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Authors
Shaheen, Susan A
Allen, Denise
Liu, Judy

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Susan A. Shaheen

Denise Allen

Judy Liu

PUBLIC TRANSIT TRAINING: A MECHANISM TO INCREASE RIDERSHIP AMONG OLDER ADULTS

Susan A. Shaheen, Ph.D.
Honda Distinguished Scholar in Transportation, University of California, Davis, &
Co-Director, Transportation Sustainability Research Center (TSRC)
University of California, Berkeley
1301 S. 46th Street. Bldg 190; Richmond, CA 94804-4648
510-665-3483 (O); 510-665-2183 (F); sashaheen@tsrc.berkeley.edu; sashaheen@ucdavis.edu

Denise Allen
Research Associate, Transportation Sustainability Research Center (TSRC)
University of California, Berkeley
1301 S. 46th Street. Bldg 190; Richmond, CA 94804-4648
510-665-3467 (O); 510-665-2183 (F); dallen@tsrc.berkeley.edu

Judy Liu
Student Assistant, Transportation Sustainability Research Center (TSRC)
University of California, Berkeley
1301 S. 46th Street. Bldg 190; Richmond, CA 94804-4648
510-665-3646 (O); 510-665-2183 (F); jliu86@berkeley.edu

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ABSTRACT

In the United States, the older adult community is forecast to more than double by 2030. Research is needed to address their increasing mobility needs and perceived public transit barriers. In this paper, researchers evaluate the effectiveness of the Rossmoor Senior Adult Community transit training class (Walnut Creek, California). In Summer 2007, surveys were implemented before-and-after transit training sessions to assess changes in attitudes and intended transit behaviors. Surveys also were administered to participants who had taken the training course over the past two years to identify any longer-term changes in public transit use (longitudinal survey). Results of the 'before-and-after" survey revealed a positive shift in participant comfort levels in taking public transportation and increased confidence in locating transit information. The majority of respondents (85.7%) stated that they planned to take transit more frequently after training. Longitudinal survey results revealed a significant decrease in private auto use as their primary transportation mode after training. Bus and transit information resource use increased significantly after training. Results from both study populations indicate that training may have an immediate impact on attitudes towards public transit and resulted in longer-term travel behavioral changes.

Key Words: Public transportation, transit training, older adults, barriers, self-efficacy, social cognitive theory

Word Count: 7,500 words, including 3 tables

INTRODUCTION

As the number of older adults living in the United States (U.S.) continues to rise, providing adequate transportation services for an increasing number of older travelers presents several challenges (*1, 2*). There are currently an estimated 35 million senior citizens living in the U.S., and this population is expected to more than double by the year 2030, comprising 20% of the U.S. population (*1, 3, 4*). These travelers include the Baby Boomer cohort, some 76 million strong (*4*). Not only will the Baby Boomers contribute to a substantial rise in the number of elderly travelers, but due to numerous medical advances, they will be among the healthiest and longest-living individuals in America. This large change in the demographic landscape of America will lead to great implications for all aspects of life, not the least of which will be transportation.

Automobiles are integral to the lives of older Americans and the aging Baby Boomer population. Elderly Americans rely on their personal auto for a majority of their trips, more than any other age group (*5*). Despite improvements in medicine, physical and cognitive changes continue to accompany the aging of older adults and may compromise their ability to drive, particularly after the age of 75 (*1, 6*). Driving cessation reduces the mobility of older adults, particularly if there are no other modes of transportation that are easily accessible (*7*). This lack of connection with the outside world only leads to greater psychological distress and lower life satisfaction (*1, 6, 8, 9*).

Exacerbating the transportation problem are the phenomenon of aging-in-place and the movement of Baby Boomers into the suburbs. The suburbanization of the elderly population

removes them from easy access to transit options, making driving more preferable and convenient. Giving up their driver's licenses would mean more than a cessation of driving and would radically change their lifestyles, likely reducing their travel outside of the home (*10*). The aging of the Baby Boomers and the subsequent growth in the older American population is expected to strain current transportation resources in the U.S. (*10, 11*). A growing older adult population with increased longevity also means there will be a greater number of individuals relying on public transportation for a longer time period (*11*). To enable older adults to maintain healthy, active, and involved lifestyles, development of adequate transportation alternatives is needed (*12*).

