

# Local High School Students regional recognition of the town their school resides -A Case Study in Gujo Hachiman, Gifu Prefecture-

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This study focuses on Gujo Hachiman, a rural town located in Gifu Prefecture that prides itself on the preservation of a historical townscape and rich heritage. The research attempts to understand the depth of regional awareness students of the local high school have and study the relationship between the students and the town center. The research uncovered factors that affect the depth of recognition, through the relationship. The students were also clustered to study the correlation between the depth of recognition and general interest in the town center. The study concluded the students who had the deepest recognition of the town center did not correlate with the interest in Gujo Hachiman and tendency to stay and preserve the town.

*Key Words : High school Students, Gujo Hachiman, regional recognition*

## 1. Introduction

### (1) Background

The streets of Gujo Hachiman give off a unique atmosphere of strength. The power derived from the town's structure and people; preserved throughout its rich history. Surrounded by mountains, the city showcases a neat alignment of traditional townhouses bordering the comfortably wide streets paved with stone. The sound of water gently envelops the city from the rivers and waterways flowing through the town. The periods of festivities flood the street with excitement and energy unmatched by other local cities as people parade around the town dancing, singing, and celebrating their heritage.

The town maintains its beauty and energy through ongoing efforts for preservation and protection. Currently actions to improve accessibility for tourism and repurposing abandoned houses for new residents are being stressed, yet the focus on preservation of the native population must be examined as well. Without the native residents protecting the city, there will be no Gujo Hachiman.

Past studies have researched the native population of many local cities in order to examine the resident's civic pride and regional awareness.<sup>1)2)</sup> The regional recognition held by locals can be used as one measure to understand the tendencies and characteristics of the town population. These researches can aid in future city development, and promote communal recognition and pride.

While many studies focus on the entire population,

studies done on the younger generation are harder to find. In recent years there is a trend of the working population bleeding out of rural towns, and there are similar trends happening in Gujo Hachiman.<sup>3)4)</sup> The loss of the youth means loss of the future, making this urban migration of the youth a dire problem for the town. In order to understand the younger population, this study attempts to research regional recognition, more specifically the recognition of the town center, on students attending Gujo High school. The recognition of High school students in the region they reside in shows a higher tendency for the student to be interested in the city's future.<sup>5)</sup> A survey done for all grade levels examines the factors contributing to the variance of regional recognition and their specific relationships with the town, with the hopes that the survey and its findings could also provide an opportunity for students to become interested in the beautiful city of Gujo Hachiman.

### (2) Objective

The research will uncover the relationship between local highschool students and the town center of Gujo Hachiman through a survey conducted at Gujo High School. The differing depth of this relationship can be measured to formulate a basic understanding of the regional awareness the students have of the city they attend school at. From this information, a basic city resource can be created to aid in future city development and legislation, and suggestions of future planning can be created to grow interest within the younger generation in the Gujo Hachiman for the

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preservation of historical townscapes and civic pride.

## 2. Target sites

### (1) Gujo Hachiman

This research focuses on Gujo Hachiman, a city located around the center of Gifu prefecture and is mostly surrounded by mountains with long stretches of rivers running throughout the town. Gujo city is a conglomerate of 7 small towns to form the city and the merger was enacted in 2004 due to the weakening of local municipalities. This town has struggled with a declining population for a while. Compared to 1980 when the population was 18,813, Gujo hachiman saw a 33.4% decline at 12,532 people in 2019.<sup>3)</sup> The land, though, is packed with beautiful mountains, rivers, and nature not diminished by the town. The geography of Gujo area consists of 89.3% forests, 2.9% agricultural land, and 1.2% residential area showing the abundance of natural landscapes.<sup>4)</sup> The landscape pairs beautifully with the historical townscape that is one of the trademarks and tourist attractions of Gujo Hachiman. The coexistence of nature and the town creates a unique atmosphere attracting many tourists from around Japan and the world. A study shows an estimate of 1,237 historical buildings residing in Gujo Hachiman showcasing the significant roots of Japan being present in this town.<sup>6)</sup> The historical townscape and notable waterways running through the place has the architecture and atmosphere of the Edo period, preserved beautifully through the hard work of the city. Organizations such as Team Machiya protect these significant architectures through the promotion of abandoned or disowned townhouses to new residents from around Japan.<sup>7)</sup> The waterways and irrigation built around the town are a result of a major fire that burned the castle town during the Joumon era and there exist many shrines and temples with significant historical backgrounds as well.<sup>8)</sup>

