

North Dakota State University
Student Transit Survey, 2010-2011

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ABSTRACT

The Small Urban & Rural Transit Center (SURTC) conducted surveys of NDSU students during the fall and spring semesters of 2010-2011 regarding travel behavior and experience with Metro Area Transit (MATBUS). An on-vehicle survey of MATBUS riders on two NDSU campus routes was conducted in the winter of 2010, and an online survey of NDSU students was conducted in the spring of 2011. The onboard survey was conducted both by paper and with the use of smartphones. The two surveys captured a significant amount of information regarding student travel behavior, use of transit, and opinions about current MATBUS service. The on-vehicle survey collected responses from 120 individuals, mostly NDSU students, while the online survey of NDSU students received 858 responses, including responses from both transit users and non-users. The survey collected information on student access to vehicles, transportation modes used to travel to campus, factors influencing mode choice, use of transit services, opinions on MATBUS service, thoughts on how to improve service, opinions on marketing efforts and preferred methods of accessing information, interest in wireless Internet access onboard, willingness to pay for transit services, and issues concerning parking.

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1. INTRODUCTION

The Small Urban & Rural Transit Center (SURTC) conducted surveys of NDSU students during the fall and spring semesters of 2010-2011 regarding travel behavior and experience with Metro Area Transit (MATBUS). This research updates previous surveys conducted by SURTC of NDSU students (Hegland and Hough 2003, Peterson and Hough 2003, Peterson et al. 2005, Ripplinger and Ulmer 2005, Ulmer 2005, Ripplinger et al. 2008, Ripplinger et al. 2009). An on-vehicle survey of MATBUS riders on two NDSU campus routes was conducted in the winter of 2010, and an online survey of NDSU students was conducted in the spring of 2011. The onboard survey was conducted both by paper and with the use of smartphones.

The objective of the survey was two-fold. The primary goal was to test mobile technology and processes to conduct on-vehicle and other rider intercept surveys and to test the use of online surveys for transit planning. The second goal was to collect information for transit operations and planning purposes. The results will be used to assist NDSU and MATBUS plan future transit service for the NDSU community.

The survey was conducted as part of the Transit, Technology, and Public Participation Project. The project is evaluating the benefits of a diverse set of technologies on public participation in transit planning. The project is part of the Public Transportation Participation (PTP) Pilot Program, which is administered by the Federal Transit Administration. This report presents a description of the survey design and methodology as well as the results of the survey.

The survey collected information on student access to vehicles, transportation modes used to travel to campus, factors influencing mode choice, use of transit services, opinions on MATBUS service, thoughts on how to improve service, opinions on marketing efforts and preferred methods of accessing information, interest in wireless Internet access onboard, willingness to pay for transit services, and issues concerning parking. Information on participants concerns about privacy and other issues regarding the use of mobile devices to conduct on-vehicle surveys will be included in a later report, as will an analysis of the online survey method for use by transit agencies.

2. SURVEY DESIGN AND ADMINISTRATION

The surveys were developed by SURTC under the direction of MATBUS staff. The on-vehicle and online surveys contained a number of the same questions, but the online survey was longer, and the on-vehicle survey contained some questions specific to the use of the mobile device technology, which will be discussed in a later report.

2.1 On-vehicle Survey

Development of the base on-vehicle survey was guided by existing rider surveys which were modified to meet MATBUS needs. As members of the NDSU community were identified as the target population of the survey, additional questions about MATBUS service that affect the NDSU campus and its riders were added.

Riders were intercepted as they boarded the bus and invited to participate in the survey. They were provided with a handout describing the project as required by the project's protocol which was approved by the NDSU Institutional Review Board (IRB). Participants were provided a mobile device or paper and pen to complete the survey. Upon completion, participants were offered a MATBUS koozie in recognition of their participation.

On-vehicle rider surveys were conducted on Route 33 on Nov. 26 and Route 32 on Dec. 7. A total of 120 surveys were completed. Of these, 57 were completed using mobile devices and 63 using paper. The November 26 survey employed four surveyors using mobile devices and one surveyor using traditional paper surveys. The December 7th survey was conducted using two surveyors with mobile devices and two surveyors with paper surveys.

Route 32 serves the NDSU main campus as well as residential areas south and northeast (University Village) of the main campus. Route 33 serves the NDSU main campus as well as Klai and Barry Hall in Downtown Fargo and residential areas northeast of campus. Barry Hall is home to the College of Business and Department of Agribusiness and Applied Economics. Klai Hall is home to the Department of Architecture. Many students attend classes and participate in other activities in these buildings which do not have student parking. Maps of Routes 32 and 33 are presented in Figure 2.1.

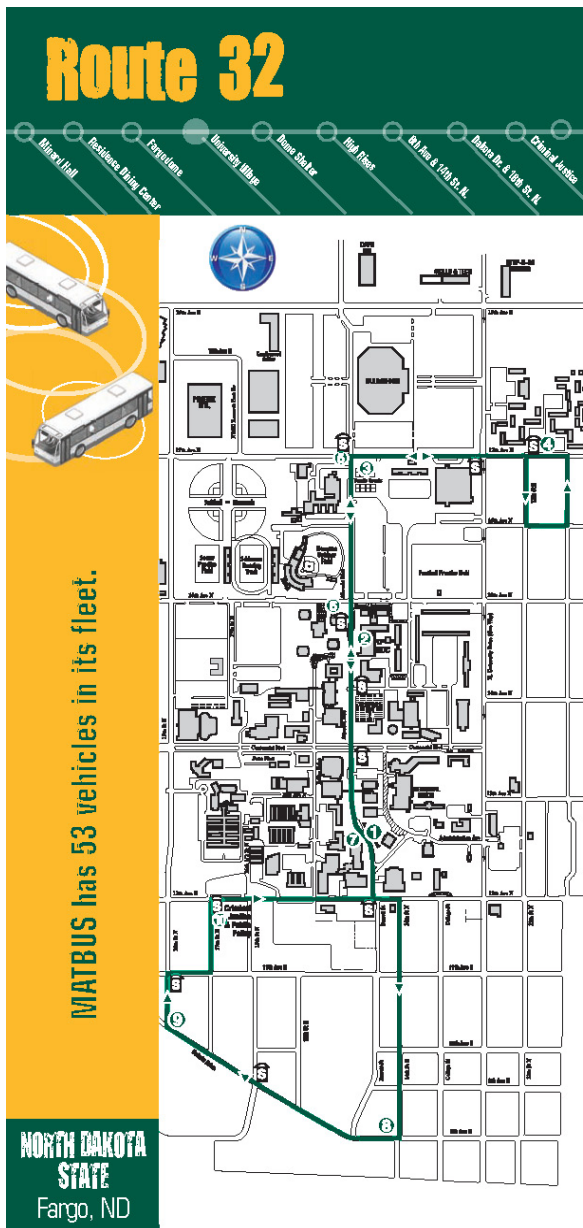


Figure 2.1 Route 32 and Route 33 Maps

The Nov. 26 survey was conducted from 8:15 a.m. to 10:30 a.m. A total of 74 surveys were completed: 40 using mobile devices and 34 using paper. Six declined taking the electronic survey, one declined to take the paper survey, and one individual asked to take the paper as opposed to the electronic survey (which they were allowed to do). During the post-survey debriefing, the surveyors who had used mobile devices all agreed that they would have been willing and able to manage two mobile devices.

Seventeen electronic and 29 paper surveys were completed on Route 32 on Dec. 7 between 8:11 a.m. and 10:15 a.m. Although surveyors stated that they were willing and able to manage two mobile devices following the Nov 26 survey, surveyors using mobile devices managed only one device as the distance between traveler origins and destinations was expected to be much shorter than those on Route 33. Two individuals declined to take the electronic survey, the same number that declined to take the paper survey.

2.2 Online Survey

The online survey complemented the on-vehicle survey. Questions from the on-vehicle survey were included in the online survey along with a number of new questions. The online format allows for longer surveys because participants do not face as many time constraints as they do with the onboard survey. Another benefit of this method is that it was able to reach a much greater number of students, including those who do not ride the bus.

The survey collected information on demographic characteristics, area of residence, modes of transportation used and travel time to campus, travel behavior, experience with riding MATBUS, thoughts on MATBUS information and marketing, and other areas of interest. It also solicited input on how MATBUS could improve its service.

An email announcement with a link to the survey was sent to all NDSU students via the student listserv in mid-April. A reminder email was sent out two weeks after the initial email, and the survey was open for a total of three and a half weeks. A total of 858 responses were received, including 485 responses from students who use MATBUS. This is a response rate of about 6% of the entire student population.

3. PROFILE OF RESPONDENTS

3.1 On-vehicle Survey Respondents

Survey participants for the onboard surveys were slightly more likely to be male (54%) than female (46%). Response rate by gender is presented in Figure 3.1.

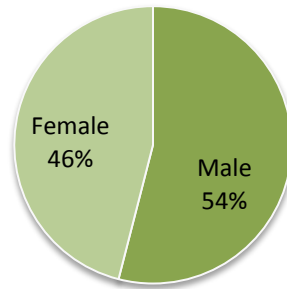


Figure 3.1 Response Rate by Gender, On-vehicle Survey

Most participants, 85%, were between the ages of 18 and 22. Eight percent were between the ages of 23 and 29, and 5% were aged 30 to 45. Response rate by age is presented in Figure 3.2.

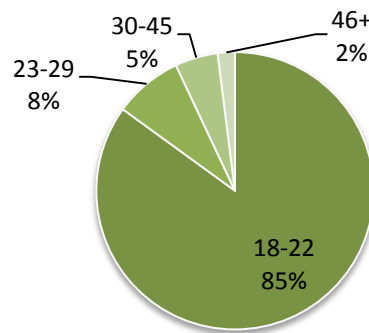


Figure 3.2 Response Rate by Age, On-vehicle Survey

Almost all participants, 94%, reported being NDSU students. Most of these, 89%, stated that they were undergraduates.

Survey participants were asked to identify their race and ethnicity. The survey allowed for the identification of more than one race/ethnicity; however, no participant selected more than one. About three-fourths of participants, 77%, identified themselves as white. The second most reported race was Asian at 15%, while 3% were Hispanic and 3% were black.

Most participants, 88%, reported that they have access to a vehicle.

Survey participants were asked to identify if they had any conditions that would require them to have assistance to use MATBUS service. Hearing difficulty was reported by 3% of participants,

trouble walking was reported by 2% of participants. Visual impairments that affected MATBUS use was reported by 1% of respondents.

3.2 Online Survey Respondents

3.2.1 Demographics

For the online survey, a significantly larger percentage (64%) of the respondents were female, and respondents again were predominantly white (Table 3.1). Seventy-three percent were aged 18-22. Just 1.5% were 45 or older and none were 65 or older. The respondents were fairly evenly distributed by class, and most were full-time students. Compared to the onboard respondents, those who took the survey online were more likely to be female and less likely to be a minority. The onboard survey, especially, had a higher percentage of Asian respondents. The online survey also captured a higher percentage of respondents in the 23-29 and 30-44 age groups than did the onboard survey.

Table 3.1 Demographic Characteristics of Online Respondents

	Percentage of respondents	Number of respondents
Gender		
Male	36.4%	310
Female	63.6%	542
Ethnicity		
White	93.5%	789
Asian	4.1%	35
Black	1.5%	13
Native American	1.3%	11
Hispanic	1.4%	12
Age		
18-22	72.7%	618
23-29	19.1%	162
30-44	6.7%	57
45-64	1.5%	13
65+	0.0%	0
Class		
Freshman	20.0%	171
Sophomore	21.0%	179
Junior	21.0%	179
Senior	22.3%	190
Graduate	15.7%	134
Enrollment status		
Full-time	94.1%	798
Part-time	5.9%	50

3.2.2 Where Students Live

The online survey also asked respondents to identify if they live on-campus or off-campus, and if they live off-campus, they were asked to indicate the part of the metro area in which they live and how far they live from campus. Forty percent of the students surveyed live on campus (Figure 3.3). Close to half (48%) of the off-campus students live in North Fargo, while just over half live in other parts of the metro area or elsewhere (Figure 3.4).

