

# Painting the Trails: Can Artwork Affect Urban Trail Use

Thesis Title

Aron Wahkinney

Author's Name

4-24-20

Date

Jackson College of Graduate Studies at the University of Central Oklahoma

A THESIS APPROVED FOR

By

Jerel Cowan

Digitally signed by Jerel Cowan  
Date: 2020.04.27 08:38:03  
-05'00'

Committee Chairperson



Committee Member

Steven M Dunn

Digitally signed by Steven M Dunn  
Date: 2020.04.27 09:51:02 -05'00'

Committee Member

Jamie Dunnington  
2020.04.27 12:26:46 -05'00'

Committee Member

**Painting the Trails: Can Artwork Affect Urban Trail Use**

Aron J. Wahkinney

Department of Kinesiology and Health Studies, University of Central Oklahoma

HLTH/KINS 5990: Thesis

Dr. Jerel Cowan, Thesis Panel Chair

March 23, 2020

## Table of Contents

Abstract.....	3
CHAPTER ONE: INTRODUCTION.....	4
Background and Significance.....	4
Hypothesis and Purpose.....	6
Limitations, Delimitations and Assumptions .....	7
Operational Definitions .....	8
CHAPTER TWO: LITERATURE REVIEW.....	10
Introduction .....	10
Methods .....	11
Results .....	14
Discussion.....	26
Limitations.....	29
Summary Conclusions.....	30
CHAPTER THREE: METHODOLOGY .....	31
Participants .....	31
Recruitment .....	31
Instruments .....	32
Procedures .....	32
Trail Selection.....	34
Statistical analysis.....	39
CHAPTER FOUR: RESULTS .....	39
Participant Demographics.....	40
Artwork as A Trail Amenity to Increase Use .....	40
Trail Awareness and Knowledge.....	46
Artwork to Better the Trail Environment and Experience.....	46
Online Survey Group.....	48
Trail User Group.....	50
Unexposed Group .....	50
CHAPTER FIVE: DISCUSSION.....	51
References.....	59
APPENDICES .....	68

### Abstract

Urban trails are paved or unpaved pathways through neighborhoods, cities, and parks that are used to increase the walkability of an area, provide alternative transportation routes, offer recreational space, and increase connectivity of a community. Artwork in public spaces can provide increased neighborhood connection, community engagement, and draw community members to locations that they might not have otherwise wanted to visit or knew about. This research study included three components. First, 312 University of Central Oklahoma (UCO) students completed an online survey on their perceptions of artwork on urban trails and how artwork may affect their trail use. Second, 27 individuals who were utilizing the Will Rogers Trail (WRT) completed a trail user survey. Third, 23 UCO students in an unexposed group walked a specific section of the WRT and completed a follow up assessment. *Artwork on the trail* was selected most as an urban trail amenity to increase trail use among the online survey group, trail user group, and unexposed group at 27%, 34%, and 31% respectively. The majority of participants across all three groups *agree* (agree or strongly agree) that they would use the trails more often if there was artwork added to them compared to those that *disagree*, or *neither agree nor disagree* at 77%, 5%, and 18% respectively. The trail user group indicated wanting to see more *fountains or water elements* (27.7%) added to the trails, compared to the unexposed group that want to see *earthworks or environmental art* (25.0%), and the online survey group that want to see *murals and paintings* (26.4%). The results of this study indicate that artwork can be an amenity to increase urban trail use on the WRT and that various types of artwork are desired to be added to the trails.

*Keywords:* Urban trails, artwork, urban trail amenity, online survey, trail user survey

## CHAPTER ONE: INTRODUCTION

### Background and Significance

Urban trails, also known as urban greenways or transportation corridors, are pathways created throughout communities that help connect individuals to local destinations such as retail and grocery stores, parks, playgrounds, schools, and churches. Urban trails can be paved or unpaved and are typically used for recreational and travel purposes such as walking, hiking, biking, jogging, and commuting to work or school (Chen, Lindsey & Wang, 2019). There is a small amount of research that focuses on urban trail amenities (restrooms, water fountains, signage, greenspace) and even less that specifically examine artwork on urban trails, and the role art may play in facilitating urban trail use. Public art such as painted murals and sculptures create opportunities for community members, local and state governments, and community organizations to come together to create something beneficial for the entire community (Desmarais & Larivée, 2017; Patterson, 2006; Wyels, 2000; Zander, 2004). Art murals can provide the opportunity to bring nature like scenery to the urban trail setting to increase the visual and overall aesthetic of the trail (Patterson, 2006). Adding art to public spaces can create educational opportunities for the general public to learn about historical and social justice issues, as well as providing a space for underrepresented groups to be visible (Zander, 2004). Painted murals in community areas allow for community members (such as Native Americans and Latinos) to see representations of themselves, their history, and culture that they may not normally see within museums or other art galleries (Wyels, J. G. ,2000; Desmarais, L. & Larivée, C., 2017).

Some evidence supports the current literature, in that art in community spaces can engage the community and create a sense of cohesiveness among different sectors of the community

(Friends of the Hank Aaron Trail Association, 2019). Additional evidence suggests that artwork can attract individuals to community spaces, such as urban trails, that they may not have otherwise wanted to visit (Bressi & Levi, 2010). Creating artwork in public spaces does not have to come at the expense of cities or states; large philanthropic organizations such as Bloomberg Philanthropies have provided funding to create large scale public art pieces (Walker, 2019). There are how-to guides that layout each step of the process to help implement a community art project from conception to implementation to evaluation (Bloomberg Associates, 2019). Adding artwork to an urban trail can engage the community and provide more neighborhood connection; it can help elevate an urban trail from a health focused infrastructure to a community loved space (Rails to Trails Conservancy, 2020).

According to the Centers for Disease Control and Prevention (CDC), the majority of individuals in the United States, including youth and adults, do not meet the daily physical activity (PA) recommendations. The CDC recommends approximately three hours of moderate physical activity (i.e. walking or yoga) or one hour of vigorous physical activity (i.e. jogging or jumping rope) per week for adults, and approximately one hour of moderate physical activity per day for youth ages six to 17. Walking is often the most cost effective and easiest form of physical activity, and urban trails can be an excellent facilitator to help individuals meet the physical activity recommendations (CDC, 2014). Oklahoma City (OKC) has a walkability score of 33 out of a possible 100 (scores closer to 100 have better walkability), which is calculated by the current walking paths available and the distance to access nearby stores and other facilities (Walk Score, 2019). Although the walkability score is on the lower end of the spectrum (0=low, 100=high), there are ample opportunities for community members to increase their walking through approximately 80 miles of urban trails throughout OKC. The urban trails intertwine

through a system of 10-12 trails that are available to OKC and surrounding community members (Oklahoma City Parks and Recreation, 2019). These trails can be used for recreation and transportation purposes. The popular area of downtown OKC increased pedestrian friendly walkways and access points that helped the community members of the area reduce their weight by increasing the walkability of the area (Quinn, 2017). Similar results could be seen throughout the rest of the OKC area by addressing facilitators and barriers to urban trail use.

The most common urban trail factors that affect trail use consist of user perception of cleanliness, safety, and trail design (Chen, Lindsey & Wang, 2019; Maslow, Reed, Price & Hooker, 2012; Price & Reed, 2014). McNeill, Murguia, Nguyen, & Taylor (2015) found that trail maintenance, distance from traffic, and reduced litter were common factors that trail users preferred. The average urban trail user is typically an older adult Caucasian male or female who uses the trail for recreational purposes (Chen et. al., 2019; Maslow et. al., 2012; Akpinar, 2016; Price, Reed & Muthukrishnan, 2012; Wolff-Hughes, Fitzhugh, Bassett & Cherry, 2014; Orstad, McDonough, Klenosky, Mattson & Troped, 2016; Arnberger & Eder, 2015). An existing gap within the research is whether artwork can be an amenity to facilitate increased trail use.

### **Hypothesis and Purpose**

The purpose of this research study is to identify whether artwork can be an amenity to increase urban trail use in Oklahoma City. The research question guiding this will be: Is artwork an amenity that affects urban trail use?

The researcher's hypotheses are:

- H<sub>1</sub>: Artwork on an urban trail is an amenity that would increase urban trail use;
  - H<sub>0</sub>: Artwork on an urban trail is an amenity that would not increase urban trail use.