Despite the need for alternative transportation among older adults, public transit is grossly underused among this population (*5, 10*). Many older adults cannot access transit because there is a lack of available services in their neighborhoods and communities *(1, 13*). However, research indicates that older adults would not use public transit even if services were available to them *(1, 13*). In addition, many older travelers are unfamiliar with transit and may experience a number of potential barriers that prevent them from accessing it including physical and cognitive challenges and an overall lack of information on routes and services (*1, 14, 15, 16*). Research suggests that older travelers may require additional information and instruction on how to access public transit including "mobility planning and training programs" (*1*, *16*).

This paper evaluates the effectiveness of an in-person, transit training program offered at the Rossmoor Senior Adult Community in Walnut Creek, California. The ongoing transit training classes teach residents about local transit options and information sources. The training also includes a bus tour of the route lines of the two major buses available to the community: the Rossmoor and County Connection buses. The classes draw upon social cognitive theory and its emphasis on self-efficacy to encourage older travelers to learn about public transit use and promote desired behaviors in seniors. In Summer 2007, researchers implemented surveys with participants prior to and following the transit training sessions to assess changes in perceptions and intended transit use (before-and-after survey). In addition, a questionnaire was administered to residents who had taken the transit training course over the past two years to identify any longer-term changes in their transit use and attitudes (longitudinal survey).

This paper consists of four main sections. First, the authors begin with a review of the literature on aging trends and mobility, as well as self-efficacy and social cognitive theories relevant to the transit training. A methodological discussion follows including survey design, response rate, and study limitations. Next, the authors present the study results. In the last section, a summary of key findings and conclusions is provided.

LITERATURE REVIEW

This literature review is focused on current and future trends associated with the growing senior population in the U.S. The authors also describe social cognitive and self-efficacy theories relevant to the transit training study. It includes six sections: 1) growth trends, 2) older drivers, 3) driving cessation, 4) public transportation barriers, 5) the aging-in-place phenomenon, and 6) self-efficacy and social cognitive theory.

Growth Trends

According to the U.S. Census Bureau 2000, individuals aged 65 and older numbered 35 million and made up 12 percent of the U.S. population (*3, 4*). This number is expected to double by 2030 as members of the Baby Boomer cohort—approximately 76 million born from 1946 to

1964—join the ranks of those aged 65 and older (*4*). Not only will Baby Boomers contribute to a quickly growing older adult population, but due to numerous medical advances, they will be among the healthiest and longest-living individuals in America. In 2000, life expectancy increased by approximately four years for men and women 65 and older (based upon 1950 projections) (*4, 17*). Individuals aged 85 and older have become the fastest growing population segment (*4*). Furthermore, the gender gap is increasing (i.e., there are many more women than men later in life) (*4*). These changes in the U.S. demographic landscape will lead to notable impacts on all aspects of life, including transportation.

Older Drivers

Automobiles are integral to the lives of older Americans and the aging Baby Boomers. The National Household Travel Survey (NHTS) indicates that seniors rely on their personal auto for 89.1% of their trips, more than any other age group (*5*). Furthermore, older adults predominantly serve as drivers for their trips, in contrast to other age groups who tend to be passengers—except those between 40 and 64 years of age (*5*). Another indication of the perceived need to drive is the licensing rate of older adults aged 65 and over. In 1997, over 90% of men and 80% of women over age 65 possessed licenses. In 2004, over 28 million licensed drivers were over 65 (*10, 18*). The number of older U.S. drivers is likely to increase as Americans continue to age and live longer. Hu *et al.* (2000) predicts that by 2025 drivers between the ages of 65 and 69 will increase by 7% among men and 28% among women, while drivers 85 and older will increase by 22.3% for men and 113% for women (*19*).

Driving Cessation

Despite improvements in medicine, physical and cognitive changes continue to accompany aging in older adults and may compromise driving ability. Thus, the large number of older drivers on the road is potentially dangerous for others and themselves. In 1995, older drivers comprised 8% of annual miles driven but accounted for 13% of all vehicle crash fatalities (*6*). The relatively high rate of fatality is likely due to physical fragility and vulnerability to crash impacts (*6, 20*). Other accidents involving older drivers are linked to age-related disabilities that afflict older Americans. Research indicates that many older adults are forced to relinquish their licenses due to health-related reasons. Vision and hearing deterioration and declines in cognitive and perceptual functions may compromise an older adult's driving ability. Physical limitations, such as decreased strength and flexibility, also make safe driving challenging (*20, 21*). To compensate for disabilities, older drivers tend to limit driving to certain hours or particular streets (e.g., those with speed limits of 55 miles per hour or less), with peak travel occurring between 9am and 4pm (*6, 8, 9*). Ultimately, these health problems often lead to driving cessation.