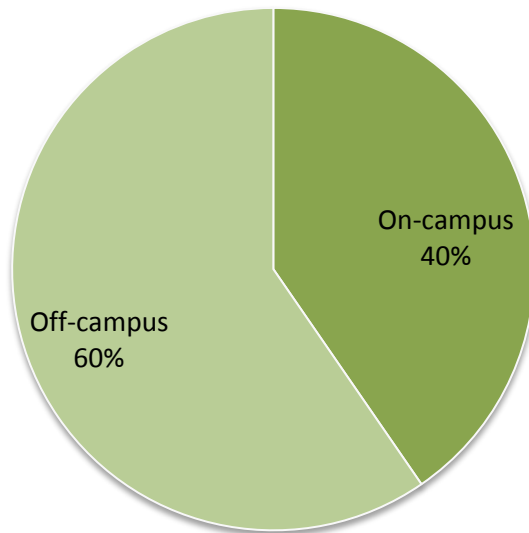


Figure 3.3 Percentages of Respondents Living On-Campus and Off-Campus

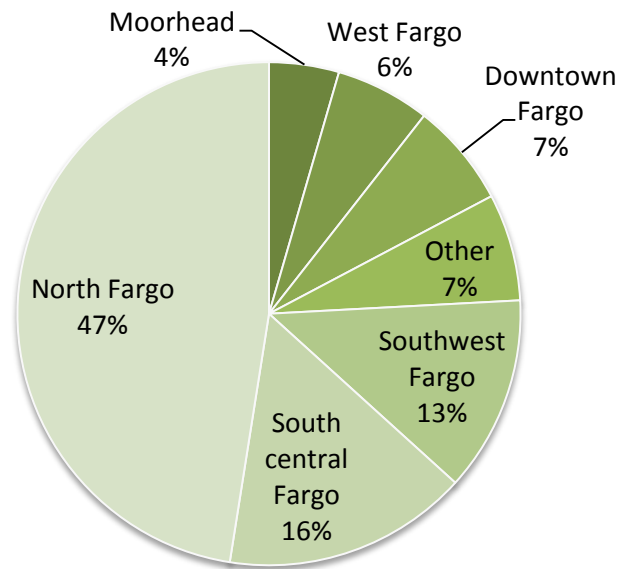


Figure 3.4 Area of Residence for Off-Campus Students

Travel distance to campus for off-campus students varies (Figure 3.5). Seventeen percent of respondents live within one quarter mile of campus, while 31% live within one half mile and 43% live within 1 mile. Twenty-seven percent of respondents live 1 to 5 miles from campus, while 30% live more than 5 miles from campus.

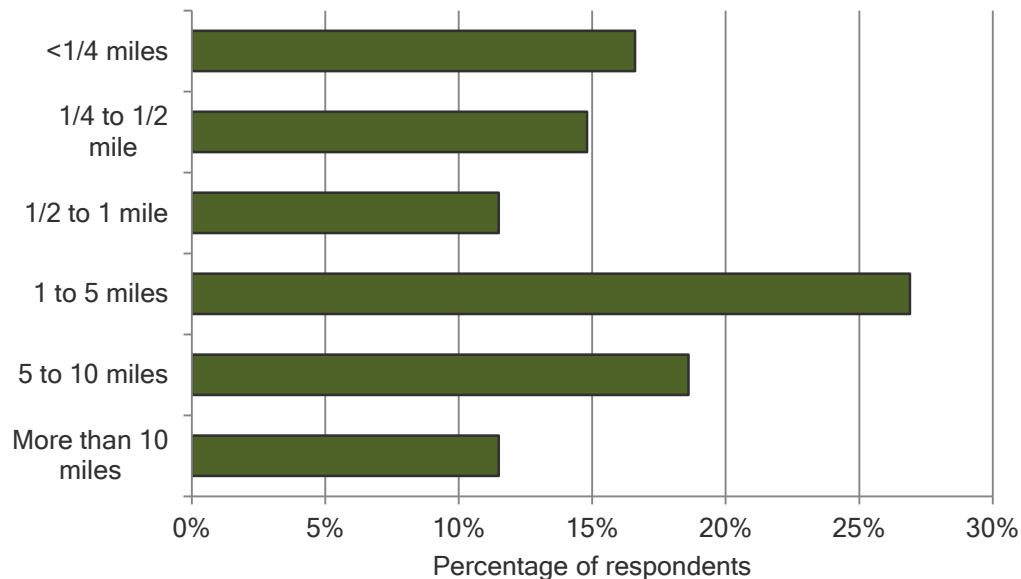


Figure 3.5 Travel Distance to Campus for Off-Campus Students

4. TRAVEL BEHAVIOR

The online survey asked questions regarding access to a motor vehicle, how off-campus students travel to campus (including which modes they use and long their trip takes), factors that influence their choice of mode, how many trips they regularly take to campus, their willingness to walk, whether they use MATBUS, and transportation used to Tri-College classes on other campuses. This section describes the results to those questions.

4.1 Access to a Motor Vehicle

Eighty-six percent of respondents have regular access to a motor vehicle. Off-campus students and students living farther from campus are more likely to have regular access to an automobile (Table 4.1).

Table 4.1 Regular Access to Motor Vehicle by Area of Residence

	Respondents with vehicle access
Total (n=853)	86%
Where respondent lives	
On-Campus (n= 345)	73%
Off-campus (n=508)	95%
Location of off-campus students	
North Fargo (n=234)	91%
Downtown Fargo (n=33)	91%
Southwest Fargo (n= 62)	100%
South central Fargo (n=78)	99%
West Fargo (n=30)	100%
Moorhead (n=22)	100%
Other (n=34)	97%
Distance to campus for off-campus students	
<1/4 miles (n=81)	89%
1/4 to 1/2 miles (n=73)	95%
1/2 to 1 mile (n=57)	89%
1 to 5 miles (n=133)	96%
5 to 10 miles (n=92)	99%
More than 10 miles (n=57)	100%

4.2 Travel to Campus by Off-Campus Students

Most (92%) campus-bound trips by off campus students originate from their homes, while 6% said their campus-bound trips originate from work.

Respondents reported using a variety of transportation modes when traveling to campus. Fifty-seven percent said the automobile was their most commonly used mode of travel, while 24% reported they will most often walk and 13% said riding MATBUS is their most-used mode of transportation (Table 4.2). As expected, these mode shares vary significantly by where the respondents live. Students living closer to campus are much more likely to walk, ride bicycle, or ride MATBUS and less likely to drive than those living farther away. For example, of those living within one quarter mile of campus, 67% most often will walk to campus and only 6% will drive an automobile. MATBUS has a 16% mode share for those living within a quarter mile of campus and a mode share of 30-32% for those living one-fourth to 1 mile from campus.

There are significant differences in mode shares between those living less than 1 mile from campus and those living more than 1 mile, as automobile becomes the dominant mode of travel for distances greater than 1 mile. Very few will walk more than 1 mile to campus, and MATBUS use also drops considerably for those traveling more than 1 mile to campus. Bicycle use is 4-5% for distances up to 5 miles, and no respondent who lives more than 5 miles from campus reported that they regularly ride bicycle to campus.

There are some differences in travel behavior based on gender, as men are more likely to walk or ride bicycle to campus, and all of the respondents who reported that they regularly drive a motorcycle to campus are men. Women were more likely to report driving an automobile. For those who do not have regular access to an automobile, close to half said they walk and about one-third ride MATBUS.

In addition to asking which mode the respondent uses the most, the survey also asked the respondent to identify all modes used, even occasionally, for traveling to campus (Table 4.3). The results show that 36% of respondents at least occasionally ride MATBUS to campus and 41% walk. While only 3% rely on the bicycle as their primary means of transportation, 33% at least occasionally ride bicycle to campus. Automobile is the most-used mode, but 28% indicated that they do not, even occasionally, drive an automobile to campus. Again, responses to this question differed significantly based on how far the respondent lives from campus. Note that 8% of respondents said they travel to campus from work or locations other than home, which could explain why some living farther distances from campus said they walk to campus.

Table 4.2 Mode of Transportation Most Used when Traveling to Campus, by Off-Campus Students

	n	Walk	Bicycle	Automobile	Carpool	MATBUS	Motorcycle
		-----Percentage-----					
Total	493	24	3	57	2	13	2
Area of residence							
North Fargo	235	46	5	23	1	21	3
Downtown Fargo	33	9	9	45	3	33	0
Southwest Fargo	62	2	0	95	3	0	0
South central Fargo	78	3	1	88	3	5	0
West Fargo	30	3	0	97	0	0	0
Moorhead	22	0	0	100	0	0	0
Other	34	0	0	91	0	9	0
Distance from campus							
< 1/4 mile	82	67	5	6	2	16	4
1/4 mile to 1/2 mile	73	47	4	15	0	32	3
1/2 to 1 mile	57	32	5	30	0	30	4
1 to 5 miles	133	5	4	80	2	8	1
5 to 10 miles	92	1	0	93	3	2	0
More than 10 miles	57	2	0	93	2	4	0
How long respondent has been using MATBUS							
< 1 year	95	24	5	45	1	22	2
1 to 5 years	159	28	4	38	2	26	1
More than 5 years	11	36	9	18	0	36	0
Class							
Freshman	20	0	0	90	5	5	0
Sophomore	75	33	5	43	0	17	1
Junior	129	33	3	43	2	16	3
Senior	153	19	3	66	1	9	2
Graduate	117	17	3	61	3	16	0
Gender							
Male	180	29	6	46	2	13	4
Female	315	20	2	63	2	14	0
Age							
18-22	289	31	4	47	1	15	2
23-29	138	16	3	62	2	15	1
30-44	54	7	0	83	4	6	0
45-64	12	8	0	83	0	8	0
Has regular access to motor vehicle							
Yes	469	22	3	59	1	13	2
No	25	48	16	0	4	32	0

Table 4.3 Use of Transportation Modes for Traveling to Campus, Even Occasionally

	n	Walk	Bicycle	Automobile	Carpool	MATBUS	Motorcycle
		-----Percentage-----					
Total	482	41	33	72	19	36	5
Area of residence							
North Fargo	231	71	45	63	15	49	6
Downtown Fargo	33	39	52	67	15	58	6
Southwest Fargo	62	6	10	82	27	13	3
South central Fargo	75	8	21	76	32	21	0
West Fargo	28	7	7	93	21	14	0
Moorhead	21	14	43	90	19	29	14
Other	33	12	12	82	6	18	0
Distance from campus							
<1/4 miles	81	85	46	53	11	43	5
1/4 to 1/2 miles	73	74	49	63	21	55	5
1/2 to 1 mile	55	58	51	67	13	62	5
1 to 5 miles	128	20	30	77	23	29	6
5 to 10 miles	91	8	13	86	27	15	2
More than 10 miles	55	11	13	82	15	22	2
How long respondent has been riding MATBUS							
<1 year	95	45	32	59	16	63	4
1 to 5 years	195	52	41	72	19	57	4
More than 5 years	11	64	82	64	0	64	0
Class							
Freshman	19	11	21	95	32	16	11
Sophomore	73	45	27	59	18	44	0
Junior	126	51	38	72	18	32	5
Senior	151	36	31	76	25	36	6
Graduate	114	37	34	71	12	37	4
Gender							
Male	180	46	42	71	17	39	9
Female	304	37	27	72	20	34	2
Age							
18-22	284	47	37	70	23	41	4
23-29	135	36	30	73	15	31	5
30-44	52	19	25	77	15	19	4
45-64	12	25	8	83	0	42	8
Access to motor vehicle							
Does not have regular access	24	71	46	21	4	58	4
Has regular access	459	39	32	75	20	35	5

Table 4.4 shows how long respondents reported it takes them to travel to campus using their most frequent mode of travel, with responses shown for how far they live from campus and mode of travel. For students less than one quarter mile from campus, walking tends to be just as fast as driving and automobile and is faster than riding MATBUS, which explains why walking is the most preferred option. For distances greater than a quarter mile, MATBUS tends to be faster than walking, and it gains mode share. Time savings for automobile travel expectedly increases with distance from campus, corresponding with the automobile's increase in mode share.

