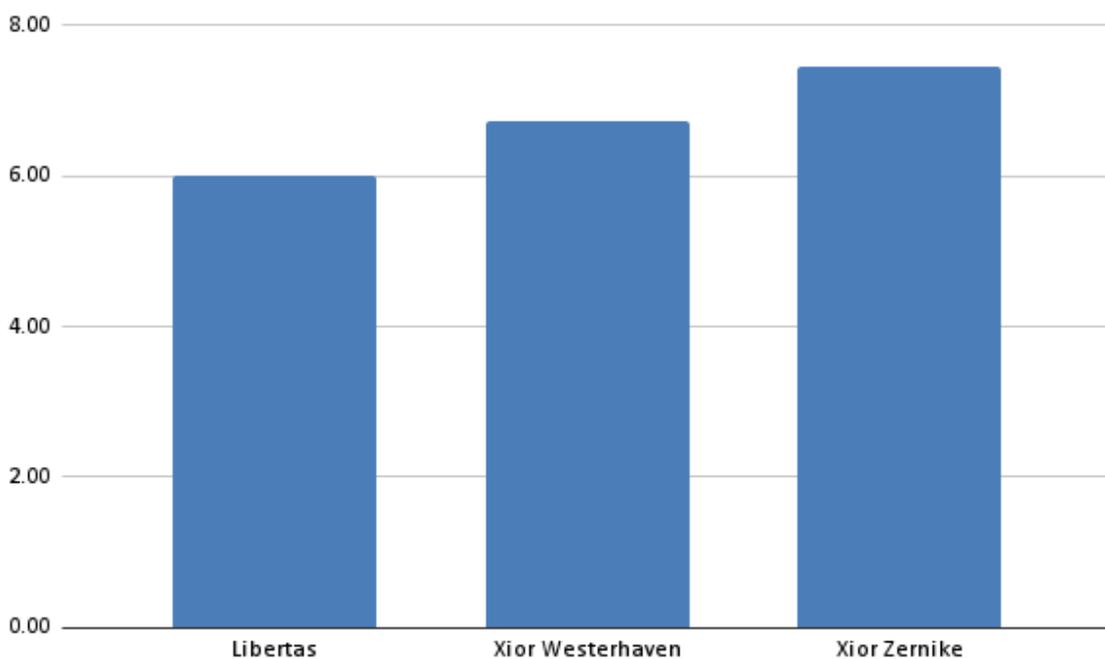
(Figure 4.1 SoC Score Comparison)