### **Limitations, Delimitations and Assumptions**

Limitations that the researcher has identified for this study fall into three main categories: (a) weather, (b) sample size, and (c) time. It is expected that weather may deter individuals from utilizing the urban trails throughout OKC and therefore may affect the overall sample size of urban trail users and University of Central Oklahoma (UCO) students who can complete the follow up assessment. Weather may also affect the days and times in which the researcher is able to perform the data collection and observation. The sample size of individuals that complete the urban trail and artwork survey may not be large enough to be generalizable to other populations or geographic areas. However, the data collected will be valuable in further urban trail development, artwork installations, and physical activity intervention planning for the OKC area. The urban trail and artwork survey will also be distributed to UCO students through the university email system, and it is expected that some students will not take the voluntary survey due to time constraints, lack of interest, or not seeing the email notification. Students who complete the survey will also have the opportunity to complete a follow up portion of data collection in which they will walk a selected portion of an OKC urban trail and complete a follow up assessment. It is assumed that some students will not participate in the follow up portion of data collection due to time, weather, transportation, lack of interest, or scheduling conflicts.

The researcher will be collecting data during various dates and times for an estimated period of up to three months. The data collection is being planned to be conducted during the fall months of August, September, and October. There may be additional months in which urban trail traffic is high or low (spring and summer) and those data may be missed out on. Individuals who are utilizing the trails may not have the time to complete a survey as they may be commuting or



conducting physical activity exercise and do not want to be disturbed as they are using the trails. There will only be one researcher collecting data in the study in which two urban trails will be assessed and therefore it can be assumed that there may be data collection opportunities missed.

Participants will be individuals who utilize the urban trails in OKC and UCO students who may or may not have used the selected trails before. Individuals who use the trails more often may have more positive perceptions of the trails and may not identify any barriers to trail use or may not think artwork would add value to the trail. Individuals may also be using the trail for the first time and therefore may not have any perceptions of the trail at all or may be able to identify things that a frequent trail user no longer notices.

It is assumed that UCO students and individuals recreating the urban trails may do so in an on-going basis as well as some individuals using the trails for the first time. The level of experience using the urban trails may impact the survey results. It is assumed that individuals will report their use, perceptions, attitudes, and feedback with accuracy on all surveys.

### **Operational Definitions**

The following operational definitions are provided to further understand the study.

- Urban trail: A paved or unpaved route within a community, park, or other outdoor recreational area that can be used for transportation or recreational use. This includes walking, biking, hiking, running, etc. (Meyers, Wilson, Kugler, Colabianchi, McKenzie, Ainsworth, Reed & Schmidt, 2012).
- Trail amenities: Factors that increase the positive experience of the trail user. These include but are not limited to benches, bathrooms, pavilions, picnic tables, water fountains, clean sidewalks or pathways, proper lighting, shrubbery, trees, flowers/plants, and artwork (Lee, Booth, Reese-Smith, Regan & Howard, 2005).

- Trail barriers: Factors that decrease the positive experience of the user or reduce overall use of the trail. These include but are not limited to litter, syringes or other illicit substance paraphernalia, poor lighting, lack of restrooms or water fountains, and broken bottles or other glass items (Lee et. al., 2005).
- Trail signage: Signs at access points and along the trail that help trail users identify trail location, distance traveled, way finding, and pathway markers (Clark, Bungum, Shan, Meacham & Coker, 2014).
- Commuting: Traveling a distance to get from one place to another (Merriam-Webster Dictionary online, 2019).
- Recreational use: Using a trail for anything other than transportation. This includes walking, biking, hiking, running, skating, skate boarding, etc. (Meyers et. al., 2012).
- Trail intercept survey: An evaluation instrument that is used to collect user demographic data, feedback data, and perception data related to use of urban or recreational trails (Maslow et. al., 2012).
- Mural art: The word mural derives from the Latin word murus which translates to the word wall. Mural art is any art that is painted or input directly onto a wall or other small or large flat surface (Widewalls, Mural: The history and the meaning, 2018).
- Public Art: Public art differs from museum or gallery art in the sense that it is developed in part by the community, paid for by public funding, and is designed to be created in a public space that is meant to last a long period of time.
- Walkability: Walkability has a few different meanings depending on the context the term is being used, but generally the term refers to an area being accessible by community members on foot, biking, or by public transportation. The environment of the area is an

inviting environment, a safe environment, and an area that increases access to transportation options and recreational areas for physical activity (Forsyth, Ann. 2015.).

## **CHAPTER TWO: LITERATURE REVIEW**

### **Introduction**

According to the Centers for Disease Control (CDC) the majority of youth and adults living in the United States do not meet the recommended daily physical activity guidelines. It is recommended that youth get at least one hour of moderate physical activity (i.e. walking) per day and adults get approximately three hours per week. Urban trails within or outside of parks and recreational areas can be a facilitator for physical activity (Centers for Disease Control, Parks, Trails, and Health webpage, 2014). Urban trails, or transportation corridors, are paved or unpaved pathways throughout neighborhoods, towns, and cities that can be used for recreational (biking, walking, hiking, running, etc.) or utilitarian purposes (travel to school, work, shopping etc.; Chen et. al., 2019). There is little research that examines urban trail characteristics, features, amenities, and the role these may play on effecting trail usage. There is even less research on artwork and the role art may play in attracting community members to trails and urban trail use. Public artwork such as painted murals provide a space for education, entertainment, representation, and intrigue (Desmarais & Larivée, 2017; Patterson, 2006; Wyels, 2000; Zander, 2004). Art murals, paintings and sculptures, are becoming more popular on urban trails. They can provide an aesthetic image of nature that may not be able to be seen on a trail in a highly urban setting (Patterson, 2006).

The purpose of this literature review is to explore primary sourced literature that examines urban trail characteristics, specifically artwork, and the role they may play on urban trail usage. The organization of this literature review include: (a) methods (search strategies,

selection criteria, key words, and quality standards); (b) results (general article characteristics, evaluation tools used, day and times of data collection, incentives, demographics of trail users, trail characteristics, user perceptions, and trail interventions); (c) discussion (major findings, practical applications, and limitations) and; (d) sources.

### **Methods**

A systematic literature review was conducted using the University of Central Oklahoma online Chambers library database (<https://library.uco.edu>). This database searches 275 research databases simultaneously as key words are entered through a standard search bar. The search was conducted during February and March 2019. The purpose of the search was to review articles that examined urban trails (also known as rail trails, transportation corridors, and urban greenways), trail characteristics, artwork on trails, art in public spaces, trail user perceptions, and trail user demographics. The researcher wanted to identify trail amenities and see if there are relationships, differences, or associations between them may influence urban trail use. Specific databases that populated usable articles, and that were used in this systematic literature review include: Elsevier ScienceDirect Journals, PubMed Central, EBSCOhost, EBSCOhost SPORTDiscus, ProQuest Central, and Taylor & Francis Online.

Due to limited research on artwork and urban trails, an additional broader literature review search was conducted using google.com. The same keywords were used in this search.

### **Selection Criteria**

The selection criteria for inclusion consisted of peer reviewed journal articles between 2000 and 2019. Due to the lack of research conducted specifically on urban trails and artwork, articles that examined public art, community art, recreational trails, user demographics, and user perceptions were also included to increase the article sample size. After reviewing the first four

articles the researcher noticed that the terms *urban trail*, *rail trail*, and *urban greenway* were used interchangeably to describe the same general topic based on the article authors use of the terms. After the researcher noticed this, *rail trail* and *urban greenway* terminology was then incorporated into the database keyword search methodology. Articles that examined physical activity and urban trails were also included. The majority of article abstracts resulting from the search focused on urban trails and the role they play in facilitating physical activity.

### **Keywords**

Keyword searches: *Culture and urban trails; urban trail and assessments; urban trail amenities; rail trails; urban trail feedback; urban greenways; urban greenways and trail intercept survey; trail intercept survey; urban trails and trail intercept survey; urban trail artwork; public art and urban trails; community art; art in public spaces; art and urban trails and; mural art and community.*

### **Quality Standards**

For the purpose of this literature review, the researcher identified *high quality* articles as articles that included a mix the following topic areas: (a) urban trail user demographics, (b) user perceptions of the trail/environment, (c) artwork on trails or in public spaces, (d) frequency and duration of urban trail use, and (e) the relationship these factors may have on facilitating or creating barriers to urban trail use. There were 15 articles that the researcher deemed high-quality (Akpinar, 2016; Chen, Gu, Liu, Yuan, & Zeng, 2017; Chen, Lindsey & Wang, 2019; Desmarais & Larivée, 2017; Dunton et. al., 2009; Keith, Larson, Shafer, Hallo, & Fernandez, 2018; Maslow, Reed, Price & Hooker, 2012; McNeill et. al., 2015; Morgan Hughey, Reed, & Kaczynski, 2015; Orstad et. al., 2016; Patterson, 2006; Price, et. al., 2012; Price & Reed, 2014; Wyels, 2000; Zander, 2004). The researcher identified one article as high quality due to the

subject matter consisting of trails on Native American land. This topic area has not been researched as extensively as other trails and is important to include in further trail research (Deyo, Bohdan, Burke, Kelley, van der Werff, Blackmer, Grese, & Reo, 2014).