Table 4.4 Travel Time to Campus for Most Frequently Used Mode

	n	0-5 min	6-10 min	11-20 min	21-30 min	31-40 min	41-50 min	51-60 min	>60 min
		Percentage							
Total	494	20	31	38	6	1.4	0.4	0.6	3
Area of residence									
North Fargo	234	36	43	20	1	1	0	0	0
Downtown Fargo	33	21	33	33	12	0	0	0	0
Southwest Fargo	62	3	21	68	8	0	0	0	0
South central Fargo	78	3	26	62	6	3	1	0	0
West Fargo	29	0	3	79	17	0	0	0	0
Moorhead	22	5	18	68	9	0	0	0	0
Other	34	3	9	9	18	9	3	9	41
Distance from campus									
<1/4 miles	82	55	37	9	0	0	0	0	0
Walk	55	58	35	7	0	0	0	0	0
Bicycle	5	40	60	0	0	0	0	0	0
Automobile	5	60	40	0	0	0	0	0	0
Carpool	2	100	0	0	0	0	0	0	0
MATBUS	10	31	46	23	0	0	0	0	0
Motorcycle	3	67	33	0	0	0	0	0	0
1/4 to 1/2 miles	73	27	45	27	0	0	0	0	0
Walk	34	0	50	50	0	0	0	0	0
Bicycle	3	67	33	0	0	0	0	0	0
Automobile	11	73	18	9	0	0	0	0	0
Carpool	0	-	-	-	-	-	-	-	-
MATBUS	23	35	57	9	0	0	0	0	0
Motorcycle	2	100	0	0	0	0	0	0	0
1/2 to 1 mile	56	30	39	29	2	0	0	0	0
Walk	18	0	44	56	0	0	0	0	0
Bicycle	3	67	33	0	0	0	0	0	0
Automobile	16	69	25	6	0	0	0	0	0
Carpool	0	-	-	-	-	-	-	-	-
MATBUS	17	18	47	29	6	0	0	0	0
Motorcycle	2	50	50	0	0	0	0	0	0
1 to 5 miles	133	9	37	46	5	2	1	0	0
Walk	7	0	29	29	14	29	0	0	0
Bicycle	5	0	60	40	0	0	0	0	0
Automobile	107	11	38	48	3	0	0	0	0
Carpool	2	0	100	0	0	0	0	0	0
MATBUS	11	0	0	55	27	9	9	0	0
Motorcycle	1	0	100	0	0	0	0	0	0
5 to 10 miles	92	1	14	71	13	1	0	0	0
Walk	1	0	0	0	100	0	0	0	0
Bicycle	0	-	-	-	-	-	-	-	-
Automobile	86	1	13	76	10	0	0	0	0
Carpool	3	0	67	0	33	0	0	0	0
MATBUS	2	0	0	0	50	50	0	0	0
Motorcycle	0	-	-	-	-	-	-	-	-
More than 10 miles	56	4	7	36	16	5	2	5	25
Walk	1	0	100	0	0	0	0	0	0
Bicycle	0	-	-	-	-	-	-	-	-
Automobile	51	2	4	37	17	6	2	6	27
Carpool	1	0	0	100	0	0	0	0	0
MATBUS	2	50	50	0	0	0	0	0	0
Motorcycle	0	-	-	-	-	-	-	-	-

Comparing travel times with mode shares suggests that the former has a major influence on the latter. The survey asked respondents to indicate the longest acceptable travel time by MATBUS

from their residence to campus. The results are shown in Table 4.5. As would be expected, those living closer to campus expect shorter travel times.

Table 4.5 Longest Acceptable Travel Time by MATBUS from Residence to Campus

	n	0-5 min	6-10 min	11-20 min	21-30 min	31-40 min	41-50 min	51-60 min	Would not ride
		-----Percentage-----							
Total	488	10	22	26	19	6	2	1	14
Area of residence									
North Fargo	232	21	40	25	4	1	0	0	8
Downtown Fargo	33	0	21	42	33	0	0	0	3
Southwest Fargo	62	2	2	23	40	16	3	3	11
South central Fargo	77	0	4	30	36	9	5	1	14
West Fargo	29	0	0	21	34	10	7	0	28
Moorhead	21	0	5	33	24	29	0	0	10
Other	33	3	6	12	12	3	6	0	58
Distance from campus									
< 1/4 mile	81	36	25	23	1	0	0	0	15
1/4 mile to 1/2 mile	73	18	58	19	1	1	0	0	3
1/2 to 1 mile	56	11	45	25	13	0	0	0	7
1 to 5 miles	130	1	13	37	26	8	4	1	11
5 to 10 miles	92	1	1	24	40	15	3	2	13
More than 10 miles	55	2	2	13	24	11	5	2	42

When specifically asked which factors influence the mode of transportation used to travel to campus, respondents were most likely to say convenience, travel time, and weather (Table 4.6). Seventy-six percent of respondents said that convenience influenced their mode of transportation, while nearly as many (75%), said the same about travel time, and 63% said weather influenced their choice. Parking availability and cost of parking were each noted as factors by 36% of respondents, and just 14% said vehicle cost had an influence. Respondents who live farther from campus were more likely to say that travel time and convenience are important factors. For these students, the travel time and convenience advantages of the automobile become too great to consider other alternatives. Students who live less than 1 mile from campus were much more likely to say that weather influences their choice. These students have the option of walking or riding bicycle to campus but are less likely to do so if the weather is poor. Specifically, 88% of those living between one quarter and one half mile from campus said that weather influences their mode choice. In poor weather, they may be more likely to ride the bus or drive. Parking availability and cost of parking was most important for those living more than one quarter mile and less than 1 mile from campus. For those living farther distances from campus, they may not have a viable alternative to driving, so they will choose to drive regardless of parking cost or availability, and those living less than one quarter mile from campus may choose to walk even if parking is inexpensive and readily available.

Table 4.6 Factors Influencing Mode of Transportation Used to Travel to Campus

	n	Percentage of Respondents who Consider Each of the Following:				
		Travel time	Weather	Parking availability	Cost of parking	Convenience
Total	479	75%	63%	36%	36%	76%
Area of Residence						
North Fargo	231	70%	78%	42%	44%	71%
Downtown Fargo	33	67%	73%	55%	58%	82%
Southwest Fargo	62	87%	44%	34%	27%	89%
South central Fargo	77	77%	48%	29%	23%	82%
West Fargo	29	83%	38%	21%	14%	79%
Moorhead	21	86%	67%	24%	38%	81%
Other	33	61%	30%	12%	12%	45%
Distance from Campus						
<1/4 miles	81	69%	73%	37%	37%	73%
1/4 to 1/2 miles	73	66%	88%	42%	53%	70%
1/2 to 1 mile	55	69%	82%	51%	44%	69%
1 to 5 miles	130	78%	54%	35%	32%	79%
5 to 10 miles	92	82%	48%	30%	27%	86%
More than 10 miles	55	71%	38%	18%	20%	60%
Class						
Freshman	20	85%	55%	25%	25%	90%
Sophomore	73	78%	66%	36%	37%	71%
Junior	126	67%	61%	38%	37%	75%
Senior	152	77%	62%	33%	38%	76%
Graduate	115	71%	63%	39%	31%	74%
Gender						
Male	179	70%	61%	37%	39%	73%
Female	308	75%	63%	35%	33%	76%
Age						
18-22	285	74%	67%	36%	38%	75%
23-29	137	77%	63%	39%	39%	79%
30-44	53	66%	40%	25%	19%	64%
45-64	11	73%	45%	36%	0%	55%
Access to motor vehicle						
Does not have regular access	24	79%	71%	17%	25%	63%
Has regular access	462	73%	62%	37%	36%	75%

4.3 Trip Frequency and Times on Campus

Respondents most commonly said that they make one to two one-way trips to and from campus each day (Figure 4.1). Twenty-two percent of students, presumably those that live on campus, said they make no trips, and about 20% indicated they make more than 2 one-way trips. Students are most commonly on campus between the hours of 8 a.m. and 5 p.m. (Figure 4.2).

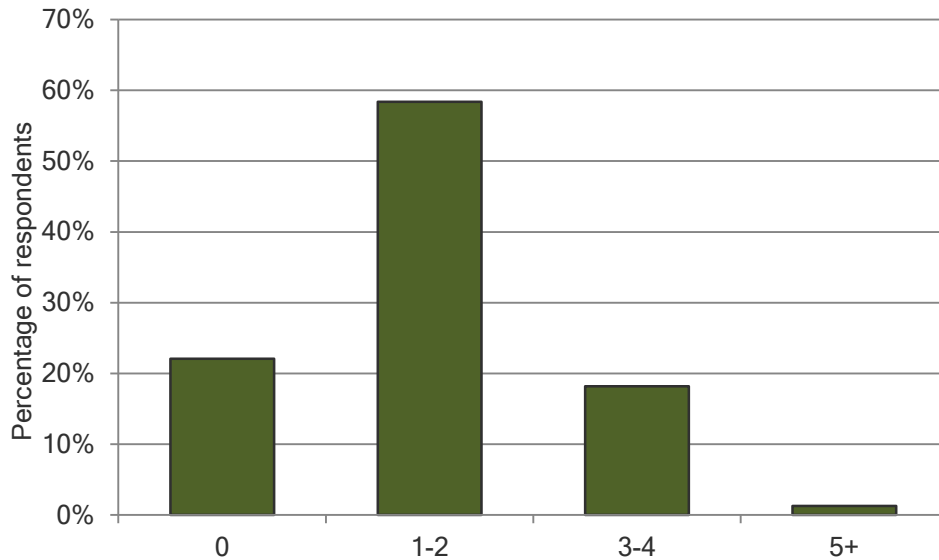


Figure 4.1 Number of One-Way Trips Made to and from Campus Each Day

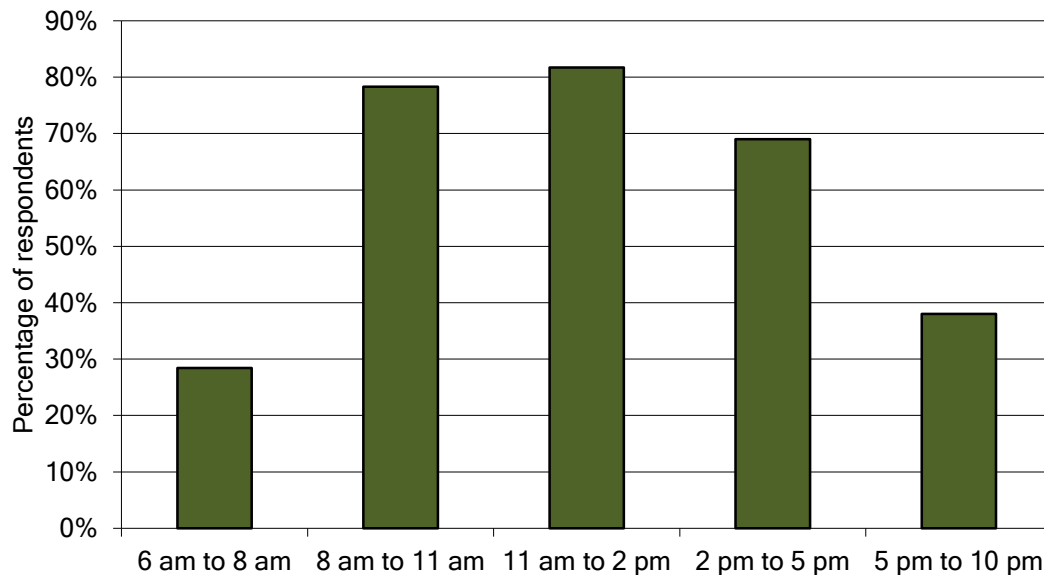


Figure 4.2 Times Students are Usually on Campus

4.4 Willingness to Walk

As the previous results showed, weather often influences how students travel to campus. The survey found that students are more willing to walk longer distances when the temperature is above freezing. Specifically, the survey found that when the temperature is above freezing, 96% of students are willing to walk a quarter mile or farther, 72% are willing to walk a half mile or farther, and 38% are willing to walk 1 mile or more. However, when the temperature is below 32 degrees, just 51% are willing to walk a quarter mile, 20% are willing to walk a half mile, and 7% are willing to walk 1 mile or more (Figure 4.3).

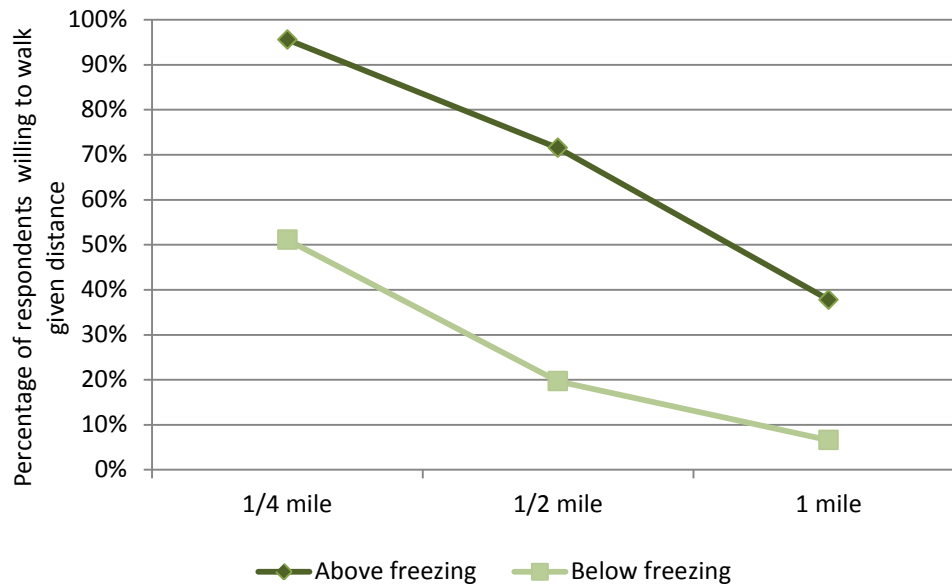


Figure 4.3 Willingness to Walk with Temperatures Above or Below Freezing

4.5 MATBUS Users

As temperatures drop, students may be more inclined to ride the bus than walk. As previous tables have shown, many students use MATBUS for traveling to and from campus, and MATBUS is also commonly used for traveling within the campus or traveling to and from the downtown campus. Overall, 59% of the students responding to the survey said that they use MATBUS (Table 4.7). On-campus students are actually found to be slightly more likely to ride the bus. Of those living off campus, north Fargo residents, and downtown Fargo residents are more likely to ride. There are no gender differences as men and women are equally as likely to ride the bus. Of those without regular access to an automobile, 79% use MATBUS. The experiences and thoughts of those students who ride MATBUS will be discussed in more detail in later sections.