Gujo Hachiman has a very spirited energy. The communal pride in their annual festivities can be experienced through the ecstatic energy of any of the festivals native to Gujo hachiman. The summer in Gujo Hachiman is notable for the traditional Gujo dance. The well known Matsuri, or festival, called the Gujo Odori shows off the spirit of Gujo Hachiman as the residents dance throughout the summer season stating, “the summer in Gujo starts with a dance and ends with a dance.” The most well known among the multiple festivals, Gujo Odori originated and is annually held, to this day, in Gujo Hachiman. These festivities bring many tourists to the beautiful land and even attracts new migration. Gujo Hachiman is known for its natural landscape, historical townscape, and their cultural festivities, but they also face a

serious problem of a declining population, especially in the youth.

### (2) Gujo High School

Gujo High School being the only High School in Gujo Hachiman, it is located in the outskirts of the town center. The school currently enrolls 494 students from all around the Gujo Region. The school, starting out as an all girls High School, was first opened in 1918 celebrating their 100th anniversary a couple years prior.<sup>9)</sup> The school motto “凌霜” represent the perseverance like a flower blooming amidst a cold frost, exemplifying the spirit of perseverance. The school prides itself on the education of regional problems and preservation of the town and incorporates regional education into the school curriculum.

A resource given by a teacher in Gujo Hachiman shows a majority of the students commuting to school from outside of Gujo Hachiman. The place of residency gives a basic understanding of the students' level of relationship with the town center. The residency in Gujo Hachiman can mean generational residence leading to deeper recognition. Students residing further away have less opportunity to interact with the town center while students residing in Gujo hachiman possibly visit the town daily. Additional information such as the middle school the students graduated from can deepen this relationship and possibly uncover historical categorization of the students and the depth of recognition. The information also adds that 97% of the students live in their family's residence, making most of the students' residency not temporary. The figures below show the students' region of residency.

Information on the commute can also bring a different scope of recognition. The commute to school is a daily activity that can present opportunities to get to know the town. Students interacting with town residents and shop owners on their way to school is a pure form of a good relationship students can build with the town. The mode of transportation can increase or decrease these opportunities for the students. For example, students who walk to school can show greater recognition than a student who takes the bus straight to the bus station next to the High School. Categorization between these modes of transportation can potentially uncover a different perspective on regional recognition. The figure below shows the modes of transportation taken by students.

Other basic information of distance and duration traveled for the commute can aid in creating the survey and suggest potentially viable brackets of categorization that can be used to analyze the data from the survey.

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### 3. Literature Review

For the purpose of the research, the concept of regional recognition, and the purpose of targeting High School Students can be defined through prior research papers.

#### (1) Regional Recognition

The term regional recognition is difficult to define. Many past research defines the term to fit the purposes of their objective, so it becomes necessary to critically define the term for the context of this current research. Sasaki defines regional recognition in 4 different methods; the research on the hard structural recognition of a region, the research on identifying the layers found in regional recognition, the research of the betterment of civil development through the focus on the moving factors of life and society, and research based in a comfortable extraction of personal attachment and recognition from the residents.<sup>10)</sup> Similar past research concluded findings such as linking historical context, environmental cognition, and community development to regional recognition and the tendencies of attachment to the targeted region.<sup>11)12)13)</sup> Research done in Gujo Hachiman by Akiba uncovers the regional recognition through the soundscape, and links sounds that create the “identity” of the city.<sup>14)</sup> These research based in regional recognition commonly target a older sample size, due to the likeliness of participation and possible higher recognition, yet researching the youth must be done to understand the future of a city.

#### (2) High School based research

High School is an important period in maturity when many begin to think about the future of their life. The graduation of High school initiates a big step towards maturity, forcing these students to make important decisions to move through life. A research in Hachiman Heishi, a local city similar to those all around Japan, shows 10% of students leaving the city at the age of 18 and an additional 20% leaving at the age of 22.<sup>15)</sup> These local cities lose a large portion of the working population at the time of graduation of High School and University. This creates a need for the research of High School students and their perspective on their region, especially since the post-covid society lowered the importance of physical location. This absenteeism of the younger generation creates a dire situation for the deserted local cities. Research done by Akui states that longer residency leads to more opportunities of communal participation, and creates a deeper attachment and

recognition in the region, but as students do not have a long residency it is important to identify other factors that affect the level of recognition.<sup>2)</sup> Through this survey, it is the hope to assess the current recognition as well as implant an awareness of the students surrounding town and region, giving birth to a population of youth interested, and hopefully invested, in the protection and preservation of their hometown.