Two articles were identified as *moderate-quality* because they only assessed two of the following: (a) user demographics, (b) user perceptions of the trail/environment, and (b) frequency and duration of urban trail use. Two articles were identified as moderate quality because they only assessed user perceptions of the trail/environment and trail use but did not include user demographics (Anderson, Zimmerman, Lewis, Marmion, & Gustat, 2019; Moore, Leung, Matisoff, Dorwart & Parker, 2012). Three articles were identified as moderate quality because they only assessed user demographics and trail use, but not perceptions of the trail/environment (Wolff-Hughes et. al., 2014; Reed, Hooker, Muthukrishnan & Hutto, 2011; Price, Reed, Grost, Harvey, & Mantinan, 2013). One article was identified as moderate quality because it assessed trail traffic with aerial visuals to assess what characteristics of the trail are associated with higher trail volume, but did not collect any user data (Lindsey, Wilson, Anne Yang, & Alexa, 2008). One article was identified as moderate quality because it assessed urban greenway spaces but not specifically urban greenway trails. Although trails were not the specific setting of the data collection, they are included within the urban greenspaces utilized in the study, and therefore the researcher deemed it acceptable. The study also assessed user demographics and perceptions of the urban greenspaces (Arnberger & Eder, 2015).

Articles that the researcher identified as *low-quality* assessed only one of the following: (a) frequency of urban trail use, (b) user perceptions, or (c) frequency of trail use. Three articles were identified as low-quality (Clark, Bungum, Shan, Meacham & Coker, 2014; Dorwart, 2015; Fitzhugh, Bassett Jr., & Evans, 2010). There was one article the researcher identified as low

quality because it assessed trail use and weather-related conditions, but no user demographics or perceptions (Burchfield, Fitzhugh, & Bassett, 2012).

## Results

The University of Central Oklahoma library database search yielded a total of 26,614 search results from the combined keywords used. A total of 30 articles were reviewed in depth, and 27 of those were included in the literature review results. The three articles left out were not included because they focused on the test/retest reliability of a trail intercept survey which did not report methods or results outside of the pilot studies. The terms *trail*, *urban trail*, *urban greenway*, *greenway*, and *rail trail* may be used interchangeably throughout the results section based on article and author use.

The broader search yielded a total of 54,500,000 results. Information that was used came from city and state websites, outdoor recreational websites, and community art focused websites. There were 10 additional sources used that are cited within the *Art on Trails and Public Spaces* section below.

### General Article Characteristics

Three studies were identified in the article as *exploratory* (Moore et. al., 2012; Dorwart, 2015; Deyo et. al., 2014), 18 studies were identified as *exploratory* by the researcher based off of the similarity to other identified exploratory studies listed previously (Chen et. al., 2019; Maslow et. al., 2012; Reed et. al., 2011; Akpinar, 2016; Chen et. al., 2017; Keith et. al., 2018; Anderson et. al., 2019; Price et. al., 2012; Wolf-Hughes et. al., 2014; McNeill et. al., 2015; Orstad et. al., 2016; Price et. al., 2013; Price et. al., 2014; Arnberger & Renate, 2015; Morgan Hughey et. al., 2015; Dunton et. al., 2009; Lindsey et. al., 2008; Burchfield et. al., 2012), and two studies were identified in the article as *experimental* (Clark et. al., 2014; Fitzhugh et. al., 2010).

Eleven of the articles assessed two or more trails or urban greenways in a specific location. The locations included a city, county, state or in multiple states (Clark et. al., 2014; Chen et. al., 2019; Keith et. al., 2018; Wolff-Hughes et. al., 2014; Orstad et. al., 2016; Price et. al., 2013; Arnberger & Eder, 2015; Fitzhugh, Bassett Jr., & Evans, 2010; Dunton, et. al., 2009; Lindsey et. al., 2008; Deyo et. al., 2014). The number of trails, urban trails, rail trails or urban greenways analyzed ranged from two to 21. Comparatively, 12 of the articles assessed only one trail or urban greenway in a specific location (Moore et. al., 2012; Maslow et. al., 2012; Reed et. al., 2011; Akpınar, 2016; Chen et. al., 2017; Dorwart, 2015; Anderson et. al., 2019; Price et. al., 2012; McNeill, et. al., 2015; Price & Reed, 2014; Morgan Hughey et. al., 2015; Burchfield et. al., 2012).

### **Evaluation Tools Used**

Two of the articles used automated sensors (infrared sensors) at trail access points, observational methods (manual audits), and trail intercept surveys to assess frequency and duration of trail use (Clark et. al., 2014; Wolff-Hughes et. al., 2014). One article used infrared sensors to track trail use and a weather station and data from the National Oceanographic Atmospheric Administration to track weather (Burchfield et. al., 2012).

Two studies identified using a 17-item questionnaire, developed by Troped and colleagues (Price, et. al., 2012), and observational analysis (Morgan Hughey et. al., 2015). One study identified using the Harvard Trail and Path Intercept Survey (Orstad et. al., 2016). Two studies identified using the System for Observing Play and Recreation in Communities (SOPARC) tool (Reed et. al., 2011; Keith et. al., 2018). One study used the Trail Problem Assessment Method (TPAM) to assess the conditions of the trail (Moore et. al., 2012). One study used picture references of the trail to assess users' preferences of different sections and factors of



the trail (Dorwart, 2015). One study identified using an adaptation of validated surveys that include Purdue/University of South Carolina Trail Intercept Survey and the Indiana Clear Creek Survey, and questions from the Behavioral Risk Factor Surveillance System (Wolff-Hughes et. al., 2014). One study identified the protocol developed by Suminski & Colleagues. Data was collected on two days (Tuesday and Thursday) from 7:00 a.m. - 9:00 a.m. and 2:00 – 4:00 p.m. This protocol is used to collect sufficient data during active transportation to school (Fitzhugh, et. al., 2010). One study identified using infrared monitors and an airborne laser mapping system (Lindsey et. al., 2008). The remaining articles did not identify specifically what trail intercept or observational evaluation tool was used during data collection but did cite previous research to provide validity of their data collection methods on urban trails.

### **Day and Times of Data Collection**

Three studies collected data in person, at multiple times of the day (typically three to four different times), on multiple days, and on consecutive days of the week (ranging from two to seven). The days included weekdays and weekend days (Clark et. al., 2014; Maslow et. al., 2012; Reed et. al., 2011). Two studies followed the same structure as the ones previously mentioned but collected the data through randomized generated phone calls (Price & Reed, 2014; Morgan Hughey et. al., 2015). One study collected trail use through infrared sensors and weather data collection, with no user data collection (Burchfield et. al., 2012).

Eleven studies collected data in person, at multiple times of the day, and on multiple days, including weekdays and weekend days, but not on consecutive days (Chen et. al., 2019; Akpinar, 2016; Keith et. al., 2018; Dorwart, 2015; Anderson et. al., 2019; Price et. al., 2012; Wolff-Hughes et. al., 2014; Orstad et. al., 2016; Arnberger & Eder, 2015; Fitzhugh et. al., 2010;

Price et. al., 2013). Most of the studies that followed this pattern of collecting data on multiple days cited doing so to attempt to achieve a random sample.

One study collected data in person on only one day (Moore et. al., 2012). One study identified the months of data collection but not the time of day or number of days (Chen et. al., 2017). Two studies collected data at multiple time blocks throughout the day for a period of one to two months to achieve a random sample but did not identify on what days (McNeill et. al., 2015; Lindsey et. al., 2008). One study purchased a commercial list of current addresses within the designated area (one mile) of the trails being assessed. Participants that were recruited filled out a 10-page questionnaire survey at their convenience (Dunton et. al., 2009). One study conducted phone interviews with participants who worked in the field of parks and recreation, city planning, tribal planning, or other individuals who have experience working with trails (Deyo et. al., 2014).

### **Incentives for Data Collection**

Three studies used an incentive opportunity to recruit participants. These included: a chance to win a pair of running/walking shoes (Price & Reed, 2014); receiving a pedometer (Wolff-Hughes et. al., 2014); and a \$50.00 monetary compensation (Dunton, et. al., 2009).