Table 4.7 Respondents Who Use MATBUS

	n	Percentage who ride MATBUS
Total	821	59%
Where respondent lives		
On-Campus	334	64%
Off-campus	484	56%
Location of off-campus students		
North Fargo	232	69%
Downtown Fargo	33	76%
Southwest Fargo	61	25%
South central Fargo	77	43%
West Fargo	28	50%
Moorhead	21	48%
Other	31	45%
Distance from campus		
<1/4 miles	81	64%
1/4 to 1/2 miles	73	79%
1/2 to 1 mile	56	77%
1 to 5 miles	130	46%
5 to 10 miles	90	38%
More than 10 miles	53	43%
Class		
Freshman	166	47%
Sophomore	171	67%
Junior	170	61%
Senior	184	58%
Graduate	126	63%
Gender		
Male	295	59%
Female	521	59%
Age		
18-22	595	62%
23-29	152	55%
30-44	53	43%
45-64	12	50%
Access to motor vehicle		
Does not have regular access	115	81%
Has regular access	702	56%

4.6 Transportation to Tri-College Classes

The Tri-College University is a partnership among three higher education institutions in Fargo-Moorhead: NDSU, Concordia College, and Minnesota State University Moorhead. Students at these institutions can take classes from one of the other schools. Transportation, therefore, can be an issue as students need to travel between the campuses. Of the students surveyed, 8% said they have taken a Tri-College course. Students most commonly said they drove to the other campus to attend the class, but 29% of students said they ride MATBUS to travel to the other campus (Figure 4.4). A few students also indicated that the classes were offered online so they did not need to travel to the other campus.

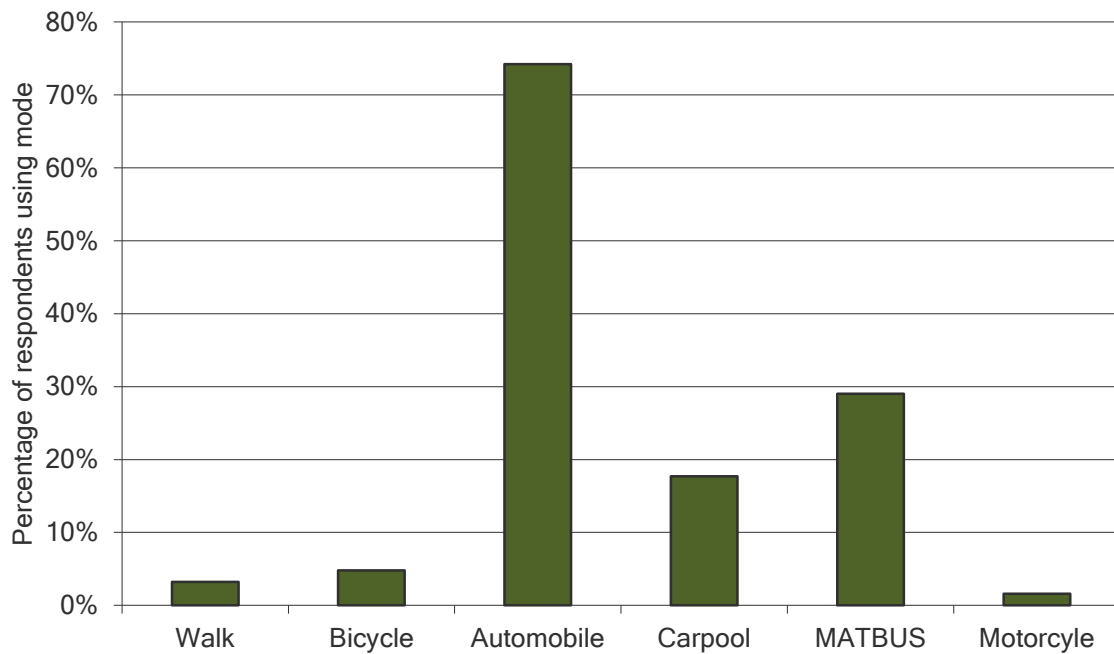


Figure 4.4 Travel Mode to Other Campuses for Tri-College Students

5. RESIDENCY, UNIVERSITY SELECTION, WORK, AND TRAVEL

Just over half (53%) of respondents to the online survey said transportation was a factor when deciding where to live. Students in north Fargo and downtown Fargo were much more likely to say that transportation influenced their choice of where to live (Table 5.1).

Table 5.1 Respondents who Considered Transportation when
Deciding where to Live

	Percentage of Respondents
Total (n=828)	53%
Where respondent lives	
On-Campus (n= 342)	55%
Off-campus (n=486)	51%
Location of off-campus students	
North Fargo (n=234232)	72%
Downtown Fargo (n=33)	67%
Southwest Fargo (n= 61)	21%
South central Fargo (n=77)	31%
West Fargo (n=29)	24%
Moorhead (n=21)	24%
Other (n=32)	25%
Distance to campus for off-campus students	
<1/4 miles (n=81)	74%
1/4 to 1/2 miles (n=73)	77%
1/2 to 1 mile (n=56)	79%
1 to 5 miles (n=130)	42%
5 to 10 miles (n=91)	23%
More than 10 miles (n=54)	20%

Close to half (49%) of respondents to the online survey said they were aware of MATBUS service prior to deciding to study at NDSU, while 7% indicated that MATBUS service impacted their choice of NDSU as place to study.

Prior to coming to NDSU, 46% of the survey respondents lived in Minnesota, 42% lived in North Dakota, 3% lived in South Dakota, 5% lived in another state, and 4% lived in another country. Close to two thirds of students surveyed online work during the academic year. Fifty-five percent have a part-time job and 11% work full time. Sixty-eight percent of those with a job work off campus. Some of these students travel between work and campus.

6. MATBUS RIDER USE

6.1 On-vehicle Respondents

Respondents to the on-vehicle survey were asked the main reason why they chose to use transit for the specific trip they were currently making. The most reported response was convenience, which was identified by 58% of riders. Weather was identified by 12% of participants. Eleven percent of participants stated that they used transit because they had no car. Saving money was reported by 6% of participants.

Participants were asked how they would have made the trip if MATBUS service was not available. Walking was reported by 48% of those surveyed. Just more than one-third of participants stated that they would have driven alone. Four percent of participants stated they would have biked while 6% said they would have carpooled. Two percent would not have made the trip, the same percentage that would have used a taxi.

MATBUS riders were asked what times of day they normally ride the bus. The highest response was from 6 a.m. to 9 a.m., which was made by 56% of participants. This was followed close by 9 a.m. to noon, which was reported by 53% of those surveyed. The responses fell dramatically after noon and even more in the evening. Only 29% stated they ride from noon to 3 p.m., 21% from 3 p.m. to 6 p.m., and 9% from 6 p.m. to 10 p.m. Regular transit use times are presented in Figure 6.1.

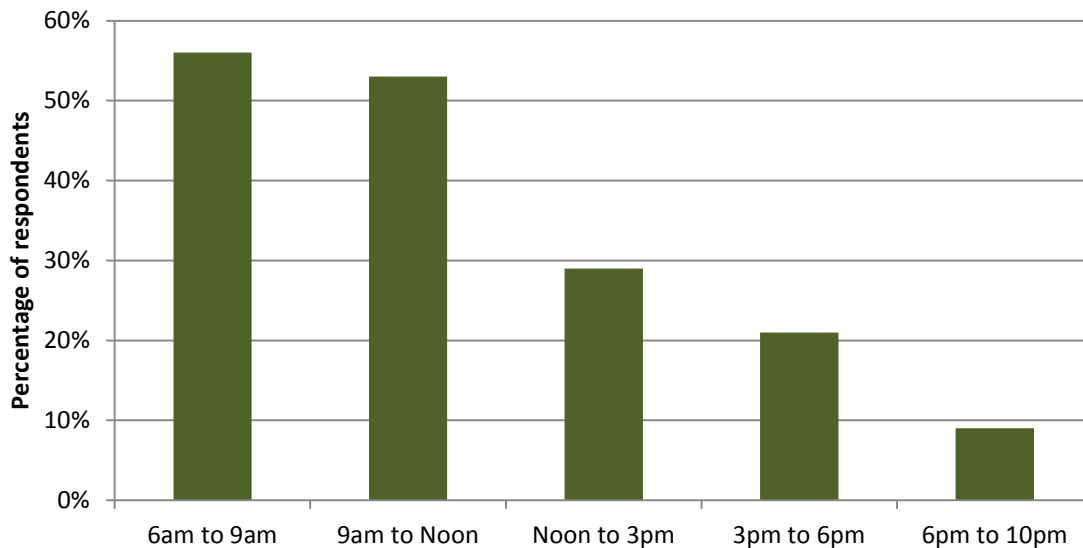


Figure 6.1 Regular Transit Use Times, On-vehicle Survey

Riders who have ridden less than a year made up 43% of survey respondents. Just more than half of survey participants stated that they have been riding transit for between one and five years. Participants were asked for what purposes they use MATBUS. Ninety-six percent identified using transit to travel to or from school, and 85% stated school was the only reason they rode.

Two-thirds of those surveyed stated they would wait 10 minutes for the next bus. One in six would wait 20 minutes, the same amount that stated they would only wait five minutes.

Riders were asked how they typically spend their time when riding MATBUS. Just less than half of survey participants said that they relax when riding MATBUS. The second most common response was talking with friends, which was reported by 37% of those surveyed. Listening to music was reported by 29% of riders, while one-fourth reported texting while riding. Reading was identified by 15% of MATBUS riders. Figure 6.2 presents activities of MATBUS riders.

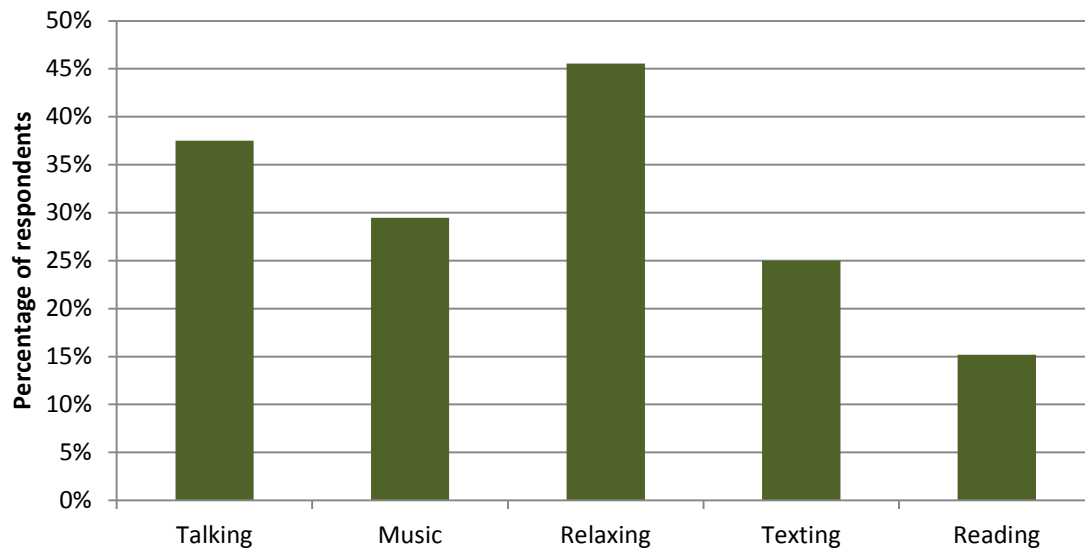


Figure 6.2 Time Use while Riding, On-Vehicle Respondents

6.2 Online Survey Respondents

The online survey tended to find similar results, with some differences. It found that many of the students who ride the bus are relatively new to using MATBUS. Almost half (49%) said they have been using MATBUS for less than 1 year. Most of the remainder said they have been using the service for 1 to 5 years, and just 3% have been riding MATBUS for more than 5 years. These percentages are similar to what was found in the onboard survey, with slightly higher number of newer riders.