#### (3) Characterisation of the Study

As seen in the literature review, many of the research done in civil development focuses on the older generation. A growing concern because the younger population is rapidly migrating out of local towns. Research must be done to understand what the younger generation is thinking and attempt to uncover factors leading to their perceptions of the region. Furthermore, a flat uncovering of high school students' opinions can reveal basic information for the direction city planning should take, but it fails to educate the youth to physically and emotionally be present to protect the city's future. The current study attempts to derive necessary information to categorize the varying depth of relationships between local high school students and the town and research factors affecting them. Through this information further study can be done to suggest plans to incorporate opportunities for the youth to recognize the culture, spirit, and beauty of Gujo Hachiman and implant a sense of pride to preserve and revitalize their town.

### 4. Research flow

#### (1) Procedures

Figure 1 below represents the flow of the current research. The first chapter consists of the creation of the survey based on the information given by the school. The received basic information of the students and past surveys can be used to construct a logical survey catering to the research objective. The survey will be handed out to a specific class held at the school for first and second grade students ensuring a high percentage of participation. Third grade students will be incorporated through voluntary participation. The data will be analyzed through clustering analysis to categorize students and their depth of recognition. Factors that affect the relationship had with the town can be recorded into the complement of the survey into a resource the city can potentially use. The conclusion will include a presentation of the data and possibly methods to increase recognition and interest within the local High School Students.

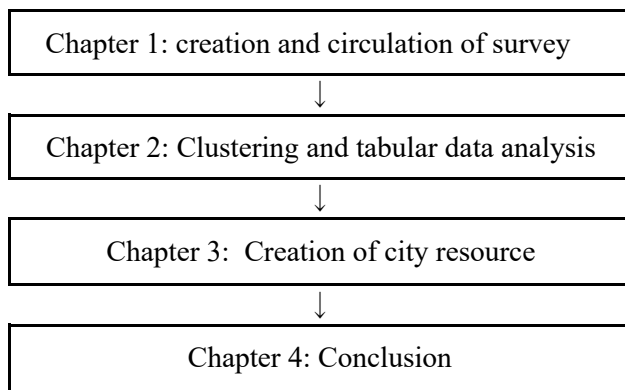


Figure 1 Research Flow

## (2) Survey Creation

Survey based research will be used to uncover the students regional awareness and relationship with the town center. The survey is composed of mostly multiple choice questions to ensure credible data, with a small mix of free response questions to further understand the personalities and tendencies of each individual. The survey will take around 10 minutes to complete and handed out through microsoft forms to 494 students with voluntary participation.

The Survey is based upon the relationship had with the predetermined town center. The town center of Gujo Hachiman is roughly the central area around Shinbashi, a bridge connecting the south and north area of Hachiman. The town center is home to the central street where townhouses are lined up and hold a large portion of the shops and facilities. The map below shows the boundaries of the town center.



Figure 2 Town Center

Questions were split apart into 3 sections to acquire data necessary in measuring regional recognition. The sections were split up respectively; the relationship and recognition of the town center, the image of Gujo Hachiman, and personal information and future endeavors.

All of the factors in each section can be viable

information in discovering the relationship between the students and the town. This information can be categorized, cross tabulated, and analyzed to create a whole picture of the different factors affecting students' recognition of their town, and what leads students to show more interest.

## 5. Survey Response

### (1) Survey sample characterization

The survey collected a total of 200 responses. The sample included a fairly equal distribution of genders with 46% boys, 53% girls. The three grade levels were represented with 42% 3rd grade students, 26% 2nd grade students, and 33% 1st grade students. The school's entire population included a very even distribution of students within grade levels, so this distribution of participants is fairly reasonable and is representative of the entire population. The length of residency can be measured through the junior high school and elementary school that the students graduated from. Gujo High School had 56 students graduating from Gujo Shiritsu Hachiman Junior high school, having the most students at 28%.