### **Art on Trails and Public Spaces**

One study suggests that adding mural artwork that features nature (birds, trees, plants, etc.) along urban trails can increase the feeling of being in nature while in a rugged urban setting (Patterson, L. J. 2006). It can allow community members who may live in the very urban setting to enjoy nature aspects (animals, flowers, landscapes) of the state they live in even if they are walking an urban trail within a city and may not have a chance to see them otherwise. Adding two-dimensional sculpture murals to trails also creates an added area of content for trail users

who may have visual impairments. Trails with underpass sections that go underneath roads, railroads, or highways provide opportunities to add art to spaces that were not being used otherwise (Patterson, L. J. 2006).

Two studies found that Painted or sculptured murals also provide opportunities for education and entertainment for children and adults (Patterson, L. J. 2006; Zander, M. J. 2004). Painted art murals can be a way to illustrate important historical events or social issues. They can also bring different sectors of the community and local governments together to collaborate on projects. Classwork curriculums can be designed around painted murals and utilize field trips to explore the murals. Students can learn what public art is and learn about the history of the murals (Zander, M. J. 2004).

Two studies found that painted murals in an urban area allow for community members to see representations of themselves, their history, and their culture that they may not normally see within museums or other art galleries (Wyels, J. G. ,2000; Desmarais, L. & Larivée, C., 2017). They can also turn a not so vibrant neighborhood or area into a new scenery that can be seen as a gallery itself. Mural art can help create community cohesiveness by getting input from community members on what kind of art they would like to see and where, allowing the community to buy into the project. Street art murals can provide opportunities for indigenous urban youth, otherwise known as urban Indians, and other marginalized people of color the opportunity to use their voice through art. Street art murals break down the barriers of colonization and western influence on what is considered art and history. Indigenous art spaces can play a role in voicing social issues to the general public, allow for a different story to be told, a story that says that indigenous populations are still here and thriving (Wyels, J. G. ,2000; Desmarais, L. & Larivée, C., 2017).

Broader evidence suggests that art in community spaces can engage the community and create a sense of cohesiveness among different sectors of the community (Friends of the Hank Aaron Trail Association, 2019). The Hank Aaron Trail in Milwaukee features several art pieces that range from murals to sculptures that are considered to help tell the story and history of the state, as well as draw people to these spaces for recreation. Artwork can also be educational and attract individuals to community spaces, such as urban trails, that they may not have otherwise wanted to visit (Public Art Master Plan Legacy Trail, 2010). Creating artwork in public spaces does not have to come at the expense of cities or states either. Large philanthropic organizations such as Bloomberg Philanthropies have provided funding to create large scale public art pieces (Colorful street transformations coming to 10 U.S. cities, 2019). There are also how-to guides that layout each step of the process to help implement a community art project from conception to implementation to evaluation (Asphalt Art Guide, 2019). Government agencies that have limited funding for such projects can also go through a request for proposals process. This would allow the designs, supplies, and implementation to come directly from the community members. Individuals interested in bringing their art to a public space can submit a proposal of their design idea and what supplies they can provide. Artist in residency programs can also be implemented (Kanzinger, 2019). Recycled materials such as unused rainwater barrels and old streetcar stations can be used to create additional art installations (Menominee River Valley, 2019). Adding artwork to an urban trail can engage the community and provide more neighborhood connection. It can help elevate an urban trail from a health focused infrastructure to a community loved space (Rails to Trails Conservancy, 2020).

### Demographics of Trail Users and Trail Use

Seven of the articles found that adults and older adults typically used urban trails for recreational purposes such as walking, jogging, or riding bikes (Chen et. al., 2019; Maslow et. al., 2012; Akpinar, 2016; Price et. al., 2012; Wolff-Hughes et. al., 2014; Orstad et. al., 2016; Arnberger & Eder, 2015), and three articles found that younger individuals (teenage and young adults) used urban trails for transportation or utilitarian purposes (Chen et. al., 2019; Reed et. al., 2011; Orstad et. al., 2016). However, Dunton, et. al., (2009) found that women use urban trails more for transportation as a form of exercise compared to men ( $p=.008$ ). Dorwart (2015) found that among older adults (65-82 years old) half of trail users were female, half were male, and the majority used urban trails for recreational purposes (88%). McNeill et. al. (2015) found that trail users who use trails four or more times per week are more likely to be under 40 years old, female, and African American; these findings are limited to the demographics of the population residing near the trail.

In Aydin, Turkey urban trail research shows that there is a significant correlation between older adults and frequency of urban trail use ( $\beta=.034, p<.001$ ; Akpinar, 2016). The average age of trail users was between 35-44 years old (20.2%) and the majority of users had at least a college degree (51.8%). Contrary to the study Akpinar (2016) conducted in Turkey, the average users of one greenway trail in China were between 15-34 (49.1%; Chen et. al., 2017). Also, Keith et. al. (2018) found the average age of greenway trail users to be 30-49 years old (46.5%). Research shows that there is a broad spectrum of urban trail users, and it is important to conduct community assessments regarding urban trail use for specific geographic areas.

Three of the articles had evidence that showed higher income individuals use urban trails more often and for recreational purposes, and lower income individuals use them for travel or

utilitarian purposes (Chen et. al., 2019; Maslow et. al., 2012; McNeill et. al., 2015). One article found no significance between income level and urban trail use frequency or duration (Akpinar, 2016).

Six of the articles found that women use urban trails more often than men (Maslow et. al., 2012; Akpinar, 2016; McNeill et. al., 2015; Orstad et. al., 2016; Price & Reed, 2014; Arnberger & Eder, 2015). Compared to six articles that found men use them more (Chen, et. al., 2019; Reed et. al., 2011; Chen et. al., 2017; Keith et. al., 2018; Price et. al., 2012; Dunton, et. al., 2009). Price et. al., (2012) found that women use urban trails for walking and jogging and males use them more for cycling. Wolff-Hughes et. al. (2014) found that users of an urban greenway that was more linear shaped tended to be male (60.7%), and users of a greenway that was more of a circular shape tended to be female (65.2%).

Three of the articles found that individuals with a high school degree or lower used urban trails more frequently and for travel purposes (Maslow et. al., 2012; Arnberger & Eder, 2015; Price et. al., 2013), compared to four articles that found relationships between trail users having a college degree or higher and trail use/duration (Akpinar, 2016; Chen et. al., 2017; Orstad et. al., 2016; Price & Reed, 2014). Dunton, et. al., (2009) also found that trail users tend to be higher income, have a college degree, and have higher levels of physical activity as well.

Nine articles that conducted studies in diverse neighborhoods found that the majority of urban trail users are white (Chen, et. al., 2019; Maslow et. al., 2012; Reed et. al., 2011; Price et. al., 2012; Wolff-Hughes et. al., 2014; Orstad et. al., 2016; Price et. al., 2013; Dunton, et. al., 2009; Morgan Hughey et. al., 2015), and one found that majority of users were African American (McNeill, et. al., 2015). Other study results found that almost 60% of users of a suburban greenway were non-white, and around 68% of an urban greenway were white (Keith et.

al., 2018). Interestingly, Morgan Hughey et. al. (2015) also found that trail non-users tend to be white females with median income (around \$45,000/year) and have at least some college experience. The demographic characteristics of trail users from each study may be ungeneralizable and are limited to the geographic region in which the studies have taken place.

### **Trail Characteristics and Trail Use**

Four studies found individuals prefer to visit trails closer to them. The individuals who live closer to trails (generally within walking distance) are more likely to use them more often and for longer periods of time (Maslow et. al., 2012; Akpinar, 2016; Chen et. al., 2017; Keith et. al., 2018). One study in which the majority of trail users traveled by car to get to the trail identified that the distance traveled to the trail was not an issue (Chen et. al., 2019). Chen et. al., (2017) found that trail users who live further away from trails tend to use them for longer periods of time compared to those who live closer. Also, the further away the individual lives from the trail the longer they tend to spend on it.

Four studies found that the average urban trail users live within three miles or less than 30 minutes of the trails (Reed et. al., 2011; Akpinar, 2016; Chen et. al., 2017; Price et. al., 2013), and use the trails more often. For older adults (65+), living within three miles of a trail can be somewhat of a barrier as they would still have to drive to the trail (Dorwart et. al., 2015).

Trail accessibility, lighting, and the trail having restroom and water fountain amenities were associated with more trail use and longer duration. Having multiple parking lots available at the trail was associated with users spending less time on the trail (Akpinar, 2016).

Some barriers to individuals visiting urban trails is that they lack general information about the trail and the trail does not have adequate access points (Keith et. al., 2018). The majority of trail users learn about trails mostly through word of mouth and newspapers, and least

through flyers or brochures (Price et. al., 2012). One study that focused on why individuals *do not* use a local community trail found that female respondents identified the trail as being *too far away* (62.0%) and *not aware* (63.1%) which was significantly different than male responses ( $p<.001$ ). Additionally, 64.4% of respondents under the age of 64 said they were *not aware* of the trail (Morgan Hughey et. al., 2015).