The times students ride the bus is spread throughout the day, but the heaviest usage is between 9 a.m. and 3 p.m. (Figure 6.3). These results differ from those found in the on-vehicle survey. The on-vehicle survey found higher percentages of riders in the morning, as shown in Figure 6.1, but this should be expected given the on-vehicle survey was conducted during those times. The online survey should provide a more accurate depiction of the times students normally ride the bus.

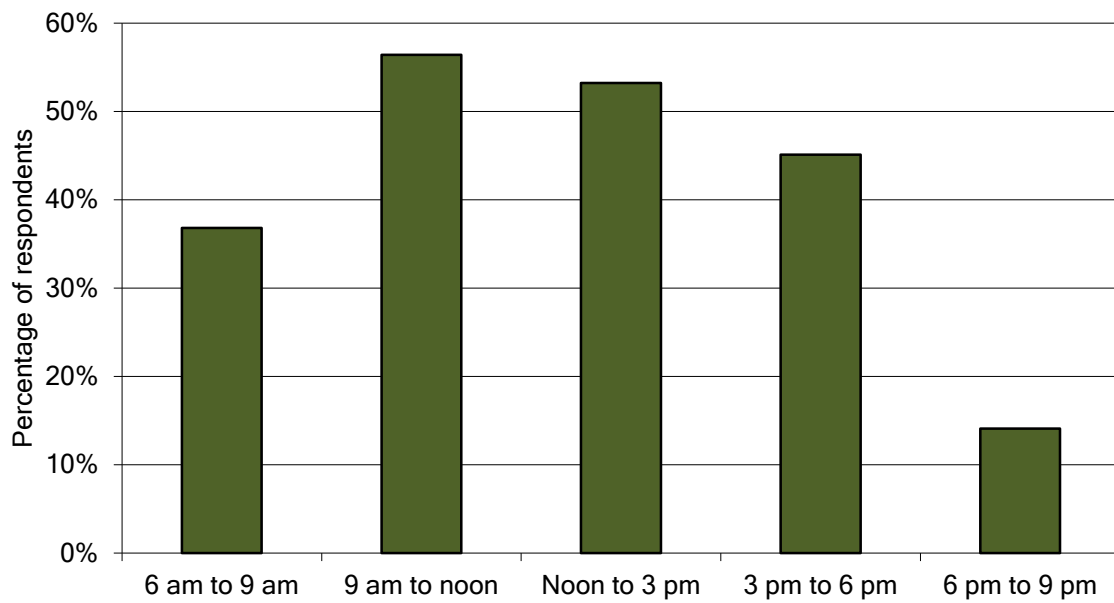


Figure 6.3 Times Respondents Normally Ride the Bus, Online Survey

Some of the students are regular bus riders, making multiple trips per day, while others are infrequent riders. Twenty-nine percent of the bus riders surveyed said they ride less than once per week (Figure 6.4). On the other end of the spectrum, 12% reported that they take 11 or more bus trips per week. A majority of the respondents take 1 to 10 bus trips per week.

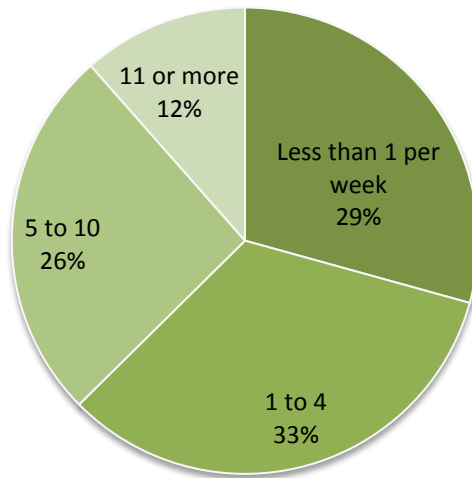


Figure 6.4 Number of One-Way Bus Trips Made Per Week by Transit Users

Like those who completed the on-vehicle survey, respondents to the online survey predominantly ride the bus for school-related trips, as 89% said the purpose of their bus trip is school. Fifteen percent reported that they ride for social or recreational purposes; 11% ride for shopping trips, 10% used the bus for work trips, and smaller percentages reported using the bus for other types of trips (Figure 6.5).

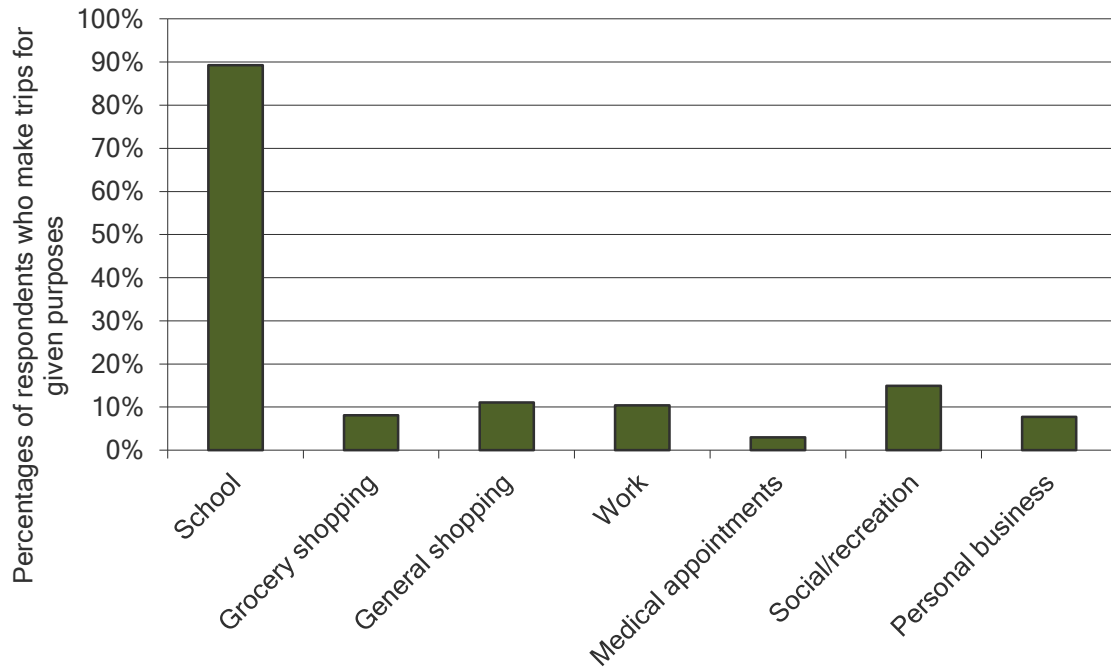


Figure 6.5 Trip Purposes for Bus Trips

7. MATBUS RIDER OPINIONS

7.1 On-vehicle Survey Respondents

Participants were asked questions about their opinions on MATBUS quality, driver attitude, and driver skill and safety. Eighty-nine percent of respondents to the on-vehicle survey rated overall MATBUS quality as good or excellent, 88% rated driver attitude as good or excellent, and 87% rated driver skill as good or excellent. Rider opinions of MATBUS are presented in Figure 7.1.

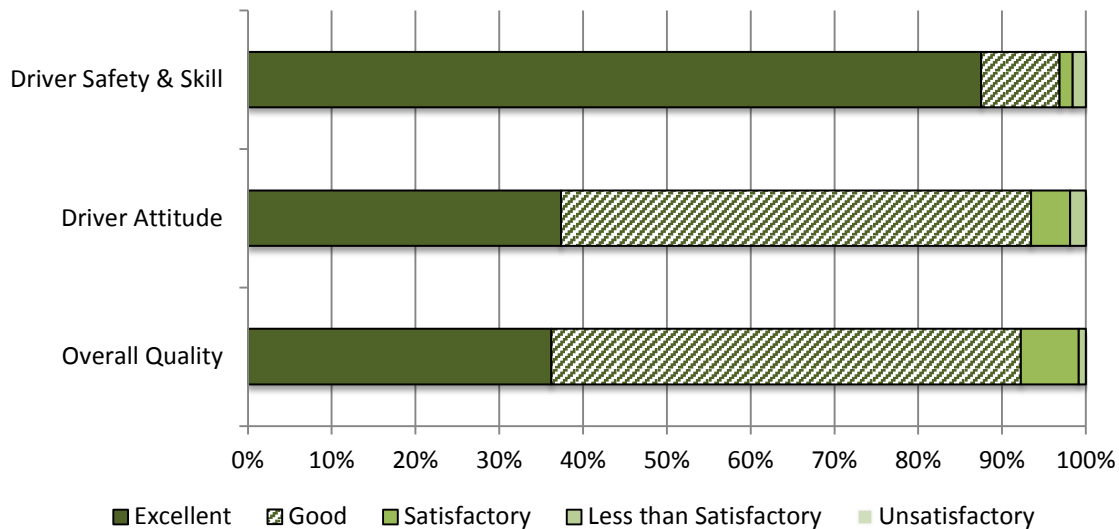


Figure 7.11 Satisfaction with MATBUS Service, On-vehicle Respondents

While respondents rated service favorably, they did indicate problems with late buses. More than three-fourths of survey participants, 77%, stated that MATBUS is occasionally late, and 8% reported that it is often late.

Of participants, 77% said there is an adequate number of buses in service. Approximately the same number of respondents, 78%, stated that the hours of service are adequate. Forty-one percent of participants, meanwhile, stated that they have been unable to board a bus because it was full.

7.2 Online Survey Responses

Responses to the online survey were fairly similar. Online respondents indicated they are mostly satisfied with the quality of MATBUS service. In fact, the responses were again quite favorable. Twenty-two percent of respondents rated the overall quality of MATBUS service as being excellent, 59% rated it good, and 17% rated it satisfactory (Figure 7.2). Just 3% of respondents rated MATBUS quality of service as less than satisfactory or unsatisfactory. Respondents also gave favorable responses regarding the drivers in terms of attitude/customer service and driving skill and safety.

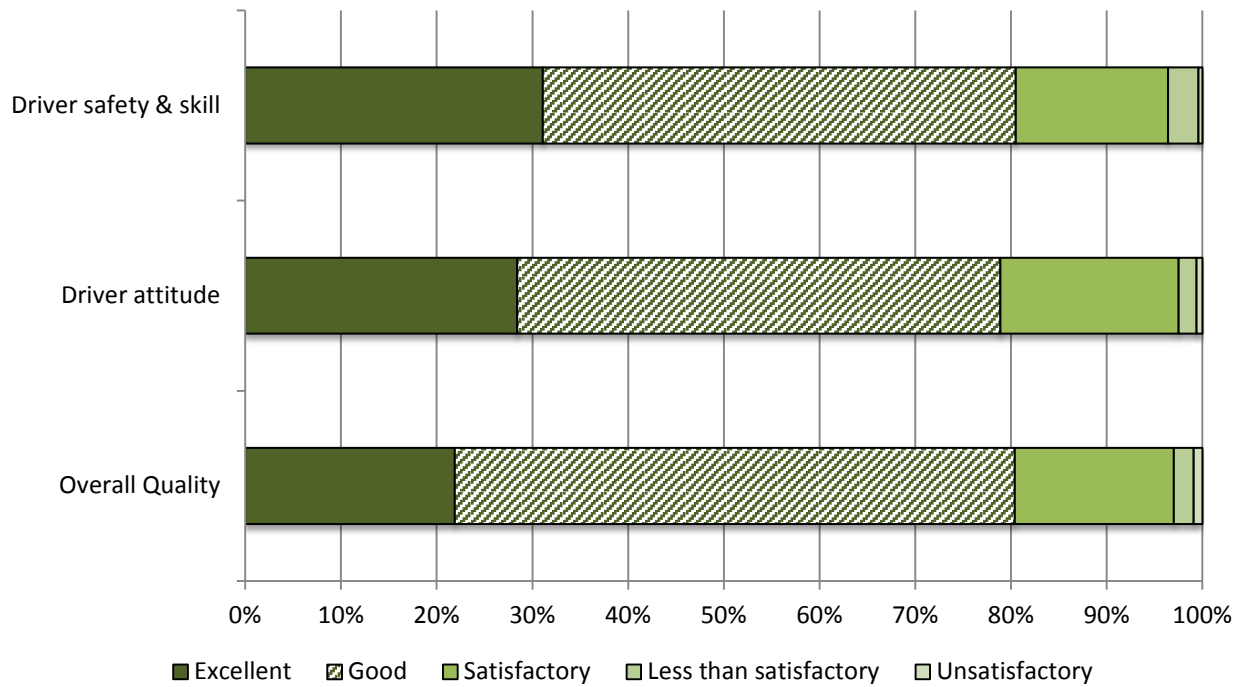


Figure 7.2 Satisfaction with MATBUS Service, Online Respondents

There are some differences in how respondents rated the quality of service based on where the respondents live, how long they have been using MATBUS, and which routes they ride, but the differences are mostly minor, if not inconsequential (Table 7.1).