Survey Distribution Details	
Target Group	All students attending Gujo High School
Distribution Method	A message was sent through Microsoft teams
Medium	Microsoft Forms
Period	2024.7.2-2024.7.12
Responses	200
Survey Details	
Relationship with Town Center	
1	Residency in the town center
2	Commute through the town center
3	Method of transportation through town center
4	Town center usage during weekdays
5	Town center usage during weekends
6	Recognition of facilities
7	Recognition of Festivals
Image of Gujo Hachiman	
8	Agreeability with each image
9	Favorable places
Personal Information/ Future Endeavors	
10	Grade Level
11	Gender
12	Location of residence
13	Commute time
14	Graduated Middle school
15	Graduated Elementary School
16	Future endeavors
17	Reason for future endeavors

Figure 3 Description of Survey

The place of residency was also collected showing 74 students, 37% of students, living in Gujo Hachiman, with 16 students, 8% of students, living in the outlined town center above. This data contrasts the first question asking if the students live "in the town center or not, indicating an error in the questioning. The latter question having multiple, more specified options, the residency data collected in the latter question will be used. The figures below show the survey responses.

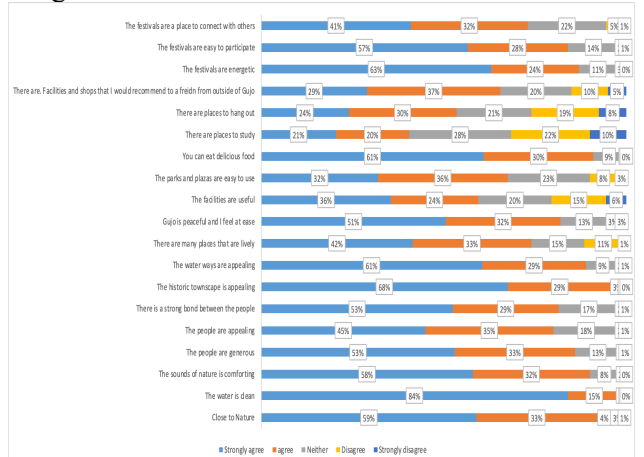
### (2) Relationship with Town center

The students' relationship with the town center can be understood through the first section. The "methods of transport through the Town center to go to school" uncovered 45 students (22.5%) walking, with the highest number of students, and 32 students (16%) taking the bus, being the second highest.

Emotions		Close to Nature	
Strongly agree			118
Agree			64
Neither			8
Disagree			6
Strongly disagree			2
The water is clean			
Strongly agree			168
Agree			29
Neither			2
Disagree			1
Strongly disagree			0
The sounds of nature is comforting			
Strongly agree			116
Agree			66
Neither			16
Disagree			4
Strongly disagree			0
The people are generous			
Strongly agree			106
Agree			68
Neither			25
Disagree			2
Strongly disagree			1
The people are appealing			
Strongly agree			70
Agree			26
Neither			6
Disagree			5
Strongly disagree			0
There is a strong bond between the people			
Strongly agree			105
Agree			58
Neither			31
Disagree			3
Strongly disagree			1
The historic townscape is appealing			
Strongly agree			131
Agree			67
Neither			6
Disagree			3
Strongly disagree			0
The water views are appealing			
Strongly agree			121
Agree			57
Neither			18
Disagree			3
Strongly disagree			1
There are many places that are lively			
Strongly agree			83
Agree			65
Neither			23
Disagree			5
Strongly disagree			2
Guzo is peaceful and I feel at ease			
Strongly agree			101
Agree			63
Neither			26
Disagree			5
Strongly disagree			5
The facilities are useful			
Strongly agree			71
Agree			48
Neither			40
Disagree			30
Strongly disagree			11
The parks and places are easy to use			
Strongly agree			64
Agree			71
Neither			43
Disagree			11
Strongly disagree			5
You can eat delicious food			
Strongly agree			122
Agree			60
Neither			17
Disagree			11
Strongly disagree			11
There are places to study			
Strongly agree			41
Agree			40
Neither			56
Disagree			43
Strongly disagree			20
There are places to hang out			
Strongly agree			48
Agree			59
Neither			41
Disagree			37
Strongly disagree			15
If Facilities and shops that I would recommend to a friend from outside of town			
Strongly agree			58
Agree			29
Neither			23
Disagree			20
Strongly disagree			10
The festivals are energetic			
Strongly agree			126
Agree			48
Neither			21
Disagree			5
Strongly disagree			0
The festivals are easy to participate			
Strongly agree			113
Agree			55
Neither			28
Disagree			3
Strongly disagree			0
The festivals are a place to connect with others			
Strongly agree			82
Agree			64
Neither			43
Disagree			9
Strongly disagree			2
Personal Info/Pasture Endeavors			
		Grade Level	
1st grade			65
2nd grade			53
3rd grade			84
		Gender	
Girls			91
Boys			305
I prefer not to answer			4
		Resident	
Hachiman (Town Center)			16
Hachiman (Outside the Town Center)			58
Wara			25
Yamato			49
Mehou			10
Shiratori			28
Mizumi			19
Mizumi			10
Yoshimichi Elementary School			9
Guzo Shiratori JHS			28
Guzo Shiratori Goshigahara JHS			4
Guzo Shiratori Tabaku JHS			13
		Commute Time	
10mins - 30mins			105
less than 10 mins			29
30mins - 60mins			55
60mins - 90mins			2
Over 90 mins			8
		Graduating Junior or High School (JHS)	
Guzo Shiratori Hachiman JHS			54
Guzo Shiratori Hachiman nishi JHS			13
Guzo Shiratori Guzman JHS			21
Guzo Shiratori Yamato JHS			48
Guzo Shiratori Mehou JHS			9
Guzo Shiratori Shiratori JHS			28
Guzo Shiratori Goshigahara JHS			4
Guzo Shiratori Tabaku JHS			13
		Graduating Elementary School	
Other			23
Guzo Shiratori Sario Elementary School			14
Guzo Shiratori Hachiman Elementary School			30
Guzo Shiratori Hokkuso Elementary School			4
Guzo Shiratori Kuchinguma Elementary School			16
Guzo Shiratori Yoshida Elementary School			5
Guzo Shiratori Wara Elementary School			25
Guzo Shiratori Onaka Elementary School			49
Guzo Shiratori Yamato Elementary School			28
Guzo Shiratori Kawata Elementary School			10
Guzo Shiratori Mehuru Elementary School			7
Guzo Shiratori Yoshimichi Elementary School			9
Guzo Shiratori Shiratori Elementary School			14
Guzo Shiratori Awa Elementary School			21
Guzo Shiratori Nara Elementary School			2
Guzo Shiratori Tabaku Kita Elementary School			5
Guzo Shiratori Tabaku Elementary School			8