Driving cessation has additional implications for the lives and well being of older Americans besides decreased mobility. In their study of driving cessation impacts, Harrison and Ragland (2003) found that cessation adversely affects the quality of life of seniors. Older adults tend to feel a loss of independence and increased feelings of isolation and depression (*12*). Driving cessation reduces mobility, particularly if there are no easily accessible transportation modes. According to Foley *et al.* (2002), men between the ages of 70 and 74 will rely on alternative transportation an average of seven years after driving cessation, and women in the same age range for ten years (*22*). Despite the need for alternative transportation modes, older adults grossly underuse public transit—making up only 1.3 percent of all trips in 2001 (*5, 10*). Furthermore, over half of non-drivers stay home on any given day in contrast to 17% of older

drivers staying home on any given day. Non-drivers also make fewer trips for medical, social, family, and religious purposes (*7*). This lack of connection to the outside world only leads to greater psychological distress and lower life satisfaction. Finally, a study conducted by Marottoli *et al.* (2000) found that a less active lifestyle could result in higher risks of heart disease, stroke, and fractures and further decline of cognitive abilities (*1, 23*).

Public Transportation Barriers

There are a number of potential barriers that prevent older adults from using public transportation. In several research studies, participants mentioned the following concerns regarding public transit (*1, 14, 15, 16*):

- Lack of door-to-door services;
- Infrequent schedules;
- Lack of direct routes and stops at certain key destinations;
- Reliability of transit services;
- Transfers;
- Safety on buses, walking to bus stops, and at bus shelters;
- Physical concerns (e.g., climbing stairs, walking to bus stops, carrying large bags on board, etc.); and
- Financial concerns about public transportation costs.

Burkhardt (1999) examined the loss of independence that many seniors associate with driving cessation and how dependence on others can be perceived as an inconvenience (*24*). This mindset is another potential barrier to public transit use among older adults, as many are highly resistant to assistance. In a recent article, Dumbaugh (2008) describes the intrinsic barriers of the built environment, emphasizing the impacts of community planning and design on public transportation, as well as a community's ability to provide transportation services for older adults (*25*).

According to the National Household Travel Survey, only about half of all Americans have access to public transportation (*7, 26*). This leaves many, particularly those in rural areas, with no viable alternatives to the private auto. And even where public transit is available, most seniors still prefer to drive. According to a study by Burkhardt *et al*. (2002), some of the qualities that make driving more appealing are the same as those that discourage older Americans from using public transit, such as instant access (no need to rely on a set schedule), direct connections (no transfers), and reliability (*16*).

"Senior-friendly" transit options that provide more direct routes, are located in safe areas, and employ drivers that can provide assistance are needed to create better public transit options (*27*). In 2000, the Beverly Foundation developed five important factors for addressing potential transit barriers including: 1) availability (e.g., 24/7); 2) accessibility (e.g., low-floor buses and stairs, high seats, and reachable bus stops); 3) acceptability (i.e., cleanliness, safety, and user friendliness); 4) affordability; and 5) adaptability (e.g., wheelchair friendly, trip chaining possible) (*27, 28*).

Aging-in-Place Phenomenon

Exacerbating the transportation problem is the aging-in-place phenomenon and movement of the Baby Boomers into the suburbs. Aging-in-place refers to the situation in which an individual chooses to stay and grow older in the same home in which she lived and worked during her

younger years. This phenomenon has contributed to the "graying" of the suburbs where 56% of the elderly live (*10, 29*).

The need for transportation alternatives is even more critical in light of the growing Baby Boomer population who will likely continue to live in the suburbs. A recent analysis of 102 metropolitan areas across the U.S. indicated that the suburbs are getting older, and individuals 35 years and older continue to move there at a higher rate than cities (*30*). In 2000, 70% of those 35 and older lived in the suburbs (*30*). Given this trend, institutions all over the U.S. are anticipating the strain that this will cause on existing public transportation and are developing new services to prepare for the aging Baby Boomers.