Table 7.1 Satisfaction with MATBUS Quality of Service by Individual Characteristics

	n	Excellent	Good	Satisfactory	Less than satisfactory	Unsatisfactory
-----Percentage of Respondents-----						
On-campus students	209	23	61	13	2	0
Off-campus students	261	21	56	19	2	1
North Fargo	154	18	56	21	3	1
Downtown Fargo	24	33	46	13	4	4
Southwest Fargo	15	13	60	27	0	0
South central Fargo	32	22	56	22	0	0
West Fargo	13	38	54	8	0	0
Moorhead	9	11	89	0	0	0
Other	13	31	46	23	0	0
Distance from campus						
<1/4 miles	51	14	55	22	8	2
1/4 to 1/2 miles	58	21	59	21	0	0
1/2 to 1 mile	39	26	49	26	0	0
1 to 5 miles	60	17	62	15	3	3
5 to 10 miles	31	26	58	16	0	0
More than 10 miles	22	36	50	14	0	0
How long respondent has been using MATBUS						
< 1 year	226	26	55	18	1	0
1 to 5 years	230	17	63	15	3	1
More than 5 years	13	38	38	23	0	0
Has regular access to motor vehicle						
Yes	377	23	60	15	2	1
No	92	18	52	24	3	2
Number of trips taken per week						
Less than 1	135	24	56	15	4	1
1 to 4	154	19	62	17	1	1
5 to 10	121	21	60	17	2	1
11 or more	54	26	54	19	2	0
Route respondent rides						
2	13	0	23	77	0	0
13a	161	17	57	20	4	2
13b	174	18	59	18	3	2
15	45	22	47	24	4	2
16	11	9	36	45	0	9
31	71	34	46	18	1	0
32	165	21	60	18	1	0
33	211	18	63	16	1	1
34	124	19	62	17	2	0
35	12	17	58	25	0	0

One area of concern, however, is buses being late. The survey asked respondents how often buses are late, which was defined as arriving more than 5 minutes after the printed schedule time. One quarter of respondents said buses are never late, while 62% said they are occasionally late, 13% indicated that they are often late, and 1% answered that buses are always late (Figure 7.3).

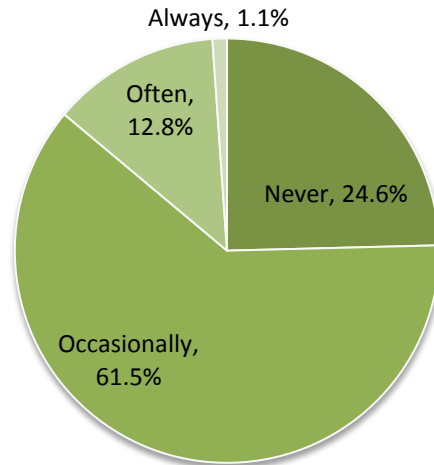


Figure 7.3 How Often Students Report Buses are Late, Online Survey Results

Responses to this question were examined to determine if there are any particular areas or routes that are more likely to experience problems with buses being late (Table 7.2). Students, however, tended to give similar responses regardless of where they lived. One exception is that respondents living in southwest Fargo were less likely to report problems with late buses, but the sample of students living in this area is small. There are some differences based on which routes the students ride, though the sample sizes are too small for many of the routes to make any conclusions. The results do suggest, though, that late buses are more of a problem on routes 13 and 15, and routes 31, 32, and 33 have fewer problems with running late.

Table 7.2 How Often Students Report Buses are Late, by Student Residence and Routes Used

	n	Never	Occasionally	Often	Always
		-----Percentage-----			
On-campus students	206	26	58	15	1
Off-campus students	261	24	64	11	1
North Fargo	153	20	67	12	1
Downtown Fargo	24	25	58	13	4
Southwest Fargo	15	60	33	7	0
South central Fargo	32	31	53	16	0
West Fargo	13	23	77	0	0
Moorhead	10	10	80	10	0
Other	13	23	77	0	0
Route respondent rides					
2	13	0	38	54	8
13a	159	14	63	21	2
13b	172	13	66	19	1
14	9	11	33	56	0
15	44	18	55	25	2
16	11	9	55	27	9
31	72	25	67	8	0
32	164	20	70	9	1
33	212	27	58	14	1
34	121	17	71	12	1
35	11	18	55	27	0

Most students said they are willing to wait less than 20 minutes for the next bus, while 8% said they could wait 20 minutes and 1% could wait 30 minutes (Figure 7.4).

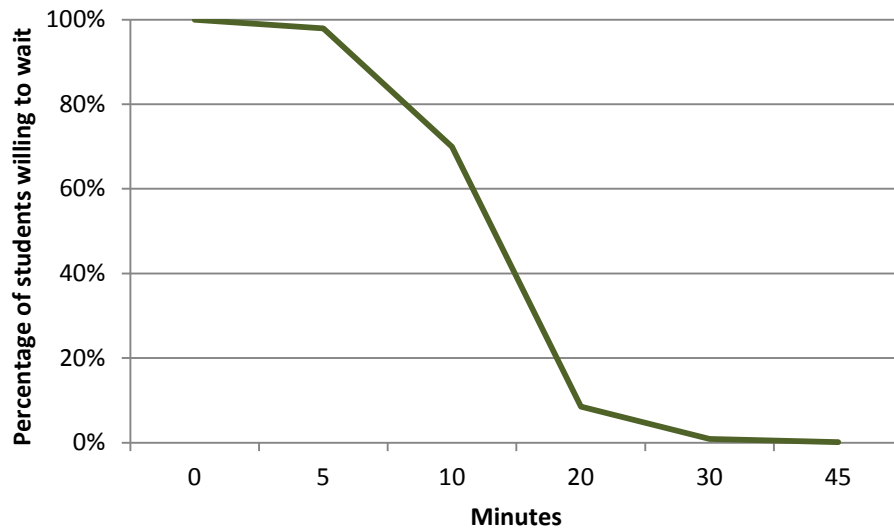


Figure 7.4 Willingness to Wait for the Next Bus

Another problem students face is buses being too crowded. Forty-six percent of the respondents said they have been unable to board a bus, at least once, because it was too full (Table 7.3). Riders on routes 32, 33, 34, and 35 were more likely to have reported this problem. More frequent riders were also more likely to have had this problem, which would be expected.

Table 7.3 Bus too Full to Board

	n	Has ever been unable to board bus because it was full
Total	472	46%
Area of Residence		
On-Campus	210	48%
Off-campus	262	45%
North Fargo	154	47%
Downtown Fargo	24	33%
Southwest Fargo	15	40%
South central Fargo	32	41%
West Fargo	13	69%
Moorhead	10	30%
Other	13	46%
Number of trips respondents takes per week		
Less than 1	137	25%
1 to 4	154	45%
5 to 10	121	62%
11 or more	54	70%
Route respondent rides		
2	14	29%
13a	162	40%
13b	176	47%
15	45	42%
31	72	47%
32	165	56%
33	212	58%
34	124	56%
35	12	83%

Regarding MATBUS's current hours of service, 75% of respondents thought they are adequate, while 25% said current service hours are not adequate (Table 7.4). Responses to this question did not vary significantly by the student's area of residence, but those who have been riding longer or who are more frequent riders are less likely to be satisfied with the hours of service. This finding makes sense because those who ride more often are likely more dependent on transit and, therefore, would be more affected by hours of service. Similarly, those without regular access to a vehicle were less likely to say that MATBUS hours of service are adequate.

Table 7.4 Satisfaction with Hours of Service

	n	Thinks MATBUS hours of service are adequate
Total	468	75%
Area of residence		
On-Campus	209	73%
Off-campus	259	77%
North Fargo	153	75%
Downtown Fargo	24	83%
Southwest Fargo	15	73%
South central Fargo	30	77%
West Fargo	13	85%
Moorhead	10	90%
Other	13	85%
How long respondent has been riding		
<1 year	223	78%
1 to 5 years	231	73%
More than 5 years	13	62%
Number of trips respondent takes per week		
Less than 1 per week	134	82%
1 to 4	155	79%
5 to 10	120	67%
11 or more	53	68%
Access to motor vehicle		
Does not have regular access	91	59%
Has regular access	376	79%

7.3 Thoughts on How to Improve Service

The onboard and online surveys included an open-ended question that provided students the opportunity to suggest how bus service in the Fargo-Moorhead metro area could be improved. Although the students gave mostly favorable ratings of MATBUS service, a number of respondents also provided comments on how they think service could be improved. Comments included having more buses on each route (especially during peak times), increasing service frequency, adding additional routes and stops, extending hours, providing service on Sundays, providing more information, giving information on real-time bus location, and having warmer shelters. One of the most common comments received is that MATBUS needs to increase on-time arrivals. Many respondents reported problems both with buses being too late or too early. Many also suggested having more direct routes, including direct routes from campus to other areas such as south Fargo or West Acres that avoided the Ground Transportation Center (the main transfer hub downtown). A number of students commented that travel times on MATBUS are too long.

8. MATBUS INFORMATION AND MARKETING

8.1 On-vehicle Respondents

Nearly all participants in the on-vehicle survey, 93%, stated that information on MATBUS is readily available. Respondents were asked to identify which methods they prefer to receive information about MATBUS services from, and they were allowed to choose more than one source. The results show that student riders get their information from a number of sources, with email being the most preferred, but no single method is preferred by a majority of riders. Just less than half stated that they prefer to receive information via email (Figure 8.1). The NDSU and MATBUS webpages were preferred by 31% and 22% of respondents, respectively. Facebook, Twitter, texts, and other mediums were preferred by smaller percentages of respondents.

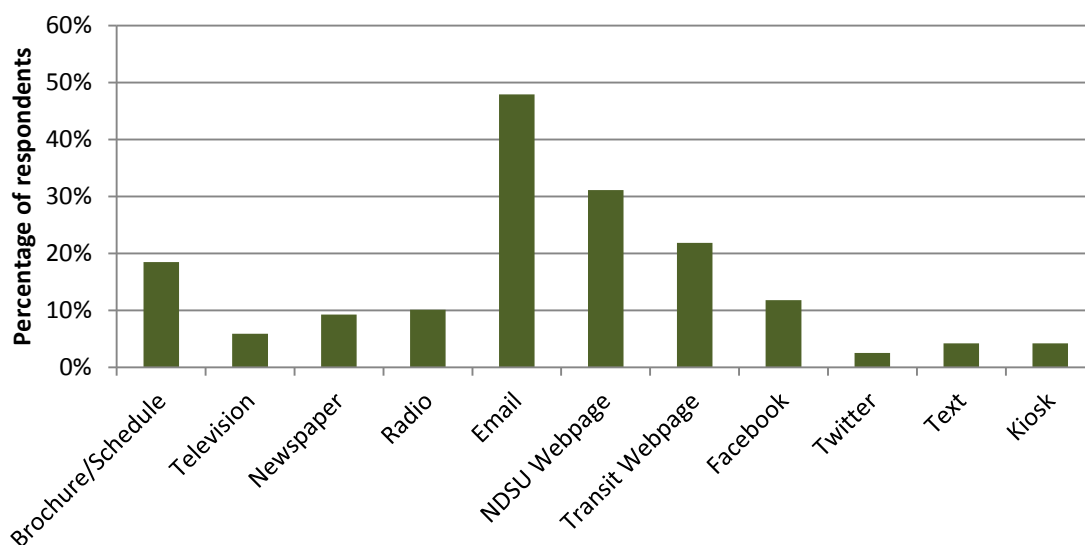


Figure 8.1 Preferred MATBUS Information Sources, On-vehicle Respondents

Two-thirds of those riders surveyed stated that they use the MATBUS schedule to plan trips, and 62% reported using informational kiosks to do so; 45% would use travel information that was texted to them.

Three-fourths of survey participants stated that they had noticed recent MATBUS advertisements. Two-thirds of these stated that they had seen them on MATBUS shelters, 28% in The Spectrum (NDSU's student newspaper), and 8% of them on Facebook. The location of MATBUS advertisements, as noticed by riders, is presented in Figure 8.2. Of those that noticed the advertising, 21% stated it impacted their travel behavior while 61% said it positively impacted their perception of transit.