Furthermore, the Social Capital (SC) also follows this form of scoring, however as it only has three questions, just like the SoC elements it only has a maximum score of 3. The SC score also follows the same trend as the SoC score with Xior Zernike being the highest with a score of 1.73/3. The last thing that needs to be highlighted is the elements of the SoC itself. The trend of the elements' score is consistent in that shared emotional connection is highest, succeeding that is integration and fulfilment of needs, followed by membership, and lastly influence. The only anomaly that can be noted down here is that the membership score does not follow the aforementioned trend as in the case of membership the second highest group was Libertas and the least scoring group was Xior Westerhaven. This has no effect on the overall score as Xior Westerhaven outscores Libertas in every other category.
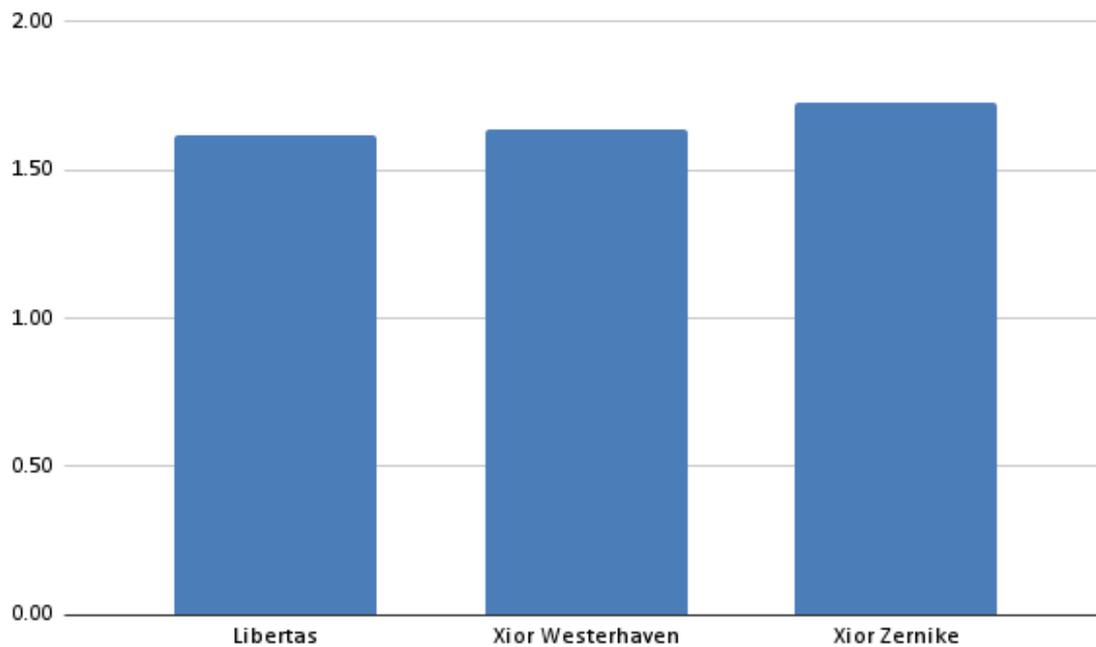
(Figure 4.2 Social Capital Score Comparison)
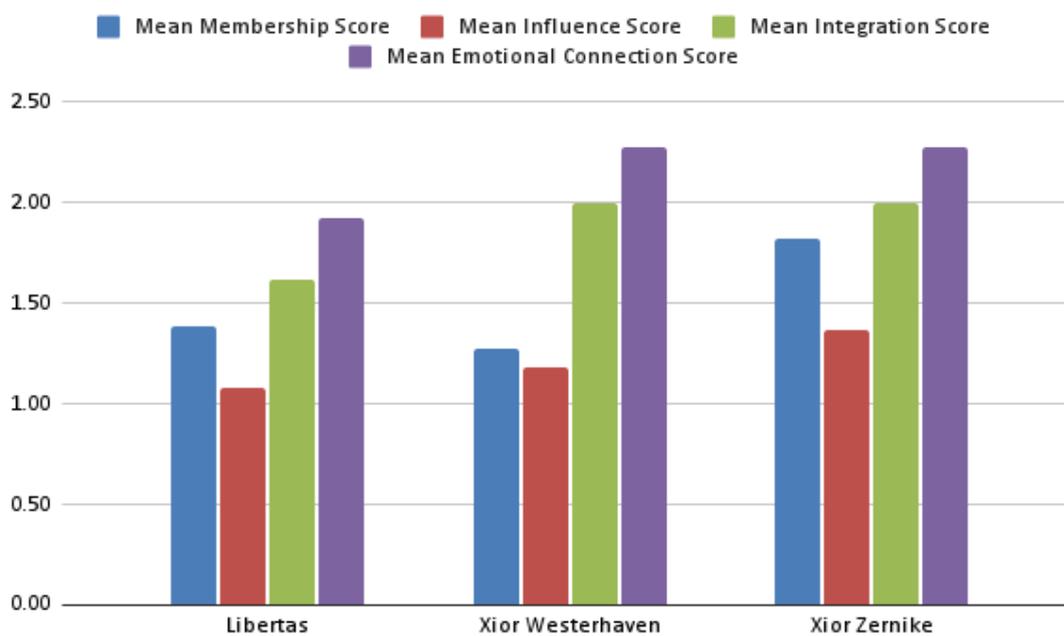
(Figure 4.3 SoC Indicators comparison)

For the multiple linear regression analysis there are 3 different models which gradually increase an independent variable. The first model is only searching for a linear relationship between the housing groups and SoC. Model 2 is model 1 corrected with the frequency of visitation and model 3 is additionally corrected with the distance to the cafe which is visited most. The results are all above the p-value of 0.05 they are all statistically insignificant, meaning that the null hypothesis is accepted. The Pearson correlation also does not explain any other relationship, only those that are established within theory such as SoC and SC, and of course housing and distance because the farther your housing the farther one has to travel.

Multivariate Analysis				
Model	**Description**	**Degrees of Freedom**	**F-Value**	**p-value**
1	Housing	34	1.648	0.208
2	Housing, Frequency of visitation	34	2.278	0.110
3	Housing, Frequency of visitation, Distance to cafes from housing.	34	1.596	0.210

(Table 1. SPSS Multivariate Analysis Results)
The attempt to add disposable income to the regression model was also made, however more than half of the respondents had answered 'prefer not to say' for these questions. Which means that the number of data for this test is not suitable for the tests done in this analysis, and resulted in forgoing this test.