From the free response answers asking about the use of the town center uncovered. Excluding the students who barely visit the town center, the town center was most frequently used for the purposes of festival use at 52 students (26%). "Eating out", "Recreation", and "Shopping" followed, in that order. Some free response answers also showed usage of facilities such as dentists, libraries, and the hospital, and others who have a part time job in the town center.

The survey asked the students to rate each statement, regarding an image of Gujo Hachiman, on a 5 point likert scale. Notable images include “The water in Gujo is clean” with 84% strongly agreeing, “The historic townscape is appealing” with 68% strongly agreeing, and “The festivities are energetic” with 63% strongly agreeing. Gujo Hachiman nationally known for its water, historic townscape, and festivals, these images are shared with the students attending Gujo High School. There were some images that only people in Gujo Hachiman could know such as “You can eat delicious foods” with 61% strongly agreeing, and “The sounds of nature is comforting” with 58% strongly agreeing. The figure below shows the agreeability of each image statement.



### Figure 5 Likeability Chart

The survey asked students to rate the level of recognition of facilities and locations in the town center, as well as significant festivities held in Gujo Hachiman.

Based on analysis procedures of the 5 point likert scale, the following numeric quantities were assigned

to the options, “I have been there”, “I haven’t been there, but I know the location and significance of the place”, “I haven’t been there, but I’ve heard of the place”, and “I haven’t been there”, 3, 2, 1, 0 respectively. The figure below shows the numeric “score” calculated throughout the 20 recognition of each location and facility in the Town Center, with 0 being the lowest score and 60 being the highest.

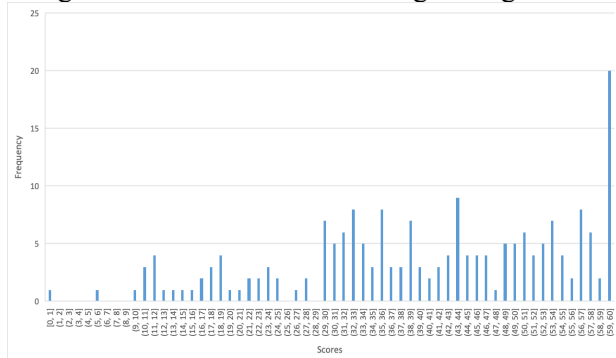


Figure 6 Total Facility and Location Recognition Scores

The Festival recognition was also formulated with the numeric “scores” for the options “I have attended multiple times”, “I have attended once”, “I know of the festival, but I haven’t attended”, and “I do not know the event”, each with the score 3,2,1,0 respectively. The maximum score being 18 and lowest being 0, the following figure shows the frequency of each score.