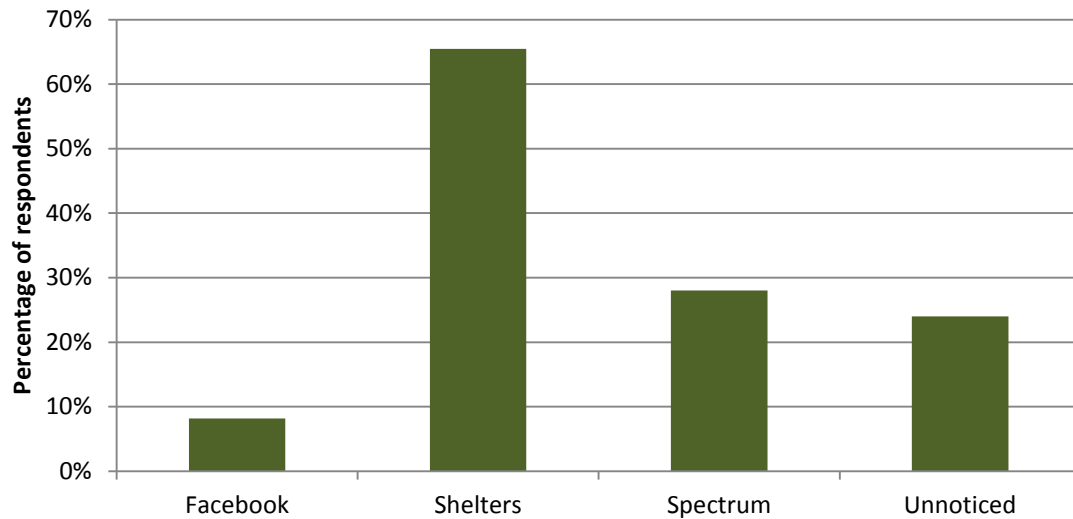


Figure 8.2 MATBUS Advertising Locations Noticed by Student Riders, On-Vehicle Respondents

8.2 Online Respondents

Eighty-six percent of all student respondents to the online survey, including riders and non-riders, believe that information on MATBUS service is easily available (Figure 8.3). Of those who ride the bus, 92% said information is easily available (nearly identical to the result from the on-vehicle survey), and 78% of non-riders said the same.

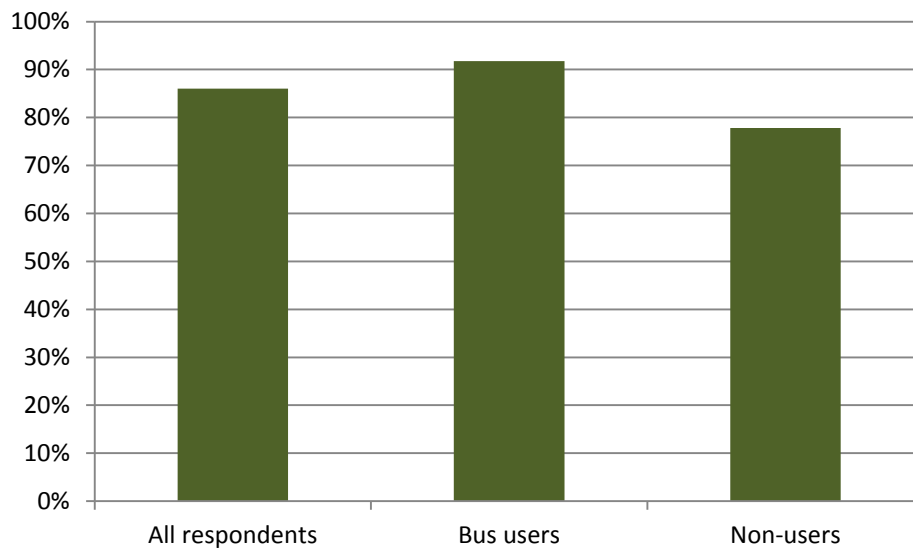


Figure 8.3 Percentage of Respondents who Believe Information on MATBUS Service is Easily Available, Online Respondents

Different results were found in the online survey regarding the preferred method for receiving information. The most preferred methods were a brochure/schedule, the NDSU transit webpage, and email, which were all chosen by more than half of respondents (Figure 8.4). Among the newer and more technologically advanced methods, 19% chose Facebook, 2% chose Twitter, 15% picked text alerts, and 33% favored kiosks. MATBUS users and non-users tended to give

similar answers to this question, except users were significantly more likely to indicate a preference for the kiosks.

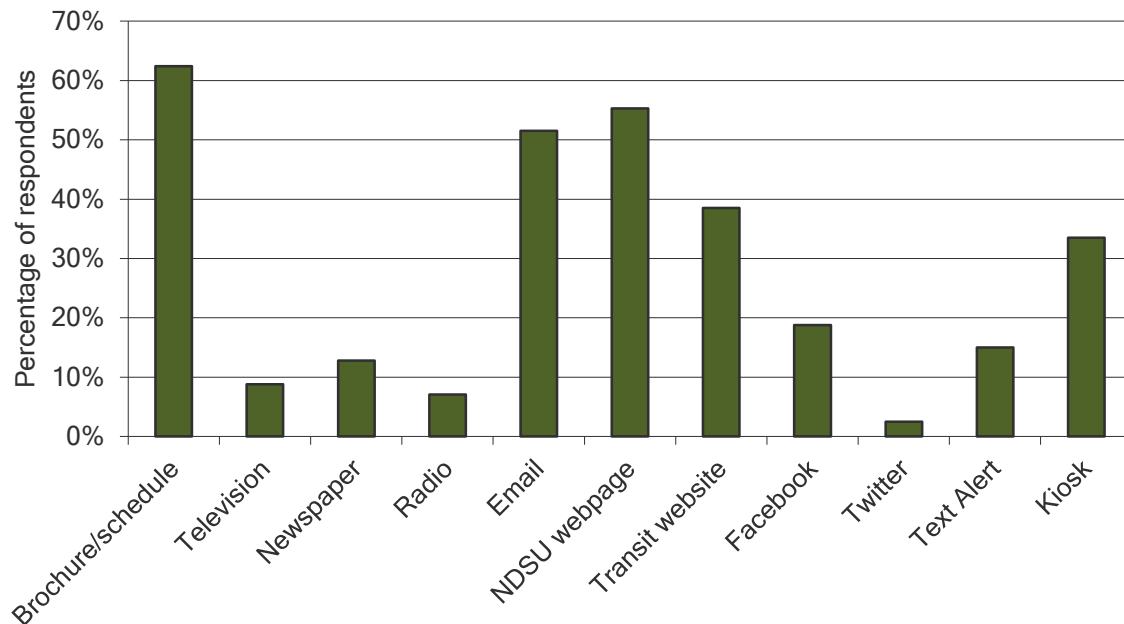


Figure 8.4 Preferred Sources of Information

Among the MATBUS users, 64% said that they use information kiosks to monitor arrival times or schedule trips, similar to what was found in the on-vehicle survey (Figure 8.5).

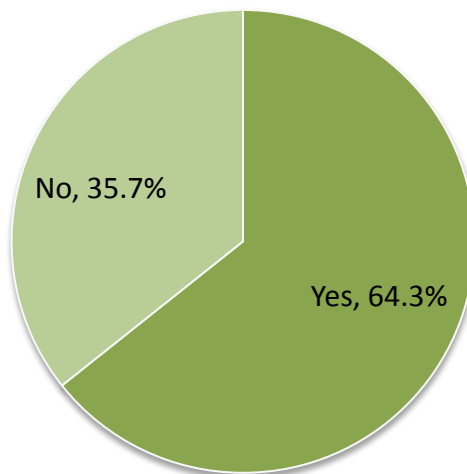


Figure 8.5 MATBUS Riders Who Use Information Kiosks

Most of the MATBUS riders (84%) who make trips between the main and downtown campus use the MATBUS schedule to plan their trips.

Survey results indicate that students prefer information to be made available online. Eighty-eight percent said they would find a website that displays real-time location of buses useful. Bus users and non-users expressed similar interest in real-time location online. Although not as popular, a majority of students (53%) said they would use information on bus arrival times if they were texted to their mobile device. Among MATBUS riders, 56% said they would use such information, which is a little higher than was found in the on-vehicle survey.

Despite a preference for online information, less than half (45%) of respondents said they have visited the MATBUS website, though there is a significant difference between MATBUS users and non-users. Fifty-seven percent of users have visited the MATBUS website, compared to 27% of non-users. Only 4% of students responding to the survey said they have visited the MATBUS Facebook page; 6% of MATBUS users said they have visited the Facebook page.

MATBUS has been conducting an advertising campaign targeted at NDSU students, with advertisements located in the bus shelters, the student newspaper – The Spectrum, and on Facebook. Most students (95%) responding to the survey said they have noticed the advertisements at the bus shelters, and close to half (46%) said they have noticed them in The Spectrum, while 10% have seen them on Facebook.

The survey shows that these advertisements have had some impact on students. Fifty-seven percent of respondents said the advertisements have positively impacted their perception of transit, and 10% said they have impacted their travel behavior, meaning they ride transit more. Table 8.1 summarizes the responses students gave regarding information and marketing of MATBUS services, with difference between bus users and non-users shown.

Table 8.1 Information and Marketing

	Percent answering yes		
	All students	Users	Non-users
Do you believe that information on MATBUS service is easily available?	86%	92%	78%
Would you find a website that displays the real-time location of buses useful?	88%	87%	88%
Would you use information on bus arrival times if they were texted to your mobile device?	53%	56%	50%
Have you noticed MATBUS advertisements in any of the following?			
The Spectrum	46%	44%	51%
Bus shelters	95%	97%	92%
Facebook	10%	12%	6%
Have these advertisements impacted your travel behavior (do you ride MATBUS more)?	10%	15%	2%
Have the advertisements positively impacted your perception of transit?	57%	61%	50%
Have you visited the MATBUS website?	45%	57%	27%
Have you visited the MATBUS Facebook page?	4%	6%	2%

9. WIRELESS INTERNET ON BUSES

Some transit agencies have begun adding wireless Internet access on their buses to improve the rider experience and attract new riders. The survey asked questions regarding student interest in using Wi-Fi on buses. About one-third, 35%, of those who completed the on-vehicle survey said they would use wireless service on MATBUS if it were available. The online survey, on the other hand, found that 75% of current transit riders might use it, though many said they would use it rarely (28%) or just occasionally (30%). Sixteen percent said they would use it frequently. The survey also revealed that one third of current riders already access the Internet on a mobile device when riding the bus. The increased prevalence of mobile devices with Wi-Fi capabilities could increase demand for Wi-Fi access.

One possible objective of providing wireless Internet on buses is to increase ridership. The online survey found there may be some positive impact on ridership if Wi-Fi was provided. Twenty-seven percent of transit riders said they would ride MAT buses more often if they had free wireless Internet access. Of those who do not ride MATBUS, 9% said they would be more likely to ride the bus, and 25% answered that they could possibly be more likely to ride if it had free wireless Internet.

The short length of bus trips could limit the demand for Internet access, however. If riders are spending a short time onboard, they are less likely to find access to Internet to be worthwhile, especially if they are using a laptop computer. Forty-two percent of MATBUS riders said they would use a laptop computer to access the Internet, while 37% would use a cell phone. The percentage that would use a cell phone will likely grow over time as the use of smartphones continues to increase.

The survey asked students how long the bus trip would have to be for them to use wireless Internet. Of those who indicated that they would use it, 27% said the bus ride would need to be at least 20 minutes, and 20% said it would need to be at least 15 minutes. Typical bus rides (time spent on one bus, not including transfers) are shorter than this. The average bus ride, as indicated by survey respondents, is 12.5 minutes long. Seventeen percent of potential Internet users said they would access the Internet no matter the trip time, 13% said it would need to be at least 5 minutes, and 23% answered a minimum trip length of 10 minutes for using Wi-Fi.

The increased prevalence of smartphones and tablets will likely reduce the time constraints as riders can quickly access the Internet on their easily accessible devices. It is not clear how increased use of these devices will impact demand for Wi-Fi. Riders with these devices could access the Internet with their cell phone service, possibly negating some of the benefit of a Wi-Fi connection. However, those without unlimited data plans would benefit from free Wi-Fi access, and all users would benefit from the faster download speeds available from a Wi-Fi connection.

10. WILLINGNESS TO SUPPORT TRANSIT SERVICE

NDSU students are currently allowed to ride free on MATBUS on all routes and at all times as part of the U-Pass program. NDSU pays a fee to MATBUS to participate in this program. The survey asked students how much they would be willing to pay each semester, as part of their student fees, to keep MATBUS service fare-free.

10.1 On-vehicle Respondents

Twenty-three percent of on-vehicle respondents stated that they were unwilling to pay a semester fee (Figure 10.1). Twenty-nine percent said they would pay up to \$10 per semester, and 26% said they were willing to pay more than \$10 but not more than \$20 per semester. That leaves 22% who said they were willing to pay more than \$20 per semester, including 11% who are willing to pay more than \$30 and 7% who would pay more than \$50 per semester.