One approach to the aging-in-place phenomenon is the development of older adult communities aimed at allowing seniors to maintain their independence after retirement. These communities either arise in planned retirement communities or naturally occurring retirement communities (*31, 32*). Generally, both types aim to become "livable communities" that offer all the essential services and activities that enable residents to continue living full and active lifestyles after retirement (*33*). In this way, older adults are able to continue living in homes, which have either been modified or built as low maintenance, in a community with their peers (*34*). Additionally, mobility and transportation services provide older adult residents easy access to medical and shopping centers located nearby (*4, 33*).

Self-Efficacy and Social Cognitive Theory

Bandura's (1997) social cognitive theory is an extension of social learning theory and stresses the important influence of cognitive processes on human behaviors and motivations (*35*). According to social cognitive theory, human functioning results from the interaction among behavior, the environment, and personal factors—a relationship Bandura refers to as "triadic reciprocality" (*36, 37*). Personal factors include what Bandura refers to as a "self system" that allows individuals to reflect on and regulate their actions and thoughts, and to therefore change their environment (*38*). According to this view, an individual's perception of his or her own ability can be a better indication of future behaviors and motivations (*39, 40, 41*). This measure of self-efficacy is central to Bandura's social cognitive theory (*37*).

Self-efficacy is the idea that an individual's perceptions of their own capabilities influence their actions and life events (*42*). A strong sense of self-efficacy, or faith in one's own abilities, leads to a more active and involved life in which difficult situations are not avoided but are seen as challenges to be overcome (*42*). This manner of approaching life reduces stress, lowers the risk of depression, and leads to a greater commitment to goal setting (*42*). On the other hand, those with a weak sense of self-efficacy may limit their potential and avoid situations in which failure may be a high possibility (*42*). As such, individuals with little faith in their own capabilities are vulnerable to depression and high stress and have a low commitment to goal attainment (*42*). Self-efficacy, however, varies across different situations and behaviors (*43*). One may show high self-efficacy in maintaining a certain behavior but low self-efficacy in another.

One way in which to build self-efficacy is through social modeling. Social modeling centers on the idea that when an individual witnesses peers perceived to be similar to himself succeed in a task, he is more likely to believe in his own ability to complete the task as well. The alternative may also be true—if his peers fail, the individual may expect to have the same result and may be discouraged from trying the task (*42*). Social models also provide a forum in which individuals may learn from those peers that possess capabilities that they themselves aspire to,

and as such, they may acquire new knowledge or capabilities that increase their own self-efficacy (*42*).

It is especially important for older adults to maintain higher levels of self-efficacy. Old age often leads to physical disabilities that force seniors to reassess their capabilities (*42*). Rather than viewing this negatively, a more optimistic point of view would be to use the intellect and experiences gained over the years to make up for physical disabilities. Thus, a high sense of self-efficacy can be maintained throughout older adult life, allowing seniors to maintain lives as active and involved as younger adults (*42*). Furthermore, Grembowski *et al.* (1993) have found that self-efficacy is positively correlated to better mental and physical health in the elderly (*43*). Those with higher self-efficacy for health behaviors were more likely to partake in healthy behaviors, such as seeking preventive care and were healthier individuals. Finally, Shaheen (1999) found that individuals were more accepting of a transportation innovation after participating in a behavioral modeling study (i.e., watching a video that demonstrated individuals using a new service and successfully trying the innovation in a trial clinic) (*44)*. The transit training class at Rossmoor draws on social cognitive theory and self-efficacy to encourage older adults to learn about public transportation use.

METHODOLOGICAL APPROACH

The Rossmoor Senior Adult Community, located in Contra Costa County in Walnut Creek, California, has been offering a transit training program to residents since 2005. In 2008, the community had a population of 9,305 residents with 6,678 residential units on 2,200 acres of land. Most residents have personal vehicle access and also can take the Rossmoor bus within Rossmoor and to connect to the County Connection bus system, which takes travelers to outside locations, including downtown Walnut Creek and the local Bay Area Rapid Transit (BART) District station.

Research is needed to address the increasing mobility needs and perceived public transit barriers of older adults. In this paper, researchers evaluate the effectiveness of the Rossmoor Senior Adult Community transit training class. The research methodology consists of two main components. First, researchers implemented questionnaires "before-and-after" six transit training sessions held in Summer 2007 to assess changes in public transit attitudes and usage on the same day of the class (before-and-after survey). In the second part, researchers conducted a survey with individuals who had previously taken the transit training to identify any longer-term changes in transit attitudes or use (what the authors call a "longitudinal survey").