4.2 Qualitative

To sum up the open questions (see Appendix 1) in terms of the effect of distance there is still little to no effect. The majority of those that live farther say that it has no effect just like those that live closer, the difference is that the people that live farther have no positive responses at all while the people that are closer state multiple positive responses (Figure 5.1). What the open questions reveal are some of the themes and recurring reasons for their answers in the section before.
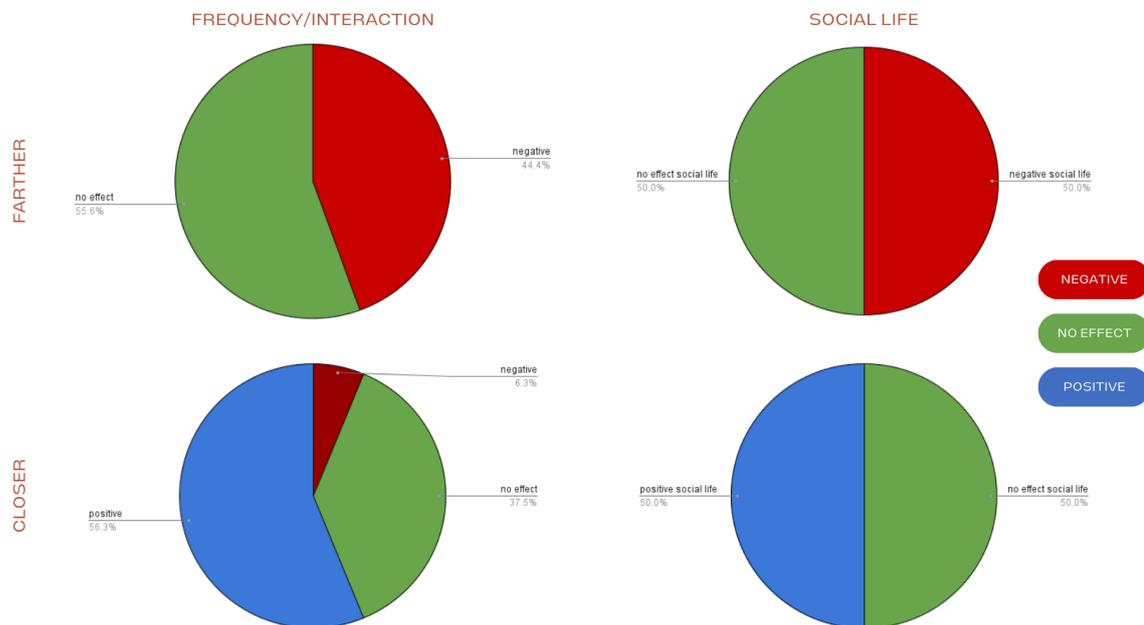
(Figure 5 Coding Pie Charts of Overall Attitude)

One thing that came into a consensus was that both farther and closer people do not see cafes as a place to mainly socialise. A quote from the closer group said "The distance from my place to cafes is not that far but I'm not the type to use cafes mainly to socialise so cafes to me are merely just a place for me to grab quick coffees to go or to study. But not to the point where all the people there know me well." The farther group also says something similar *"For me personally, no. Most of my social interactions aren't done at a cafe, but I do enjoy meeting up with a friend for coffee every once in a while"*.

There are alternative places for socialisation that are presented by the respondents. A few mentioned that they mainly socialise in campus environments and some say that they would rather go to a friend's place directly to socialise. The latter goes hand in hand with another reason which is their tendency to socialise within the housing apartment itself, they are quoted *"Feel like it does not impact me, we live in a building with many people so when I socialise I do that in the building and go to cafe for coffee."*

The difference in accessibility seems to also affect the way they see the function of cafes and the reasons for going to them. The people that are closer mentions the added convenience, flexibility, and spontaneity that it brings and they enjoy these feelings when they need to take study breaks. The people who are farther away from cafes mention that going to a cafe is not spontaneous at all and they go depending

on prior plans with friends to then socialise. A response that sums this up is *"Living farther from cafes makes me lazier to go there as compared to living nearer. Living farther = utilize cafes for meeting or scheduling a catch-up w/ friends. Living nearer = go to cafes at random time just to have a coffee and see what will happen (i.e. if i feel like studying, if i meet a friend there and socialize, etc)."* The mode of transport between the two groups are also different where those closer mention that they walk to cafes. Meanwhile those who are farther away mention bikes or public transport as a main travelling method. There are also some additional factors that could change the plans of the farther group due to bad weather and the restricted public transport.