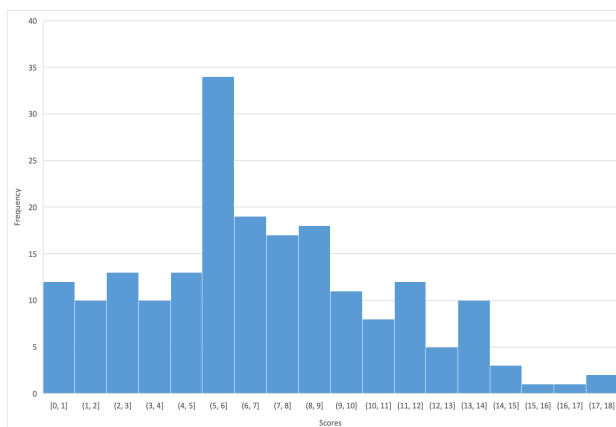


Figure 7 Total Festival Recognition Scores

## 6. Data Analysis

### (1) Cross Tabulation Analysis

In order to determine the factors affecting the total score of the recognition of facilities and locations, shown in figure 9, cross tabulation was conducted. The First sectioni was cross tabulated and the Significant variables are shown below.

	Column1	Coefficients	P-value
Do you live in the Town center?	Not living there	-11.579205	1.81E-05
	Living there now	12.0526316	2.33E-05
Mode of transportation	Bus	-5.2901786	0.06556215
	Bicycle	7.99107143	0.0352099
	Walk	6.87301587	0.00725874
	Automobile	-2.6964286	0.47509956
Purposes	Food	5.51590909	0.03527098
	Event	7.93090909	0.00114944

Figure 8 Significant Section 1 x Facility Recognition

The Residency in the town center has a high correlation with the Recognition of facilities, and a negative correlation appears for students who don’t live in the Town Center. The mode of transportation that were significant is walking, and bicycle. It can be interpreted that students who walk or bike through the town center are more focus and aware of their surroundings. Busses and automobiles may lead students to be less aware of their surroundings. The two leading free response answers of town center usage included food and events. Both factors had a significant P-value, representing a purposeful use of the town center can increase recognition, compared to students who left their answers blank.

The length of residency was cross tabulated with the recognition of facilities and locations, through the student’s graduated elementary and junior high school. The below shows the data.

	Coefficients	P-value		Coefficients	P-value
Intercept	33.8	5.78E-30	Intercept	34.5	3.02E-13
Gujo Shirtsu Hachiman Elementary School	20.4666667	4.94E-09	Gujo Shirtsu Hachiman JHS	15.9642857	0.00083417
Gujo Shirtsu Kawai Elementary School	15.3	0.00107439	Gujo Shirtsu Hachiman nishi JHS	10.8809524	0.03658461
Gujo Shirtsu Aoi Elementary School	11.5809524	0.00173151	Gujo Shirtsu Gujo higashi JHS	12.25	0.10948897
Gujo Shirtsu Kuchimyogata Elementary School	10.3875	0.0090864	Gujo Shirtsu Yamato JHS	-0.0208333	0.99650567
Gujo Shirtsu Yamato Elementary School	0.84285714	0.80368076	Gujo Shirtsu Shiratori JHS	-4.1428571	0.40718941
Gujo Shirtsu Ushimichi Elementary School	9.53333333	0.20638861	Gujo Shirtsu Takasu JHS	-0.8846154	0.87443248
Gujo Shirtsu Naru Elementary School	-3.3	0.71555388	Gujo Shirtsu Gurnan JHS	7.11538462	0.20462753
Gujo Shirtsu Shiratori Elementary School	-4.3	0.29651842	Gujo Shirtsu Meihou JHS	11.5	0.05862297
Gujo Shirtsu Onaka Elementary School	-9.8	0.1408585			
Gujo Shirtsu Hokuno Elementary School	-4.3	0.51718379			
Gujo Shirtsu Takasu Elementary School	1.325	0.79122777			
Gujo Shirtsu Takasu Kita Elementary School	-2.6	0.66673587			
Gujo Shirtsu Sanjo Elementary School	8.62857143	0.03702912			
Gujo Shirtsu Yoshida Elementary School	3.2	0.59615385			
Gujo Shirtsu Meihou Elementary School	12.4857143	0.01868047			
Gujo Shirtsu Wara Elementary School	12.95	0.05217781			

Figure 9 Length of residency x Facility Recognition

Analyzing the the significant variables, the elementary schools that are closer to Gujo Hachiman have a higher tendency of having a lower p-value. This can mean the students have a higher tendency of



visiting Gujo Hachiman throughout their lives. The Students who graduated from not only schools from Gujo Hachiman, but students who graduated a school near Gujo Hachiman have a higher tendency to recognize more facilities and locations. The same can be said about middle schools, but the range is smaller only extending to Gujo Shiritsu Hachiman Nishi Junior High School.