Urban greenways that are designed in a linear form facilitate more strenuous physical activity and individuals use the greenway for longer periods of time, compared to users of an urban greenway that was designed in a loop at 34.7% compared to 22.0%, and 60 minutes compared to 45 minutes respectively (Wolff-Hughes et. al., 2014). Trail users who exercise alone or with a pet are more likely to use the trail four or more times per week (McNeill et. al., 2015). Urban greenspaces and trails that have more shrubbery (both manicured and natural) and greenery (open green space, grassy areas, and trees) along the trail are beneficial for both user general preference and also for stress relief ( $p<.001$ ; Arnberger & Eder, 2015). Trail users tend to use trails in the summer months with higher outdoor temperatures, however when temperatures reach 88 degrees Fahrenheit or higher trail use tends to drop (Burchfield et. al., 2012). Current research also shows that the more facilities along the trail that are easily accessible are associated with higher levels of physical activity, mostly through using the trail for transportation ( $p=.015$ ; Dunton, et. al., 2009).

The majority of trails that reside on or near tribal lands are used for recreational, health and exercise, and cultural purposes. Many individuals noted that, outside of health and wellness initiatives, trails could be used as educational tools to teach tribal and non-tribal individuals about the history of the land, and in combination could be used as economic development for tribes to bring in tourists (Deyo et. al., 2014).



### User Perceptions and Trail Use

One study found that trail users (specifically college students) *do* identify recreational impacts on the trail (exposed roots, extra trail paths, and litter) and these observations *do* impact their trail use experience. Nearly half (49.2%) of respondents that were able to identify impacts on the trail indicated that litter on the trail, and trail erosion (35.1%) reduced enjoyment on the trail (Moore et. al., 2012).

Trail users who perceive the trail to be safe and in good condition are more likely to use the trail for travel and recreational purposes (Maslow et. al., 2012). Individuals who perceive the trail to be clean and safe are more likely to use trails more often and for longer periods of time (Chen et. al., 2019; Maslow et. al., 2012; Price & Reed, 2014). Some individuals, mostly white females, identified trails having risk of crime as a barrier, while the majority of users identified safety and security along the trail to be most important (Keith et. al., 2018). However, one study showed no significant relationship between trail design, cleanliness, or safety and trail use (Akpinar, 2016).

Dorwart (2015) found that senior citizen trail users (65 years and up) either *agree* or *strongly agree* that curving movements on the trail enhance the user experience. Senior citizen trail users also liked paved versus natural trail texture, the trail being next to water, and having man made items on the trail (benches, small bridges). Users also disliked portions of the trail that were straight, uninteresting and mimicked sidewalks, and liked parts that had trees and were viewed as more peaceful areas of the trail.

Intersections on urban greenways can be a barrier and may be dangerous. One study found significance between pedestrians and cyclists using an urban greenway, and the feeling that drivers *speed up* when entering intersections ( $p=.07$ ). A significant relationship was also

found between greenway pedestrians and cyclist indicating *having to evade* cars at previous intersections ( $p=.01$ ); however, the majority of cyclists (81.82%) and pedestrians (74.19%) did not properly activate the rectangular rapid flash beacon correctly at the intersections (Anderson et. al., 2019).

Price et. al., (2012) found that adult urban trail users identified distance markers, design, and location to be among the top trail factors that users liked. In the study conducted by McNeill, et. al., (2015) users perceived the top three important trail characteristics to be: the trail is well maintained (97%); no litter (94%); and safe from traffic (90%). Orstad et. al., 2016 found that trail users who indicated the trails design as important to them are more likely to use the trail for longer than one hour per visit, and females who indicate trail safety as important are three times more likely to use the trails for longer periods of time compared to males (OR=2.10; 95% CI, 0.92-4.80). The study conducted by Price & Reed (2014) found that 53% of non-trail users indicated trail distance and location inconvenience as the reasons they did not use the trail. Dunton, et. al. (2009) found that among the 150 individuals who identified not using the local trail were because the trail was *ugly* (3.2%), *unsafe* (9.7), and *don't have enough time* (23.2%).

Lindsey et. al. (2008) found positive associations with higher rates of trail traffic and areas that had open space views, greenery, and paved surfaces. Areas that had artwork had lower trail traffic; however, no user data was collected from in person or questionnaires so there could be other factors that affect traffic counts.

### **Trail Use Interventions**

Clark et al., (2014) conducted an evaluation on a trail intervention to try and increase physical activity. The intervention included a media campaign that promoted physical activity and local trails, and added signage (access, wayfinding and distance) to specific trails. Results

showed significant increases in PA after the media campaign for both control and study trails ( $p < .01$ ), but not for the signage. The pre-post analysis showed an increase of 31% for the control group and 35% for the study group. Media campaigns promoting PA may increase urban trail use, but further research is needed on how added signage may affect trail use.

One article evaluated physical activity levels (2-hour physical activity counts) before and after the installation of an urban trail. Baseline data collection showed no significance for physical activity counts in the control or study neighborhoods. At post intervention there was a significant increase in total 2-hour physical activity counts in the study neighborhood for cycling ( $p = .036$ ) and walking ( $p = .002$ ). Comparatively there was a significant decrease seen in the 2-hour physical activity counts among control neighborhoods ( $p = .000$ ; Fitzhugh et. al., 2010).

## Discussion

### Major Findings

The average trail users are white older adults with at least a college degree, above average income, and used trails for recreational purposes (Chen et. al., 2019; Maslow et. al., 2012; Akpınar, 2016; Price et. al., 2012; Wolff-Hughes et. al., 2014; Orstad et. al., 2016; Arnberger & Eder, 2015). Individuals who live closer to the trails are more likely to use them more often and for longer periods of time (Maslow et. al., 2012; Akpınar, 2016; Chen et. al., 2017; Keith et. al., 2018). Individuals who fall into a lower socioeconomic status and who are of younger ages utilize urban trails mostly for transportation purposes (Chen et. al., 2019; Maslow et. al., 2012; McNeill et. al., 2015).

Adding sculpted mural artwork along urban trails can increase the feeling of being in nature into the rugged urban setting (Patterson, L. J. 2006). Trails with underpass sections provide opportunities to add art to spaces that were not being used creatively otherwise. Painted

or sculptured murals can provide opportunities for education and entertainment for children and adults (Patterson, L. J. 2006; Zander, M. J. 2004). Painted art murals can be a way to illustrate important historical events or social issues. They can also bring different sectors of the community and local governments together to collaborate on projects. Community members can see representations of themselves, their history, and their culture in street art murals that they may not normally see within museums or other art galleries (Wyels, J. G. ,2000; Desmarais, L. & Larivée, C., 2017). Mural art can help create community cohesiveness by getting input from community members on what kind of art they would like to see and where, and an art project can bring in different community sector organizations. Street art murals can provide opportunities for indigenous and other people of color the opportunity to use their voice through art. Street art murals break down the barriers of colonization and western influence on what is considered art and history.

The common identified barriers to people using urban trails is that there is lack of information in the public about the trail, the trail is too far away, and the trail lacks access points (Keith et. al., 2018; Morgan Hughey et. al., 2015; Price et. al., 2012; Price & Reed, 2014). The majority of urban trail users learn about the trail through word of mouth (Price et. al., 2012).

Individuals who perceive the trail to be clean, safe, and well-designed are more likely to use the trail more often and for longer periods of time (Chen et. al., 2019; Maslow et. al., 2012; Price & Reed, 2014). Trail signage, cleanliness, design, and location were among the top characteristics that trail users liked (Price et. al., 2012; Orstad et. al., 2016; McNeill, et. al., 2015). Trees, plants, shrubbery and other forms of greenery on trails are identified as stress relievers and trail qualities that were liked by trail users (Arnberger & Eder, 2015). The creation of urban trails within metropolitan neighborhoods can increase the overall physical activity of

community members (Fitzhugh et. al., 2010) and utilizing media campaigns to promote the trails can increase the trail usage by up to 30% (Clark et al., 2014).

### **Practical Implications**

Adding artwork to urban trails could provide an opportunity for community members to visit a place that they may not have otherwise because they did not know about it or were not interested in the area. One mural art project could bring together different members and organizations within a community that might not have worked together or known each other before. Mural art on an urban trail can provide an education opportunity to learn about what the art itself is as well as learning about the local trails within Oklahoma City. Individuals visiting the trail to see a piece of artwork may engage in further physical activity by walking the trail further.