5. Discussion

5.1. Propinquity and Socialising Preferences

Using SoC theory and a modified version of its index along with distance decay theory opens an investigation on proximity and its effect on SoC (McMillan and Chavis, 1986; Pun-Cheng, 2016). As the results have stated there are no significant results and a reverse trend than what was hypothesised, meaning that it can be considered false. This reverse trend of SoC score could have an explanation within the theory of propinquity (Reagans, 2011).

Propinquity being the closeness of space, time, and social similarities is evident in a few responses. One said that they prefer to socialise with friends directly in their space and forgoing the act of going to a cafe. This means that the preference of socialisation relies on established relationships with most likely similar social status, class, and values as friends would typically be. It could also be a convenience in not having to expend SC as they would rather invest in networks that are already acknowledged (Sisiiainen, 2003).

Propinquity is also evident in the response mentioning socialisation is abundant in their apartment building as quoted in the results section before. As houses are the first place it is one of the places that people spend most of their time in. It is only fitting that they socialise in those environments which are densely populated with people of high social similarities making it nearly inevitable to meet one another.

5.2 Attitudes towards Accessibility

As established before, there are no statistically significant results in the relationship of Housing and frequency of visitation on SoC. This means that it does not affect the likelihood of visitation in a significant way. However, according to the qualitative a theme is revealed on the people's attitude towards different levels of accessibility.

The people that are closer seem to have a higher affinity to cafes due to the increased accessibility that it brings. The added convenience, flexibility and spontaneity that is created by being closer makes them visit them in random times without prior planning. Those that live farther away react to this decrease in accessibility by having a larger element of intentionality when it comes to visiting cafes as they do not have the ease of access that people that live closer do. They then plan the visit beforehand with friends who would like to go as well.

Although still insignificant in terms of frequency, the responses still serve as evidence of distance decay where things that are farther have less influence (Pun–Cheng, 2016). The people that are farther have an increased amount of mental roadblock that they need to tackle like going through the rain or having to exert more effort while cycling. One respondent said *"especially with the winter weather I'm slightly lazy to go socialise because living further away means I'm restricted to the public transportation schedule, however I sometimes I still do use my bike as well."* Most respondents still go through the effort as an effort to not let these external factors affect their social life despite some second thoughts as the respondents repeatedly stated that they would bike the distance and it is easy.

5.3 Addressing Limitations

Before diving into the implications of this research for planners, the limitations must be discussed. The main limitation in this research can be attributed to the lack of size and variety. In this research the sample size for the survey is only 35 due to time constraints and unoptimised distribution. Although it is enough for statistical analyses, more survey respondents would definitely create a more representative result. Groningen, the city which this research is conducted in, can also be a limitation because it seems that it does not result in a large variation of results because of its compact nature. A larger city like Amsterdam could benefit from this research more as it has a larger urban periphery meaning more varied accessibilities. Variety of respondents is also important as this research is only focused on student apartments, there are many other typologies of student housings which may result in different values for SoC.

Compared to past research done in Australia on how different physical variables might affect SoC it shows that distance did lead to a statistically significant relationship unlike this research (Francis et al., 2012). The difference in that paper is that they measured subjective proximity (e.g. 5-10 minutes or 10-15 minutes) while this research used objective proximity in metres. What might have caused this difference is because the objective proximity in this paper is not subjectively different enough from different housing groups that it creates a statistically significant result. This could also have been included in the research model.

Another limitation is the data available for GIS as ideally the buffer analysis for the housing groups should be a network and service area analysis. However, due to the lack of data on street networks the only analysis done was using the normal buffer analysis which might not be representative to people's walking routes.

5.4 Implications

While this research does not fully answer the research question brought forward, what it does bring forward is that a different approach could be taken in research of proximity. This research shows that proximity is much more subjective than initially thought where it was established that places are represented by a gravitational model. While this still applies, what could expand the planning research is the reasons and mental roadblocks or the opposite of it that leads to the mental ease of high accessibility. This brings a more human and personal approach to planning that will have more relatability with average people. What the research also brings is that communities might not be so restricted by space as everyone's SoC is relatively even but closeness in time facilitates socialisation.

6. Conclusion

To explore the recent rise in cafe culture in a spatial and social lens this research aimed to identify the effects of a variation of proximity to cafes on sense of community. Based on a quantitative and qualitative analysis of three case studies of student apartments in Groningen, it shows that distance has little to no effect and is not the only factor to affect social lives. This result is not aligned with the hypothesis that the farther will have less SoC and vice versa. Propinquity is a much more significant factor in the presence of communities rather than just proximity. The unexpected result could be due to a number of factors such as a lack of variation in sampling and lack of size as well. While the research questions are not answered fully, it does bring insight into the subjectivity and complexities of proximity and accessibility in the human mind. By increasing distance it adds more mental roadblocks, making proximity much more subjective and this inclusion of subjectivity opens a new lens on the effects of proximity. This could potentially advance the field of mobility and transport planning.