The variables affecting the depth of recognition of facilities and locations of the town center was uncovered. From this information, the images of Gujo Hachiman were cross tabulated with the recognition of facilities to understand the correlation between the two. With the uncovering of what images are affected by the depth of recognition of the facilities, it is possible to understand the flow of relationships and variables possibly affecting specific images had on Gujo Hachiman. The data below provides the significant images.

Images		Coefficients	P-value
"The sound of nature is comforting"	Recognition Score	0.00652632	0.00684374
"The Historic townscape is appealing"	Recognition Score	0.00618471	0.00692302
"There is a strong bond between the people"	Recognition Score	0.0080569	0.0009165
"The people are appealing"	Recognition Score	0.0080569	0.0009165
"There are facilities and shops that I would recommend to a friend from outside of Gujo"	Recognition Score	0.006149	0.00555805
"The festivals are easy to participate"	Recognition Score	0.00914967	0.00013963
"The festivals are a place to connect with others"	Recognition Score	0.00767176	0.00136499

Figure 10 Significant Images affected by the Facility recognition

The higher the Recognition of facilities the more likely to "Strongly Agree" to images such as "The historic townscape is appealing" exemplifying the civic pride of the students who recognize the town center. These students are more likely to connect with the residents of the town center from the images "The people are appealing", "There is a strong bond between the people", and "The festivals are a place to connect with others." These tendencies show the higher recognition the more likely these students interact with the residents in the town center. This communal recognition can be vital to creating a strong local town.

From the cross tabulations the flow of relationships can be seen. The factors that affect the recognition of facilities and locations in the town center and the images that are affected by the recognition. This information becomes important when analyzing the root of how these students behave and think. For example, students who walk or ride the bicycle through the town center, has a higher recognition of the town centers facilities and locations and is more

likely to appreciate the historic townscape that makes up Gujo Hachiman.

### (3) Clustering Analysis

The variables of section one, the relationship with the town center, was used for clustering analysis. Specifically the factors of "Residency of town center", "commute through town center", "methods of transportation through the town center", "Town center usage on weekdays", "Town center usage on weekends", "Purpose of visit", "Facility recognition", and "Festival recognition" were used to cluster the students into 3 main clusters. The dendrogram used to analyze the clustering is shown below.

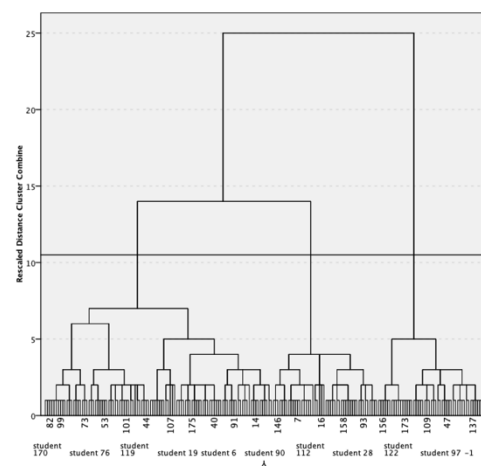


Figure 11 Dendrogram for Clustering Analysis

Cluster 1 consisted of students that had the lowest recognition of the town center. Both score averages were the lowest at 25.4 for the facility recognition and 4.16 for the festival recognition. The second cluster had a score of 42.79 and 7.53, while the third had the highest at 56.67 and 11.35, respectively. The variables used for clustering held minimal information about the classification of these clusters, so the free response patterns of these clusters were analyzed. The free response of "purpose of visit", "Favorable place", and the "Reasoning for favorable place" was used to categorize the clusters.

#### A) Cluster 1 (Necessary use only)

This cluster showed the least amount of interest in the town center, being further proven by the low scores of recognition. Answers to the purpose of visiting the town center included answers such as "Extra-curricular activities", "Shopping for necessary goods", and "dentist appointments", showing a tendency for students to only go to the town center when it is necessary. These students also had the highest "blank" responses with 51.5% providing no answers. The favorable places from this cluster included answers such as "kanmina", a popular ramen shop, showing the main attachment to the town

center being for grabbing food. The cluster also showed higher tendencies to provide answers such as “Yanaka lane”, a widely popular location, showing little depth in the relationship. Furthermore, the reasoning behind why they chose the place as their location, short responses such as “the food is good” or “the water is clean”, showing little interest in the town center.