Media campaigns would be a beneficial intervention to increase overall trail usage due to the fact that lack of information is identified as a barrier to trail use and media campaigns have been shown to increase trail use. Since cleanliness and safety are among the top trail characteristics associated with higher frequencies and duration of use, city planning departments should conduct periodical cleanliness and safety audits on trails. Adding shrubbery, trees, and plants to urban trails could improve the overall aesthetic and aid in stress relief for trail users. Increasing access points and entrances to urban trails could improve trail use. Digital information products (infographics, pdf documents, etc.) that combine public transportation routes and information on how to utilize urban trails for transportation could be beneficial for increasing urban trail use for younger and lower socioeconomic status individuals. The results of this literature review may aid city planning departments in future construction of urban trails.

## Limitations

### Instruments Used

The majority of studies used in this literature review utilized self-reported trail intercept surveys collected at outdoor recreational urban trail and urban greenway spaces. Self-reported questionnaires have limitations due to the fact that the participants have to recall or provide answers on the spot that may have internal bias (McNeill et. al., 2015). Some of the studies reviewed only utilized observational methods to identify rates of use for trails and therefore is not able to associate trail factors with trail use. Reed et. al., (2011) used pictures to categorize what kind of physical activity individuals were conducting, and what race/ethnicity individuals were. There are large data gaps in racial misclassification (mainly among Native Americans) even among doctors, morticians and trained professionals so there could have been a misclassification of trail users in this study. The type of physical activities observed were coded by sedentary, walking, or vigorous and individuals who were just running may have taken a break and were now coded as sedentary. The trail intercept surveys used in most of the articles asked trail characteristics questions regarding what would deter them from using the trail but did not ask about what characteristics would make them more likely to use the trail. Additional research needs to be conducted on what trail amenities and characteristics would bring more users to the trail and for longer durations of use. Things like trail artwork, historical sites, and workout equipment could be additional trail research topics. Further research is needed to identify why younger minority individuals do not use urban trails for recreational or transportation purposes. One study (Clark et. al., 2014; ) only used quantitative data through infrared sensors tracking urban trail use before and after an intervention and did not utilize any qualitative data through user surveys, or questionnaires. The sensors only tracked access points

and not incremental distances to track user duration on the trail. Using photo and text descriptions for greenspace characteristics such as litter and traffic noise may not accurately reflect the greenspace itself. An image with excessive litter compared to an image with less litter may cause bias in questionnaire answers and traffic noise is difficult to accurately portray in text form (Arnberger & Eder, 2015).

### **Number of Trails and Data Collection Times**

Akpinar (2016) collected trail user data on weekdays and weekend days from 7:00 – 9:00 a.m. and from 5:00 – 8:00 p.m. which leaves a potential to miss the day time users, especially on weekends. Chen et. al., (2017) only assessed one trail and the results can only be representative of that trail and users of that trail. Assessing at least two or more trails allows for better comparisons among trail users and trail factors. Keith et. al, (2018) did not assess additional key trail factors, such as lighting, and access to bathrooms or water fountains, and only collected data in summer months whereas fall and spring months could have increased participation rates due to the study location being in southern Texas where cooler months may see equal or more trail use. Burchfield et. al., (2012) only collected data from August to April, missing out on summer months which could have added a larger sample (May, June, July).

### **Summary Conclusions**

The research conducted through this literature review showed that older individuals who are higher socioeconomic status (SES) use trails more often for recreational purposes and younger, lower SES individuals use trails for travel and commuting purposes. The common limitations include conducting research only on one trail, collecting observational data but not survey data, and collecting on one weekday and one weekend day. Adding trail signage (way finding, distance markers, and access point signs) and using media campaigns to promote

physical activity and the local urban trails can be beneficial interventions to increase trail use. Artwork on urban trails and in general community settings can be used to draw people in to visit such places as well as educate community members and provide a sense of cohesiveness and collaboration.

### **CHAPTER THREE: METHODOLOGY**

All recruitment strategies, survey instruments, and information sheets were approved by University of Central Oklahoma (UCO) Institutional Review Board (IRB) through application #2019-103. The UCO IRB approval letter can be found in Appendix A.

#### **Participants**

The primary participants of focus for this study were individuals who utilized the Will Rogers Trail (WRT) in Oklahoma City (OKC) and University of Central Oklahoma (UCO) students. Inclusion criteria for trail users consisted of individuals being age 18 or older who were visibly seen using the trail. Inclusion criteria for the UCO students consisted of being an enrolled UCO student. Exclusion criteria consisted of individuals who are not 18 years or older or were not seen using the WRT.

#### **Recruitment**

Recruitment of UCO students included two processes: A) The researcher visited undergraduate and graduate level classes of three professors in early August to discuss the research project and what voluntary participation will consist of and; B) A campus wide email was sent to all UCO students asking them to voluntarily participate by completing the online version of the urban trail and artwork survey. Students who were in the classes were told about what the research project was and what the online survey consisted of. Students were also informed and recruited to participate in the follow up trail walking portion. The follow up



portion consisted of participants walking a designated section of two urban trails followed by an assessment questionnaire of their experience. All students were informed either in person or through the online recruitment email that if they participated in the online survey, they would be entered into a drawing for a chance to win a \$25 Amazon gift card, and if they participated in the follow up portion they would be entered into a drawing to win a \$50 Amazon gift card.

Recruitment of individuals utilizing the WRT consisted of the researcher approaching the individual, reading verbatim from the designed script sheet, and providing the individual with the research study information sheet. The information sheet explained what the research study is and explained that participation is voluntary, and they can opt out at any time. The script and information sheet can be found in Appendix B and C.

### **Instruments**

There were three evaluation instruments used in this study: 1) Online electronic Urban trail and artwork survey for all UCO students created through Qualtrics online; 2) Hard copy Urban trail and artwork survey for urban trail users in OKC and; 3) Hard copy Urban trail walking follow up assessment survey. All three evaluation instruments have been created using questions sourced from the 17-item trail intercept questionnaire (Troped et. al., 2009). Additional questions regarding artwork on urban trails were added that were developed by the researcher based on content found within the project for public spaces content (Project for public spaces, public art: An introduction, 2010). The surveys can be seen in Appendix D, E, and F.

### **Procedures**

Trail users: The trail user survey questionnaire included questions on user perceptions of the trail, frequency of use, purpose of use, how artwork along the trail would impact their trail use, what amenities would make their trail experience better, and general demographic questions.

To implement the urban trail and artwork survey on the two selected trails the researcher followed similar methodology procedures of previous research studies. The researcher completed the data collection on multiple weekdays and weekend days (Chen et. al., 2019; Akpinar, 2016; Keith et. al., 2018; Dorwart, 2015; Anderson et. al., 2019; Price et. al., 2012; Wolff-Hughes et. al., 2014; Orstad et. al., 2016; Arnberger & Eder, 2015; Fitzhugh et. al., 2010; Price et. al., 2013). This methodology of data collection was implemented to achieve a random sample of individuals who are using the urban trails for recreational and transportation purposes. The researcher was positioned at main access points on each of the trails on various days. As individuals were using the urban trails the researcher approached them, informed them of the research study using the script, provided them with the information sheet, and asked them to complete the survey. The date/times of data collection and number of individuals who accepted or refused to participate were tracked, and can be found in Appendix G.

UCO Students: The researcher coordinated with the UCO Communications and Public Relations department to organize how the survey would be distributed to all UCO students. The researcher created the email subject line, email body narrative, and online survey questions. The survey was created in Qualtrics online and the researcher provided the survey link to the Communications and Public Relations department to include in the email. A mass email was sent out to all enrolled UCO students by the UCO Communications and Public Relations department. The survey link was available to access from 8/1/2019 to 11/8/19. Students who were interested in completing the follow up trail walking portion were solicited at the end of the survey to submit their email address to be later contacted by the researcher.

The researcher visited six classes being taught by Professor Steven Dunn, Dr. Jamie Dunnington, and Dr. Jerel Cowan. The research project was discussed with each of the classes

including what the research study purpose is, what participation will entail, and to inform the class of the possible incentive items for participation. The researcher informed students within the classes that they will be receiving the urban trail and artwork survey through their university email address. The survey will be completely voluntary, anonymous, and students can withdraw from participation at any time. Upon completion of the survey, students will have the opportunity to sign up to participate in an additional follow up data collection component with the possibility of receiving a non-cash incentive in the form of a \$50 Amazon gift card.

Students who wanted to participate in the additional data collection submitted their email address at the end of the online survey. The researcher also provided a contact email to students who were in one of the classes that the researcher visited, and students then contacted the researcher directly. The researcher created informational documents that had participation information, trail locations, dates, and times available for participants to meet and participate in the trail walking portion. There were 244 students who submitted their email to be contacted for follow up data collection participation.