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8. Appendix

Appendix 1: Raw Survey Data

Total response = 35
Consent form:
Please Read Carefully!
Hi, I am Anov, and welcome to the questionnaire. This questionnaire is conducted as part of the data collection for my final bachelor's project in Spatial Planning and Design. The research that I am conducting is on the effects of proximity to **third places,** specifically **cafes,** on student's sense of community. Third places are places that are neither home nor work but allow communities to foster, or simply a **home away from home**. Your housing has been chosen to be the case studies of my research namely: **Xior Westerhaven, Xior Zernike, Libertas!** The research question that I am raising is "To what extent does proximity to cafes from Groningen student housing affect the sense of community among university students?". Completing the survey is going to be quick and easy. The survey consists of some multiple-choice questions and just two short open-ended questions in the end. I would like to remind you that in this survey, once you click next you may not be able to backtrack. **Thank you in advance for your cooperation and helping me get my degree!**

I would like to remind you that:

- Your responses will be kept confidential, and your personal information will not be shared with any third parties other than my thesis supervisor.
- The data collected will be used solely for this research project.
- The data collected may be used in research publications or presentations. However, **all responses will be anonymized**, and your identity will remain confidential.
- Your participation is entirely voluntary, and you can choose to stop participating at any time during the survey without any consequences.

By signing below you have read and understood the information provided in this consent form, and you voluntarily consent to participate in the survey. you understand that you may be contacted for the prize money if you provide my email address. You can withdraw your consent and discontinue participation at any time. For any problems, you can contact me via email at a.f.a.sigit@student.rug.nl.

Independent Variable Questions
Q1. What housing do you currently live in?
- Libertas (37%)
- Xior Westerhaven (31%)

- Xior Zenike (31%)

Q2. How often do you visit cafes?
- 0 days a week (0%)
- 1-2 days a week (71%)
- 3-4 days a week (29%)
- 5-6 days a week (0%)
- Everyday (0%)

Q3. How far is the cafe you visit the most often (in metres)? *(Open ended)*
- Mean: 1681m
- Mean Xior Zernike: 3300
- Mean Xior Westerhaven: 859
- Mean Libertas: 1008

Dependent Variable Questions
Sense of Community: Membership
Q1. I can identify most people around me
- Strongly disagree (3%)
- Slightly disagree (17%)
- Neither agree nor disagree (29%)
- Slightly agree (51%)
- Strongly agree (14%)

Q2. Most people around me know me
- Strongly disagree (17%)
- Slightly disagree (26%)
- Neither agree nor disagree (29%)
- Slightly agree (29%)
- Strongly agree (0%)

Q3. I feel that I belong in this community
- Strongly disagree (3%)
- Slightly disagree (14%)
- Neither agree nor disagree (29%)
- Slightly agree (46%)
- Strongly agree (9%)

Sense of Community: Influence
Q1. I ask about people's opinions on things and they also ask me
- Strongly disagree (11%)
- Slightly disagree (26%)
- Neither agree nor disagree (6%)
- Slightly agree (43%)
- Strongly agree (14%)

Q2. I feel that I am an important part of this community
- Strongly disagree (11%)
- Slightly disagree (29%)

- Neither agree nor disagree (34%)
- Slightly agree (20%)
- Strongly agree (6%)

Q3. I care about how people think of my actions
- Strongly disagree (3%)
- Slightly disagree (46%)
- Neither agree nor disagree (14%)
- Slightly agree (31%)
- Strongly agree (6%)

Sense of Community: Integration and Fulfilment of Needs

Q1. I feel committed to staying in the group I have found
- Strongly disagree (3%)
- Slightly disagree (20%)
- Neither agree nor disagree (23%)
- Slightly agree (29%)
- Strongly agree (26%)

Q2. I share many similarities with the people around me
- Strongly disagree (3%)
- Slightly disagree (11%)
- Neither agree nor disagree (11%)
- Slightly agree (63%)
- Strongly agree (11%)

Q3. I feel the people around me have my back when I am challenged
- Strongly disagree (11%)
- Slightly disagree (9%)
- Neither agree nor disagree (23%)
- Slightly agree (49%)
- Strongly agree (9%)