Both surveys collected basic demographic data: age, gender, health, and income. The study populations had very similar *p*-values, ranging from 0.1 - 0.7. However, application of the Mann-Whitney U test to income data yielded a *p*-value of 0.05, indicating some significant differences between the two population's income levels. This is likely explained by the notably higher incomes of longitudinal study participants than the before-and-after survey population. Over 80% of participants from both groups were age 75 and older. Also, more than 80% were female. Over 85% reported having good, very good, or excellent health. Annual incomes of both study populations varied from below $10,000 US to more than $110,000 US. All participants graduated from high school, and most had at least some college or possessed higher degrees. Overall, participants were predominantly Caucasian.

Recruitment for the before-and-after and longitudinal surveys was conducted through flyers and advertisements in the local Rossmoor newspaper. Interested residents called the

Rossmoor transportation office to enroll in the transit training study. To encourage study participation, respondents were entered into a $50 US gift card raffle.

Before-and-After Survey

The before-and-after survey was conducted in conjunction with six training sessions, held June through August 2007. Two sessions were conducted on a single training day of each month. Each questionnaire took approximately 15 minutes to complete. Forty-two residents participated in this study. Prior to the training, respondents completed a "before" questionnaire to assess their: 1) experience with different transportation modes, 2) current travel behavior, 3) public transit attitudes, 4) barriers to transit use, and 5) training program expectations. Next, they participated in the two-hour training, led by the transportation coordinator at Rossmoor. Immediately following the session, researchers administered the "after" questionnaire, which focused on potential changes in transit attitudes, knowledge gained through the training, and intended changes in travel behavior. The "after" survey also provided participants with the opportunity to evaluate the training program and to suggest improvements.

Longitudinal Survey

In the second study part, researchers administered a 15-minute questionnaire with prior training participants (individuals who had taken the class between six months to two years earlier) on August 15, 2007. Sixty-one participants completed the longitudinal survey. It included questions about travel behaviors prior to and after the training and perceived transit barriers, as well as an opportunity to comment on the training.

Study Limitations

This study relied on the self-reported answers of participants. Due to reasons of privacy, all participant surveys were anonymous, therefore making it impossible to verify if given information was correct. Furthermore, answers were based on respondent memories, and in the longitudinal survey this was a long time—between six months to two years earlier. Poor memory or a misunderstanding of the questions could have led to false answers. In addition, many participants took part in different training sessions, which may have lead to slightly different experiences.

Survey results may not be applicable to all older adult populations, since respondents are not as representative of the diversity across the U.S. (e.g., the majority of them were Caucasian). Furthermore, the study was conducted in an area where there is an established public transportation system within the community. In contrast, many seniors in the U.S. are unable to easily access transit, and therefore they may respond differently than the participants of this study. Finally, respondents were educated with at least a high school diploma, and many were still able to drive. They all lived within the older adult community of Rossmoor. Despite these limitations, this study provides many insights into the potential of transit training in encouraging older adults to use public transit.

RESEARCH RESULTS

A primary motivation of this study is to examine stated and actual behavioral changes following the Rossmoor transit training. The before-and-after and longitudinal surveys provided researchers with two methods for examining training impacts: immediate (intended response) and longitudinal (change over time). In this section, the authors present key findings from both

study components including: 1) intended and actual travel behavioral changes, 2) public transit barriers, 3) transit information resources, and 4) transit training feedback.

Intended and Actual Behavioral Changes

Before-and-After Participants

Prior to training, the private automobile was the primary transportation mode for most participants (78.6%), followed by public transit (9.5%). Some reported equal use of both modes (2.4%). A majority of participants (69.1%) had not used the Rossmoor bus, while even more (76.1%) had never taken the County Connection bus prior to training. Some (9.5%) had even stopped driving but had not yet started using transit. Immediately following the training, 85.7% of participants stated that they intended to take transit more frequently in the future. The mode split of both study populations (before-and-after and longitudinal) prior to instruction was very similar; no statistical difference was found in their private auto use. The Two Sample Proportions test, however, showed that there was a difference in their transit use (p=0.0061). This is likely due to the greater proportion of before-and-after participants that used public transit as their primary mode prior to training.