The students who showed up to participate received an information sheet that discloses the purpose of the research and their opportunity to withdraw at any time. The students then walked a selected portion of the urban trail and completed an assessment of their experience upon completion. Participants were provided water and light snacks (granola bars and trail mix) before and after they walked the trail section.

### **Trail Selection**

The researcher identified two trails for this study, the Will Rogers Trail (WRT) and the Oklahoma River Trail North (ORTN). The WRT was identified to be a study trail based on two priorities. 1) It is a very urban trail with limited green space and 2) the trail could have potential

spaces for mural art. The researcher identified this trail through a previous project within the Physical Activity and Public Health course at UCO. The ORTN was identified as a study trail upon recommendation from the Oklahoma City Parks and Recreation Department (OKCPR). The OKCPR referred the researcher to this trail based upon its opportunity to have artwork added to sections of the trail that were routed underneath bridges and railroads known as underpasses. Underpasses are sections of a road/trail in which the route passes underneath another road, highway, interstate, railroad track or other form of overhead material (Merriam-Webster, 2019). The ORTN will also provide an opportunity to compare results between two trails with different environments. The WRT is very urban and the ORTN is more set-in green space along the river.

Will Rogers Trail: The WRT is a multiuse trail that is just over eight miles in length, has a hard asphalt surface, easy variability rating, is easily accessible and allows no motor vehicles (Oklahoma Parks and Recreation Trails Map, 2019).

This trail has approximately .5 miles of newly added fencing that separates neighborhood yards from the trail and runs along 63<sup>rd</sup> street and Northwest Expressway between Meridian Avenue and Portland Avenue. This fencing could be a potential area to add painted mural art, although it may have to be approved by residential owners. The selected study section of this trail begins at the cross section of Northwest Expressway/North Meridian Avenue and ends at the red-light cross section of Northwest Expressway and Portland Avenue. There is a parking lot just to the right of the first cross section that participants will be able to park at. The researcher noted the time it would take to walk this section of the trail beginning at the parking lot, heading southeast toward Portland Avenue, and then returning to the parking lot at approximately 52-60

minutes. This section has a distance of 2.8 miles (parking area to Portland Avenue and back to parking area).

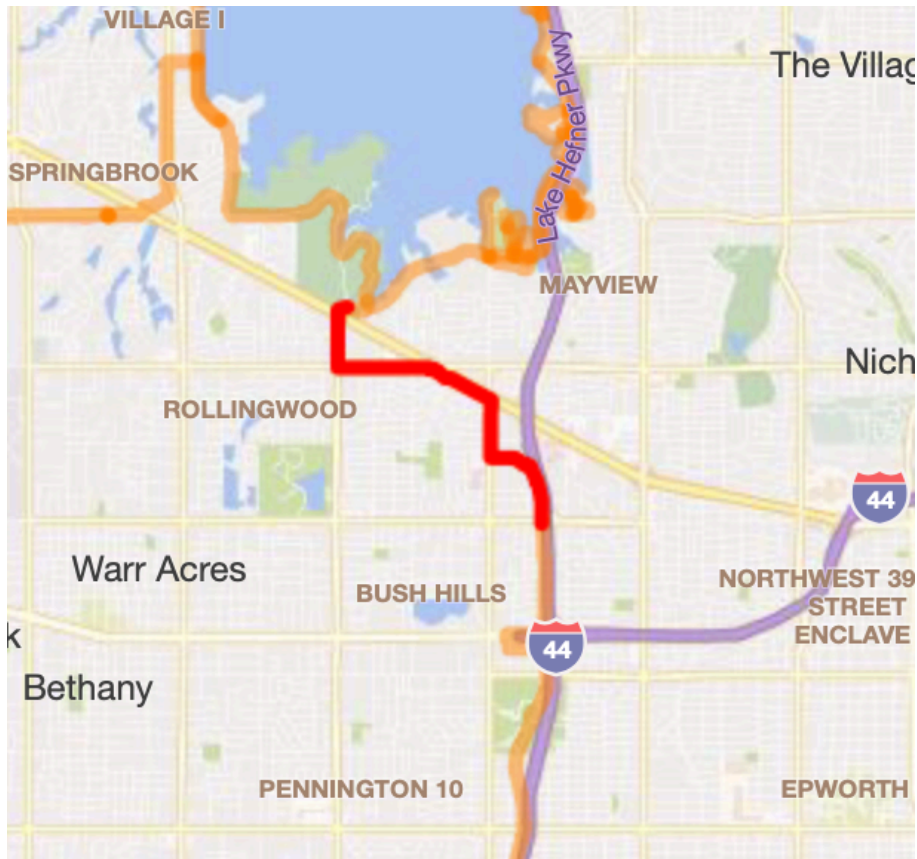


Figure 1. *Will Rogers Trail (Oklahoma City Parks and Recreation, Trails Map).*

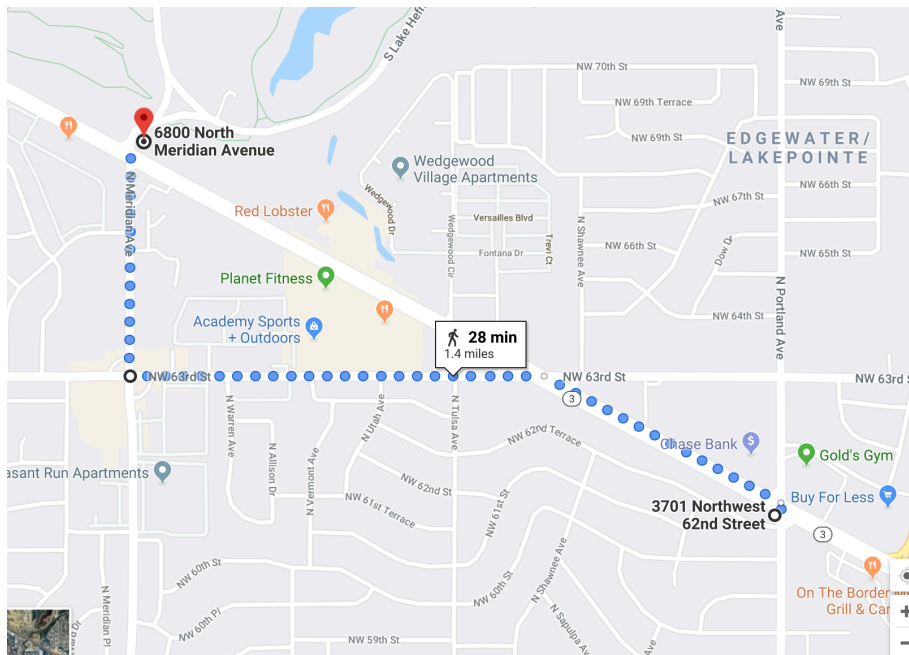


Figure 2. Selected section of the Will Rogers Trail (Google Maps).

Oklahoma River Trail North: The ORTN is a multiuse trail that is six and a half miles long, has a hard asphalt surface, easy variability rating, is easily accessible and allows no motor vehicles (Oklahoma Parks and Recreation Trails Map, 2019)

The selected section of this trail will begin at the Grand Lawn parking area located near Southwest 15<sup>th</sup> Street and end at the first wooden bridge crossing, approximately one mile from the parking lot. The researcher noted this selected section of the trail will take approximately 35-40 minutes to walk in total (from parking area to first wooden bridge and back) and has a distance of 1.16 miles.