Sense of Community: Shared Emotional Connection

Q1. I feel happy and secure in this community
- Strongly disagree (0%)
- Slightly disagree (9%)
- Neither agree nor disagree (17%)
- Slightly agree (54%)
- Strongly agree (20%)

Q2. People often share important events with me (e.g. birthday, graduation, etc.)
- Strongly disagree (6%)
- Slightly disagree (23%)
- Neither agree nor disagree (9%)
- Slightly agree (43%)
- Strongly agree (20%)

Q3. The people here care about each other

- Strongly disagree (0%)
- Slightly disagree (3%)
- Neither agree nor disagree (20%)
- Slightly agree (54%)
- Strongly agree (23%)

Social Capital

Q1. I trust in this community
- Strongly disagree (3%)
- Slightly disagree (11%)
- Neither agree nor disagree (14%)
- Slightly agree (63%)
- Strongly agree (9%)

Q2. I feel that my goodwill is rewarded by others
- Strongly disagree (0%)
- Slightly disagree (0%)
- Neither agree nor disagree (40%)
- Slightly agree (40%)
- Strongly agree (20%)

Q3. I often voluntarily associate myself with people in my community (e.g. talk to strangers)
- Strongly disagree (9%)
- Slightly disagree (29%)
- Neither agree nor disagree (29%)
- Slightly agree (23%)
- Strongly agree (11%)

Open ended questions

Respondent	Q22	Q23
	How does living nearer (<1km) or farther (>1km) from cafés affect how you interact and utilise these places as a social space or other purposes?	**Has living farther (>1km) or closer (<1km) to cafes affected your social life as a student in Groningen? Please explain.**
1	I do not live close to many cafés therefore I do not go to them frequently at all. As a result, I tend to not view them as a place to socialise but rather a place to grab food and relax.	I do not think that living farther away from cafés has affected my social life, but rather living far away from the centre.
2	Since I live further away from cafes, I don't go there often as my closest friends also don't live in the city center. We would hang out more in each other houses	yes, especially with the winter weather I'm slightly lazy to go socialise because living further away means I'm restricted to the public transportation schedule, however I sometimes I still do use my bike as well
3	In a country like the Netherlands where it is easy to get around by bike, and more specifically in a small city like Groningen, taking into account that most cafes are in city center, the distance from your house to the cafe doesn't make that much of a difference in my opinion. In other larger cities, I do think that people will generally go to cafes that are closer to their homes/ in city center	For me personally, no. Most of my social interactions aren't done at a cafe, but I do enjoy meeting up with a friend for coffee every once in a while
4	I don't really know because I don't go to the cafes near where I live, but where I usually study a.k.a. the UB.	Compared to where I live before (Suiker Terrein container houses), I have been more outgoing and more social, although I didn't really go to cafes in the past and now (though I do go to cafes marginally

		more now), or go to cafes to mainly socialize.
5	allows me to gather with my friends esp those who live far away from me and have a bit of quality time	a bit? bc i dont really go there as much as i live a bit far and im not the type who would bike through the distance everyday to go to a cafe and socialise with my friends. so yeah i dont get to socialise a lot but when i do, then it can take hours
6	Personally speaking, I see cafes as a place to eat and study at certain times. Closer is more convenient. I go to cafes just to eat most of the time so for instance theres a new cafe in Libertas and whenever I ran out of ingredients to cook I just go downstairs and eat	It doesn't really affect anything to my social life tbh, although I may see the fact that if I happened to live in Xior Zernike, for instance, I may be missing out the "student" life of how young people associate themselves with Cafes. The difference in neighborhood may be a key factor in affecting one's social life, especially students in my opinion.
7	The distance from my place to cafes is not that far but im not the type to use cafe mainly to socialise so cafes to me are merely just a place for me to grab quick coffees to go or to study. But not to the point where all the people there know me well.	I think the distance between my place and the cafe does not really matter because im not the type to go out of the house often anyway and if i wanted to socialise, i'd rather visit their house. But because of that, it kind of affected the amount of times i get to meet my friends.
8	I feel thats its an important factor as it facilitates the seperation of personal enviornments is necessary for students	Yes, since i started living closer to the city i started to walk everywhere instead