Public Transit Comfort Level Changes Respondents were asked a series of questions about their comfort level with taking the Rossmoor and County Connection buses prior to training. Results demonstrate that the course had a significant effect on transit comfort perceptions. The McNemar test for paired proportions demonstrated p-values less than 0.01 for the Rossmoor and County Connection bus comfort questions.

Table 1 reflects a positive shift in participant comfort levels for the Rossmoor and County Connection buses. For instance, dramatic increases were demonstrated for trips to the Walnut Creek BART station and downtown Walnut Creek via County Connection. There was a 52.4 and 57.2 percentage point increase for trips to BART and downtown Walnut Creek, respectively.

TABLE 1 Comfort Level Taking Rossmoor Bus and County Connection Bus Before-and-After Transit Training (N=42)

I Feel Comfortable Taking the Rossmoor Bus to:	**Before**		**After**		
	N	**%**	**N**	**%**	***p*[a]**
Not Applicable	1	2.4	0	0	1
Downtown Walnut Creek	10	23.8	33	78.6	<0.0001
I Do Not Know of the Rossmoor Bus	14	33.3	1	2.4	<0.0001
Safeway Shopping Center	20	47.6	39	92.9	<0.0001
I Feel Comfortable Taking the Country Connection to:	**Before**		**After**		
	N	**%**	**N**	**%**	***p*[a]**
Not applicable. I do not visit any of these destinations.	5	11.9	0	0	1
Medical appointments	10	23.8	22	52.4	0.004
Downtown Walnut Creek BART Station	12	28.6	34	81	<0.0001
Downtown Walnut Creek	14	33.3	38	90.5	<0.0001
I do not know this transit provider.	17	40.5	0	0	--

[a]McNemar test for paired proportions

Longitudinal Participants

Table 2 shows the primary transportation mode split of longitudinal participants before and following the training class. Although the private auto remained the primary mode for a majority of respondents after the training (67.2%), there was a significant decrease in private auto use (19.7 percentage points, with *p*-value equal to 0.001). In addition, there was a significant increase in public transit use (14.8 percentage points; p=0.006) after training. Increases in the number of participants reporting equal use of both modes (3.3 percentage points) were not significant.

TABLE 2 Primary Transportation Mode Split of Longitudinal Survey Participants (N=61)

Modes	Before Training	After Training	Percent Difference	*p*[a]
Private Auto	86.9%	67.2%	-19.7	0.001
Transit	1.6%	16.4%	14.8	0.006
Equal Use	11.5%	14.8%	3.3	0.75
Other	0.0%	1.6%	1.6	--

[a]McNemar test for paired proportions

Post-training results showed no change in Rossmoor bus ridership (p=1). However, County Connection bus usage increased significantly (27.9 percentage points; p=0.02). Significant increases were also demonstrated in County Connection bus ridership to Downtown Walnut Creek (p=0.002) and medical appointments (p=0.041). Ridership to the BART station increased slightly but not significantly (p=0.238).

Public Transit Barriers

Both the before-and-after and longitudinal survey participants were asked to respond to statements regarding barriers that may have prevented transit use. Not surprisingly, responses across both survey groups differ somewhat from the literature. The majority did not perceive many of the cited barriers. Most were neutral, disagreed, or strongly disagreed with statements that public transit was unsafe, expensive, inaccessible, and unfriendly across both populations. Most also disagreed with statements indicating difficulties entering the bus, reading bus schedules, purchasing tickets, and finding transit information. This is likely due to the availability of a dedicated community bus service and the unique city-suburban environment in which study participants live.

Public Transit Information Resources

Respondents who took part in the before-and-after study were asked questions about their confidence levels in locating public transit information (e.g., schedules, routes) prior to and immediately following training. As shown in Table 3, there was a significant increase in participant confidence with finding transit information after training among the before-and-after population (p=0.001). The number of those who felt very confident showed a 19.1 percentage point increase.

TABLE 3 Public Transit Information Resources: Changes in Before-and-After Survey Respondent Confidence and Longitudinal Survey Participant Use

Before-and-After Changes in Confidence Level (N=42)			
	Not Confident/ Somewhat Confident	Confident	Very Confident
Before	66.7%	30.9%	2.4%
After	33.3%	45.2%	21.5%
Overall p^a-value	0.001		
Longitudinal Changes in Use (N=61)			
	No Use	Use	
Before	49.2%	50.8%	
After	19.7%	80.3%	
Overall p^b-value	<0.0001		

[a]Wilcoxon Signed Rank Test

[b]McNemar test for paired proportions

Longitudinal survey respondents were also asked questions about their public transit information use prior to and after training (longer-term). As shown in Table 3, there is a significant increase in transit resource use after training. Prior to training, 50.8% used transit resources. After instruction, 80.3% used this information—revealing a 29.5 percentage point increase ($p<0.0001$).