#### B) Cluster 2 (Engaged use)

This cluster showed the most amount of interest in the town center. Although 94.8% of the cluster does not reside in the town center, they showed the most frequent use of the town center during breaks. The answers to the purpose of visiting the town center included answers such as “fishing”, “hanging out with friends”, and “kagura or festival”. Specific words such as Kagura is used in this cluster, showing a deeper understanding of the town's festivities and culture. These students show a purposeful use of the town, and understand the significance of the town center. Gujo Hachiman being known for its rivers and festivities, these students recognize the characterizing factors in the town center, and engage fully. Favorable locations include “historical townscape” and “festivals”. These students also showed a tendency to pair their favorable locations with a memory or atmospheric descriptions. For example, answers such as “the river side where I take a walk with my friend” or “the calm backstreets of Hachiman” show a deep connection to these locations. This is proven further through the reasoning, with answers such as “it is fun”, “it's calming”, and “it cleans my soul”. Showing a very deep appreciation through well worded responses. The students show interest in the town center as well as a willingness to participate in the survey itself. One answer went on to state “the food in my home town is delicious” showing a sense of civic pride in the town center and their local cuisine.

#### B) Cluster 3 (Hometown use)

The last cluster with the highest scores in both festival and facility recognition show a decrease in interest. Compared to the first cluster the answers are more specific and representative of the high recognition. The students who live inside the town center mostly reside in this cluster. Through the purpose of visiting the town center answers such as “cram school”, “part-time jobs”, and “Hospital” the students in this cluster show purposes that disregard Gujo Hachiman's uniqueness. These students, with the majority living in or around the town center, show a generalized use of any hometown. The student's favorable places showed specific times in which they favor the location. For example, “the river during sunset” or “Gujo Castle during sunrise” showing a very high recognition of the town. These students

show unique answers, yet prefer locations that are personal to them and not to Gujo Hachiman. This cluster has the longest relationship with Gujo Hachiman, extrapolated through the schools they graduated from, so the feeling of awe and interest lowered compared to the second cluster. As a student living in Gujo for possibly their entire life, the town loses its significance within these students. Reasoning for their favorable places included answers such as “I saw a toad there”, stressing the memory there more than the location.

The clusters were analyzed through their tendency to stay in Gujo Hachiman. Clusters 1 and 3 showed an almost equal distribution with 45% of students either “Working elsewhere, but eventually coming back” or “immediately want to work in Gujo. Cluster 2 showed 51.9%, being highest. The recognition did not correlate with the tendency to stay in Gujo.

## 7. Conclusion

The research analyzed factors affecting the recognition of the town center. Analyzing the students' relationship with the town center, variables that significantly affected the facility recognition was uncovered. Living in the town center had a positive correlation, as expected, and the transportation mode was proven to have a correlation as well. Students who walk or take the bike can be seen to have higher recognition, showing a importance in actually passing through the town center. Buses and automobiles provide transport “through” the town center, yet doesn't provide students the opportunity to look around and feel the town. Walking can also provide more opportunity to connect with the residents, increasing the interests in the town center. Another notable variable included the length of residency proving to be significant. Not only that, but the students who attended elementary school near Gujo Hachiman also had a higher tendency to recognize facilities and locations. The further away the school got, the students began recognizing less.

Through clustering analysis three types of clusters were made. From the answering patterns of free response questions the clusters were classified as “necessary use”, “engaged use”, and “hometown use”. Varying levels of interest in the town center was classified through these answers and discovered that interest doesn't correlate with recognition. The second cluster having the highest interest and engaged use of the town center, these students showed a deep connection to the town and understanding of the beauty of Gujo Hachiman. In contrast, the third cluster, with the highest recognition, showed signs of Habituation towards the town. Understandably, students who grew up in Gujo Hachiman recognize the town as just their “hometown” showing specialized knowledge, but a general indifference towards some of the answers of



cluster 2. The students who had a little distance, yet close enough to explore the town through commute and visiting during festivities showed the most amount of interest and affection towards the beauty of Gujo Hachiman. Future research should research the factors affecting this “interest”, in order to create a future generation dedicated and loyal to the preservation of the beautiful town of Gujo Hachiman.

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