	who lives in studios/rooms	of taking the bus, and overall it has just increased my accessibility to people and social places. Moreover, it has also increased my need to leave the house as home has become much smaler
9	It doesn't really affect my interaction with others because most of my social spaces don't happen in cafes. Being in the Zernike campus also plays a part	No, it just takes more effort in the cycling part
10	Having cafe's accessible to me is a huge plus especially as a university student. Studying at home alone can be difficult, and going to cafe's allows me to socialise as well.	Yes, especially in Groningen because the weather can be unpredictable, which is why having a cafe close by can be very nice. I've previously lived in a location where cafe's are quite far to get to and there has been quite a difference in my social life in particular.
11	i feel like if you don't have a bike, distance would mean so much more. in my opinion once you have a bike (and most do) i would go an extra kilometre for the difference in drink alone. also a bigger factor is the weather and now i go to cafes much less as it is the winter.	no, cafes aren't the main place i socialize in
12	I go to places that are closerby but also depends on where friends go	I guess if you live further you are less likely to visit. On the other hand if you visit with friends it is no problem to bike to a cafe
13	It requires more effort to go to these cafes when im living so far away from them. I wouldn't go spontaneously	friends typically hangout in the centre since it has all the cafes and bars. Living

	because its too far and hence less connection with the community in those cafes.	far away makes it harder to spend time with friends, limiting my social life as a student in groningen
14	Distance doesn't matter too much as long as the vibes are good and my friends/peer group and I are already comfortable there.	Not really, because I don't feel as comfortable at the cafes within 1 km of my place
15	A cafe is like a social hotspot, a great benefit of living closer to a cafe makes it a plausible option to quickly be able to grab a drink with a few colleagues/friends to discuss or to interact with others. Living farther would provide a similar emotion however a small responsibility is put upon an individual to travel a farther distance.	Living closer gives the opportunity to go out and meet with people whom you'd know as a quick and casual meet up whereas living farther is more of a planned activity that will be done. Living closer has a more spontaneous aspect whereas living further it is ideal to coordinate schedules, pick a spot, and then it'll run smoothly.
16	the farther i live, the lesser i will spend my time to hang out in cafes. At least that's for me	Definitely! Helps me to be more flexible and convenient in terms of everything socially
17	I'd usually go to them to hang out with colleagues if they're working. But the distance alone gives me second thoughts whether i should go out or not.	Nope. I'm not a coffee addict and I'll usually brew my own tea. As of social life, we would rather go to someone's place and cook there to save money
18	Living nearer to a cafe, has a lot a benefit for me, especially I really love to have a change in environment when I am plan to do proper study or work outside of the comfort of my room.	Not really, as I usually socialize with people in campus environment, friend's apartment or accomodation.
19	Living farther from cafes makes me lazier to go there as compared to living nearer. Living farther = utilize cafes for	living farther makes me interact with lesser people because i tend to just stay

	meeting or scheduling a catch-up w/ freinds. Living nearer = go to cafes at random time just to have a coffee and see what will happen (i.e. if i feel like studying, if i meet a friend there and socialize, etc)	at home, evspecially during winter
20	Living nearer makes me go to cafes at random times, especially with friends e'g walking back home and suddenly decided to stop for a coffee (fulfilling wants) just ti hang out.	Yes, living near makes me interact with more people and students as we often hang out in cafes especially for a quick catch up session or study session
21	Living near cafes makes me visit it more often as I mostly need breaks from the day I had. For example, after going home from classes, I visited cafes for relaxing. If it's too far, I probably wouldn't be interested as much to stop by to a cafe to just get a coffee or chill as I can just do it at home.	It hasn't affected my social life as I don't use cafes to make friends, though I do planned hangout at cafes with my close friends. Only occasionally strangers might talk to me a bit, but even then they don't talk much and only ask basic stuff like if they can borrow a seat.
22	Living farther doesn't really differ in terms of how I utilize these spaces, as I generally go to cafés to socialize and spend leisure time. Living farther mostly affects my commute to the café, and since I don't bike (walk/bus) I take the weather into consideration. When the weather is bad I usually end up staying home even if I had planned to go.	It hasn't affected my social life so far, but I feel like it's only because I put in the effort to commute to the center in order to socialize. Without the effort, I imagine it would impact my social life negatively.
23	Go there a bit less than I might have if I lived closer	No, biking 1 km is so fast
24	Feel like it does not impact me, we live in a building with many people so when I socelize I do that in the building and go to cafe for coffee	Closer living yeah because er happen thing more often, you see more people at street so I feel at home more maby but social life