Public Transit Training Feedback

Prior to transit training, participants were asked what motivated them to take the class and what they hoped to gain from it. Most respondents (85.7%) enrolled in it to plan for their future. Other

reasons included the environment (e.g., air pollution), medical conditions, family member encouragement, and financial reasons (e.g., gasoline costs). Similarly, most longitudinal survey respondents (68.9%) enrolled in the course for the same reasons.

Ninety-three percent of before-and-after respondents found the training to be helpful or very helpful, and all but one reported that their expectations had been met. Over 70% of longitudinal participants recommended the class to friends. All participants found the informational handouts distributed during the training, bus tour, and knowledgeable instructor particularly helpful. Possible improvements include: expanding the training to include evening trips, indicating destinations of interest along the bus route, and providing more information on other public transit options (e.g., BART instruction).

CONCLUSIONS

In Summer 2007, researchers implemented surveys prior to and following the transit training sessions to evaluate the effectiveness of the Rossmoor class by assessing changes in perceptions and intended/actual behaviors following it. In addition, surveys were administered to residents who had taken the transit training course over the past two years to identify any longer-term changes in public transit use.

The transit class teaches participants about local public transportation options, information sources, and how to plan future trips. It also includes a bus tour of two major bus routes available to the community. The training draws upon social cognitive theory to encourage older travelers to learn about transit use (*44*). The following is a summary of key findings from the before-and-after survey:

- A majority of respondents (85.7%) stated that they planned to take public transit more frequently in the future;
- A positive shift occurred in participant comfort levels taking the Rossmoor and County Connection buses to key destinations within the community (all p-values <0.004); and
- Participant confidence with finding transit information (e.g., schedules, routes) increased after training ($p=0.001$).

While the "before-and-after" survey relied on the reported intentions of participants to take public transit, the longitudinal survey allowed researchers to examine behavioral change following the training. Below is a summary of key findings from the longitudinal survey:

- After training, there was a significant decrease in private auto use as the primary transportation mode ($p=0.001$);
- Public transit use increased significantly ($p=0.006$);
- Rossmoor bus ridership showed no change ($p=1$), while ridership on the County Connection bus increased significantly ($p=0.02$); and
- Use of transit information resources increased significantly after training ($p<0.0001$).

Longitudinal survey findings are supported by feedback from the Rossmoor Transit Operator. Rossmoor bus ridership has increased slightly since August 2007. Furthermore, the Rossmoor Transportation Office has noticed a substantial increase in transit schedule and route inquiries, as well as training requests. Consequently, the Rossmoor transit operator has expanded the training program to include additional instructors and sessions (Gretchen Hansen, unpublished data, July 2008).

Study limitations reflect the innate restrictions of the training (e.g., self-selection bias), self-reported behaviors, and the lack of diversity in the sample population (e.g., primarily

Caucasian participants). Thus, the survey results may not be applicable to all older adult populations. Despite these limitations, this study provides many insights into the potential of transit training in encouraging older adults to seek transit information and increase their familiarity and comfort with public transit.

Researchers recommend enhancing the transit training by implementing several improvements: 1) developing a follow-up class one month after the initial training, as older adults may need repeated sessions to strengthen their memories and understanding; 2) adding training on evening routes and other public transit options (i.e., BART and Muni); and 3) providing uniformity across all sessions to ensure participants are provided with the same information and handouts. Other suggested improvements include: 1) media campaigns encouraging seniors to plan ahead; 2) area- or provider-specific websites that supply riders with reliable, up-to-date information about available transportation options (*45*); 3) streamlining connectivity between transit providers to improve transfers and accessibility for older adults; and 4) offering more direct and evening routes.

Opportunities for further research include re-surveying the before-and-after participants to assess behavioral change and modal shifts over time. Additional research could include post-training focus groups where class feedback, travel behaviors, mode choice, and public transit barriers are probed in greater detail. In addition, researchers could conduct similar studies in both urban and rural areas, which may offer greater understanding into the transportation needs of older adults. Finally, research could be expanded to examine more diverse populations (e.g., different ethnic groups and income levels).

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