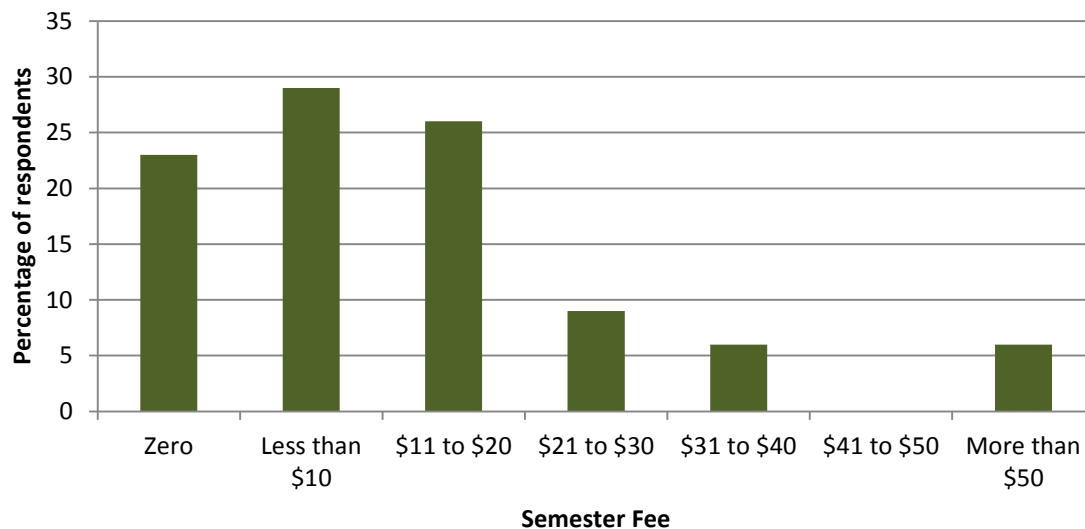


Figure 10.1 Willingness to Pay for U-Pass, On-vehicle Respondents

10.2 Online Respondents

Twenty-two percent of online respondents said they would not be willing to pay anything (almost identical to the on-vehicle survey), while 35% would be willing to pay up to \$10, 25% would be willing to pay \$11 to \$20, and 11% would be willing to pay \$21 to \$30. Eight percent would be willing to pay more than \$30 per semester, including 6% who would pay more than \$40 and 2% who would pay more than \$50 (Figure 10.2).

As might be expected, transit users were more likely to indicate a willingness to pay than non-users. For example, just 11% of users said they would not pay, compared to 37% of non-users. Further, 53% of users would be willing to pay more than \$10 per semester, compared to 30% of non-users. It might actually be surprising that a majority of non-users said they would be willing pay at least something in student fees to keep the service fare-free, indicating they value the service even if they do not use it.

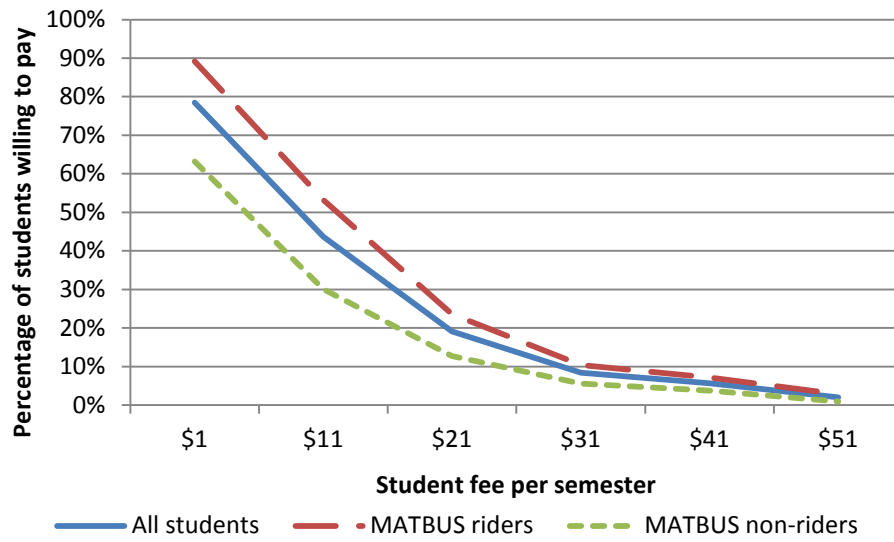


Figure 10.2 Willingness to Pay Student Fees to Keep Bus Rides Fare Free, Online Respondents

11. PARKING

As previously noted, parking cost and availability can influence which mode of travel students use. Fifty-three percent of the students responding to the online survey have a parking permit (Table 11.1). On-campus students are more likely to have a parking permit than those living off-campus. Off-campus students living near campus are the least likely to have a parking permit. Just 13% of off-campus students living within a half mile of campus have a parking permit. Overall, 42% of off-campus students responding to the survey have a parking permit.

Table 11.1 Students with Parking Permits

	n	Have NDSU parking permit
Total	796	53%
Area of residence		
On-Campus	325	68%
Off-campus	468	42%
North Fargo	227	23%
Downtown Fargo	30	43%
Southwest Fargo	61	77%
South central Fargo	74	55%
West Fargo	26	73%
Moorhead	20	60%
Other	29	45%
Distance from campus		
<1/4 miles	80	14%
1/4 to 1/2 miles	72	13%
1/2 to 1 mile	52	37%
1 to 5 miles	127	62%
5 to 10 miles	88	65%
More than 10 miles	49	45%

Figure 11.1 shows the parking lots on campus and the percentages of respondents that have a permit for each.

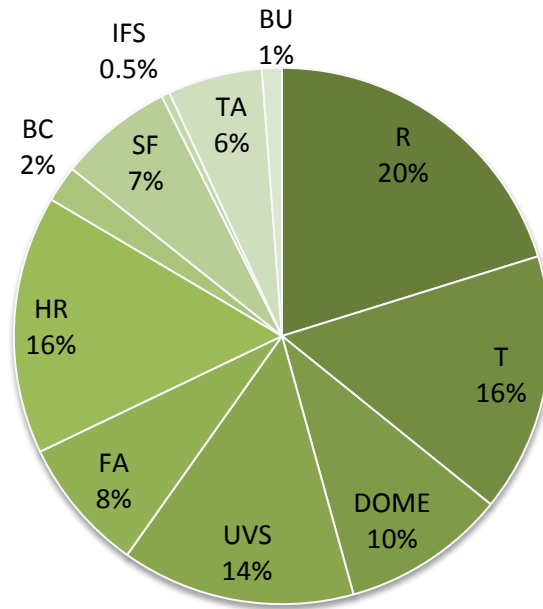


Figure 11.1 Parking Lots for which Students have Permits

Those with parking permit were asked to rate how convenient and affordable it is to park on campus. Respondents were most likely to say that NDSU parking is somewhat convenient and somewhat affordable (Figures 11.2 and 11.3). Twenty-five percent answered that parking is either inconvenient (15%) or very inconvenient (10%), while 22% said parking is either unaffordable (17%) or very unaffordable (5%).

MATBUS riders were more likely than non-riders to say that parking is inconvenient or unaffordable, suggesting that those who find parking to be inconvenient or who are more sensitive to the cost of parking are more likely to ride the bus. The survey showed that 34% of transit users find parking at least somewhat inconvenient, compared to 17% of non-users. Similarly, 27% of transit users find parking to be at least somewhat unaffordable, compared to 18% of non-users.

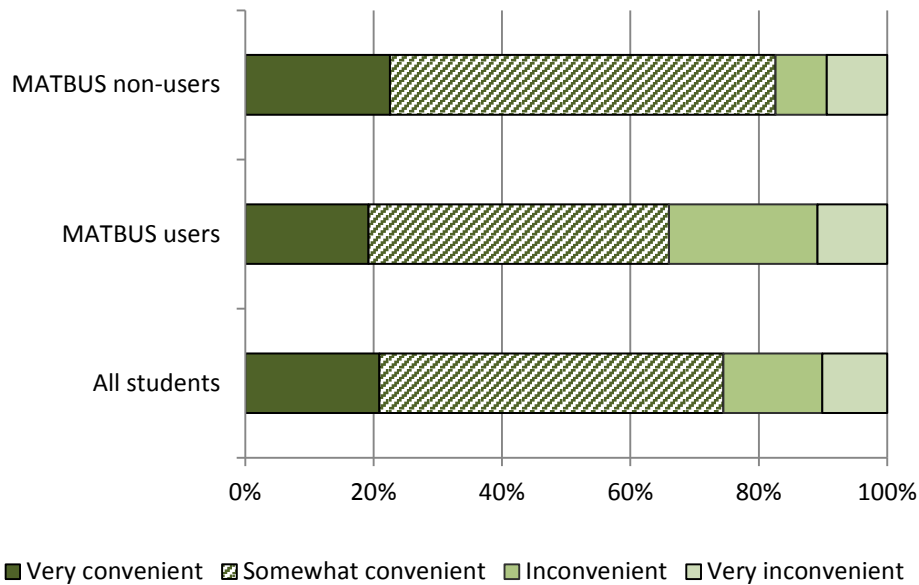


Figure 11.2 Student Thoughts on the Convenience of On-Campus Parking



Figure 11.3 Student Thoughts on the Affordability of On-Campus Parking

The survey also revealed that 44% of respondents with a parking permit have, at least once, parked their vehicle on a street near campus.

12. SUMMARY AND CONCLUSIONS

The two surveys captured a significant amount of information regarding student travel behavior, use of transit, and opinions about current MATBUS service. The on-vehicle survey collected responses from 120 individuals, mostly NDSU students, while the online survey of NDSU students received 858 responses, including responses from both transit users and non-users. Some of the major findings from the surveys are as follows.

A substantial percentage of respondents (86%) have regular access to a motor vehicle, including most off-campus students (95%) and about three-fourths of on-campus students. Off-campus students reported using a variety of transportation modes when traveling to campus. Fifty-seven percent said the automobile was their most commonly used mode of travel, while 24% reported they will most often walk and 13% said riding MATBUS is their most used mode of transportation. Students living closer to campus are much more likely to walk, ride bicycle, or ride MATBUS and less likely to drive than those living farther away.

For students less than one-quarter mile from campus, walking tends to be just as fast as driving and is faster than riding MATBUS, which explains why walking is the most preferred option. For distances greater than a quarter mile, MATBUS tends to be faster than walking, and it gains mode share. Time savings for automobile travel expectedly increases with distance from campus, corresponding with the automobile's increase in mode share. Comparing travel times with mode shares suggests that the former has a major influence on the latter.

Convenience, travel time, and weather are found to be the most significant factors influencing which mode of transportation is used to travel to campus. Travel time and convenience become more important for those living farther from campus, while those living close to campus are highly influenced by the weather when deciding how to travel to campus. The survey found that students are more willing to walk longer distances when the temperature is above freezing.

Fifty-nine percent of respondents to the online survey said they use MATBUS. Almost half of these respondents have been riding MATBUS for less than a year, and few have been riding for more than 5 years. Some of the students are regular bus riders, making multiple trips per day, while others are infrequent riders. Students predominantly ride the bus for school-related trips. Survey respondents gave mostly favorable ratings for MATBUS overall quality, as well as driver safety and skill and driver attitude. Seventy-five percent of respondents to the online survey said MATBUS's current hours of service are adequate, as did 78% of respondents to the on-vehicle survey.

One area of concern, however, is buses being late. Sixty-two percent of respondents to the online survey said they are occasionally late and 13% indicated that they are often late.

Although the students gave mostly favorable ratings of MATBUS service, a number of respondents also provided comments on how they think service could be improved. Comments included improving on-time performance, providing more direct routes, having more buses on each route (especially during peak times), increasing service frequency, adding additional routes and stops, extending hours, providing service on Sundays, providing more information, giving information on real-time bus location, and having warmer shelters. A number of students commented that travel times on MATBUS are too long.

Most students agreed that information on MATBUS is readily available. Students prefer to get information from a number of different sources. The most preferred methods are brochure/schedule, the NDSU transit webpage, and email.

Eighty-eight percent of respondents to the online survey said they would find a website that displays real-time location of buses useful. Although not as popular, about half of the students (53% of respondents to the online survey and 45% of respondents to the on-vehicle survey) said they would use information on bus arrival times if they were texted to their mobile device. Most students have noticed the MATBUS advertisements in the bus shelters, while less than half have seen them in the campus newspaper, and a small percentage have seen them on Facebook. More than half said the advertisements have positively impacted their perception of transit, while 21% of onboard respondents and 10% of online respondents said the advertisements have affected their travel behavior.

About 22% of respondents to the two surveys said they would be willing to pay any semester fee to keep MATBUS fare-free. Respondents most commonly said they would be willing to pay up to \$20 per semester.

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