		not really because I do not interact with those people
25	If the place really suit my preference and vibes, I would rather go there then the nearer	It's kind of affecting since we need to have more time to travel, especially when the weather is not good
26	I feel like living closer would make me go to cafes more but I'm still a student with limited disposable income	Not necessarily the cafes but the city center
27	Living farther away from cafes, I used this as a way to find more people because usually most people go to city center for cafes.	Yes, in a way I need to plan my day a little bit more because I need to know the travel time. This is so I could be there on time and leave on time also if I'm travelling with bus that day.
28	—	—
29	I am able to get coffee and therefore communicate with others who are in my situation or near my loving space. A cafe is somewhere where socializing should be important and isn't necessarily the case at ferneweh.	I could get coffee for o wake up.
30	It doesn't affect my social life whatsoever.	It has not. I do not socialize at cafes or see my friends at the nearest cafe.
31	I have not found my favorite cafe yet but most often I go to fernweh which is in the building because it's simple and easy to meet with others from Libertas if we want coffee but it doesn't feel "special" in a way because we're still home. But doppio in the center close to the vismarkt, is also quite nice because it's a different environment an it feels like proactive socializing and real coffee hangout.	It hasn't immensely affected my social life, it is nice to socialize with people by having coffees and it's much simpler because there are many options (sort of) close by, but the distance of the cafes doesn't really affect the socialising because the coffee dates would happen regardless of the distance.

32	It doesnt really have an impact on me, I just like going to cute nieche cafes to see new places.	I dont believe it has, but it has definitely improved it cause i got to explore stuff.
33	I live quite near to the city center which has most of the cafes. So I do like to go there quite often when I have the time but that really depends on my schedule and flexibility of it.	Cafes to me aren't the biggest socialising spots in my opinion. I like meeting new people there but most of my social life happens on campus or library.
34	Distance does not really matter to me it's mostly the people	In a way it has positively affected my social life although distance really does not matter as long as there are good people
35	I feel I am more likely to interact with cafes that are closer to me. Most of the time, the community that is fostered is through people who live nearby as well. It makes it more cozy and close knit in my opinion.	I wouldn't say it affects my social life, since I usually go with friends I already know or alone. However, I have met some cool people just not people I would normally hang out with outside of the café

Appendix 2: SPSS Multivariate analysis and Pearson correlation

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.634	1	12.634	1.648	.208[b]
	Residual	252.909	33	7.664		
	Total	265.543	34			
2	Regression	33.090	2	16.545	2.278	.119[c]
	Residual	232.453	32	7.264		
	Total	265.543	34			
3	Regression	35.526	3	11.842	1.596	.210[d]
	Residual	230.017	31	7.420		
	Total	265.543	34			

a. Dependent Variable: SoCHigh

b. Predictors: (Constant), What housing do you currently living in?

c. Predictors: (Constant), What housing do you currently living in?, How often do you visit cafés?

d. Predictors: (Constant), What housing do you currently living in?, How often do you visit cafés?, How far is the Café you visit the most often in meters (m)? (Check on Google maps)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	5.273	1.196		4.409	<,001		
	What housing do you currently living in?	.727	.566	.218	1.284	.208	1.000	1.000
2	(Constant)	3.299	1.655		1.993	.055		
	What housing do you currently living in?	.615	.556	.184	1.107	.276	.986	1.015
	How often do you visit cafés?	1.705	1.016	.280	1.678	.103	.986	1.015
3	(Constant)	3.689	1.806		2.043	.050		
	What housing do you currently living in?	.293	.795	.088	.369	.715	.492	2.032
	How often do you visit cafés?	1.493	1.091	.245	1.368	.181	.872	1.146
	How far is the Café you visit the most often in meters (m)? (Check on Google maps)	.000	.001	.143	.573	.571	.447	2.238

a. Dependent Variable: SoCHigh

Correlations

		What housing do you currently living in?	How often do you visit cafés?	How far is the Café you visit the most often in meters (m)? (Check on Google maps)	SoCHigh	SCHigh
What housing do you currently living in?	Pearson Correlation	1	.120	.704[**]	.218	.053
	Sig. (2-tailed)		.491	<,001	.208	.763
	N	35	35	35	35	35
How often do you visit cafés?	Pearson Correlation	.120	1	.324	.302	.252
	Sig. (2-tailed)	.491		.058	.078	.144
	N	35	35	35	35	35
How far is the Café you visit the most often in meters (m)? (Check on Google maps)	Pearson Correlation	.704[**]	.324	1	.284	.101
	Sig. (2-tailed)	<,001	.058		.098	.563
	N	35	35	35	35	35
SoCHigh	Pearson Correlation	.218	.302	.284	1	.353[*]
	Sig. (2-tailed)	.208	.078	.098		.038
	N	35	35	35	35	35
SCHigh	Pearson Correlation	.053	.252	.101	.353[*]	1
	Sig. (2-tailed)	.763	.144	.563	.038	
	N	35	35	35	35	35

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).