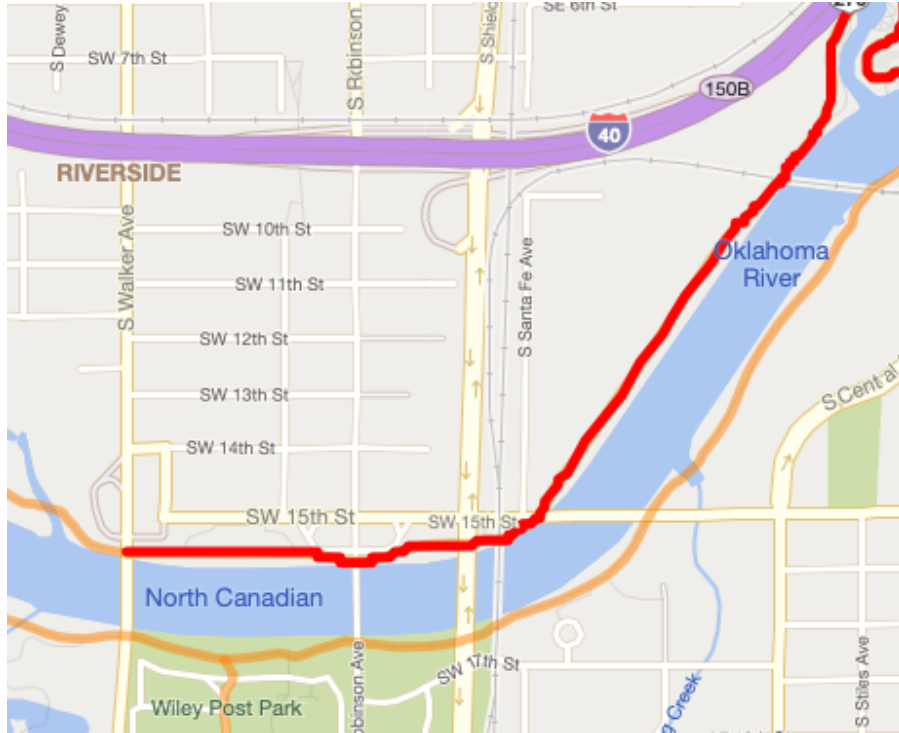


Figure 3. *Oklahoma River Trail North (Oklahoma City Parks and Recreation, Trails Map).*

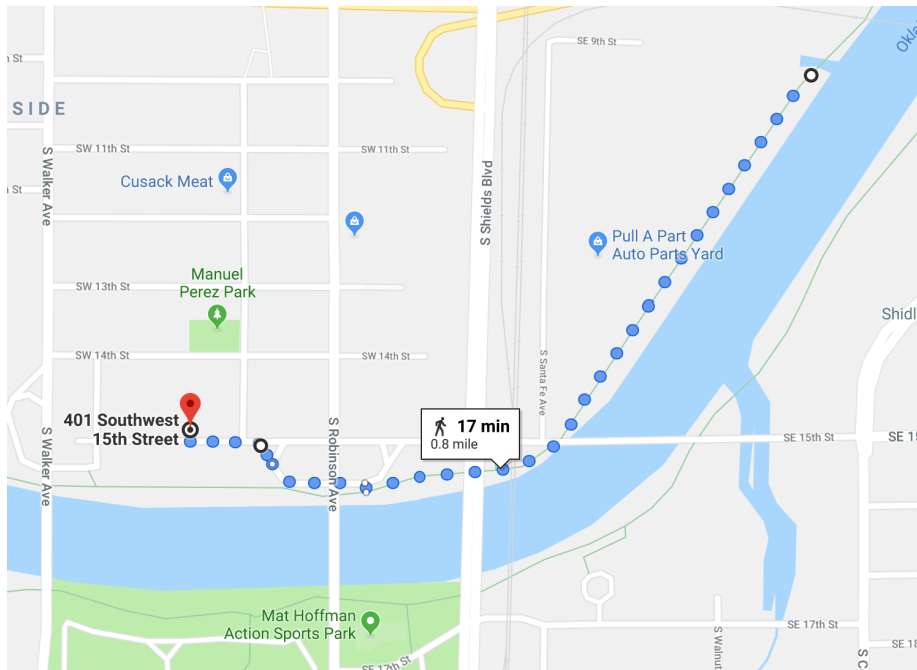


Figure 4. *Selected section of the Oklahoma River Trail North (Google Maps).*

### **Statistical analysis**

Statistical analysis was conducted using the International Business Machine Corporation (IBM) Statistical Package for Social Sciences (SPSS) version 24. Descriptive statistics and crosstab analyses were conducted using SPSS for the trail user survey and the trail walking follow up assessment survey. Descriptive statistics and crosstab analyses were conducted using the online Qualtrics survey software for the online urban trail and artwork survey. The survey that was distributed to all currently enrolled UCO students.

Frequencies and percentages are presented for select indicators from all survey instruments. Crosstabulation analysis is conducted to analyze results among selected indicators such as participants who indicated they have never used an urban trail in Oklahoma City and whether or not they agree or disagree that if there was more artwork along the urban trails they would visit them more often.

## **CHAPTER FOUR: RESULTS**

A total of 13,879 students (UCO Enrollment Statistics & Demographics, 2019) were solicited by email invitation to participate in the online Urban Trail and Artwork survey. An estimated total of 106 students were additionally recruited from select professors' classes. A total of 312 students completed the online survey (hereafter referred to as *online survey group*). If students participated in the online survey, they were also solicited within that to submit their email address to the researcher to participate in a follow up trail walking portion. There were 244 students who submitted their email to participate in the follow up walking portion. All 244 were contacted via email and sent the additional follow up walking information documents. Twenty-three individuals, including students, students' friends, and students' spouses participated in the follow up trail walking portion (hereafter referred to as *unexposed group*). A total of 43



individuals were recruited in person at the Will Rogers Trail to participate in the trail user survey. Among those recruited, 27 completed the survey (hereafter referred to as *trail user group*) and 16 denied participation. There was a total of 362 individuals who participated in the study across all three groups ( $n=362$ ). The first four sub-sections describe results for variables that are common across all three groups (participant demographics, artwork as a trail amenity to increase use, trail awareness and knowledge, artwork to better the trail environment and experience) followed by descriptive statistics and cross-tab results for each group individually.

### **Participant Demographics**

The majority of participants among all groups combined were white (63.1%), females (74.3%) between the ages of 18-24 (60.4%). The majority of online survey group respondents were white (61.6%) females (79.3%) between the ages of 18 and 24 (67.3%). The majority of trail user group respondents were white (70.4%) males (15, 55.6%) between the ages of 45-54 (29.6%). The majority of unexposed group participants were white (73.9%), between the ages of 25-34 (39.1%), and had an equal amount of male (47.8%) and female (47.8%) participants. One unexposed group participant preferred not to answer the gender question (4.3%). Appendix H provides a full breakdown of all participant demographics across the three groups.

### **Artwork as A Trail Amenity to Increase Use**

When asked what kinds of trail amenities would make your experience better, *Artwork on the trail* was selected most out of all available options across all three groups. There are no missing responses for this variable. For the *online survey group*, only results from respondents who answered *YES* to using an urban trail in OKC were included. Figure 5 illustrates results for all available answer options between the groups.

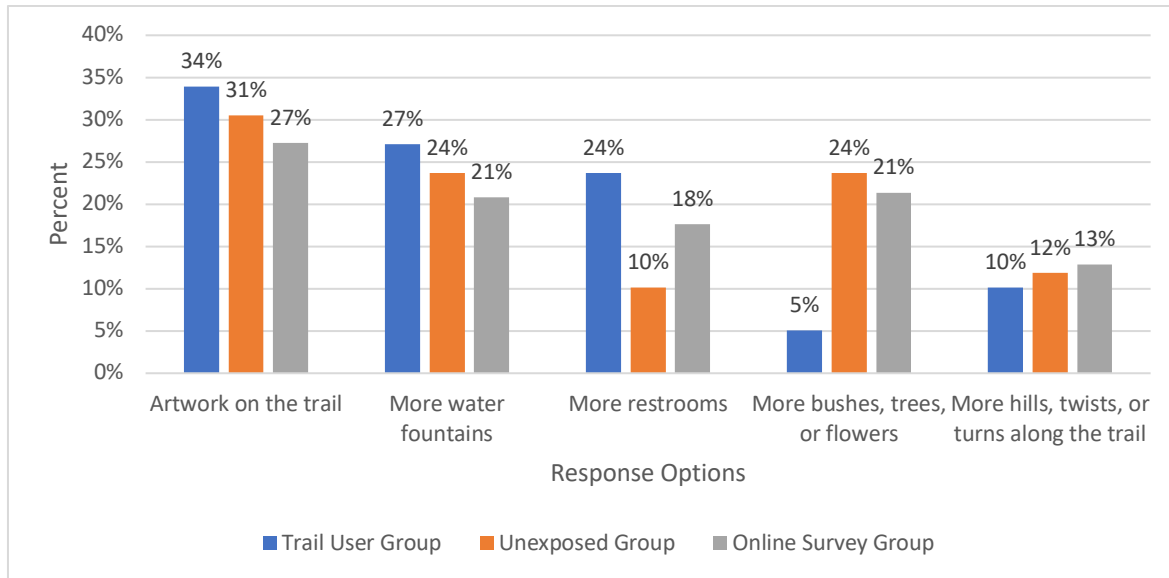


Figure 5. Bar graph illustrating results among three groups of respondents for which trail amenities would make their trail experience better.

When asked about what kind of artwork would most like to be seen, the trail user group indicated wanting to see more *fountains or water elements* (27.7%), compared to the unexposed group that want to see *earthworks or environmental art* (25.0%), and the online survey group that want to see *murals and paintings* (26.4%). There are no missing responses across all three groups for this variable. Figure 6 shows all response results between the groups.

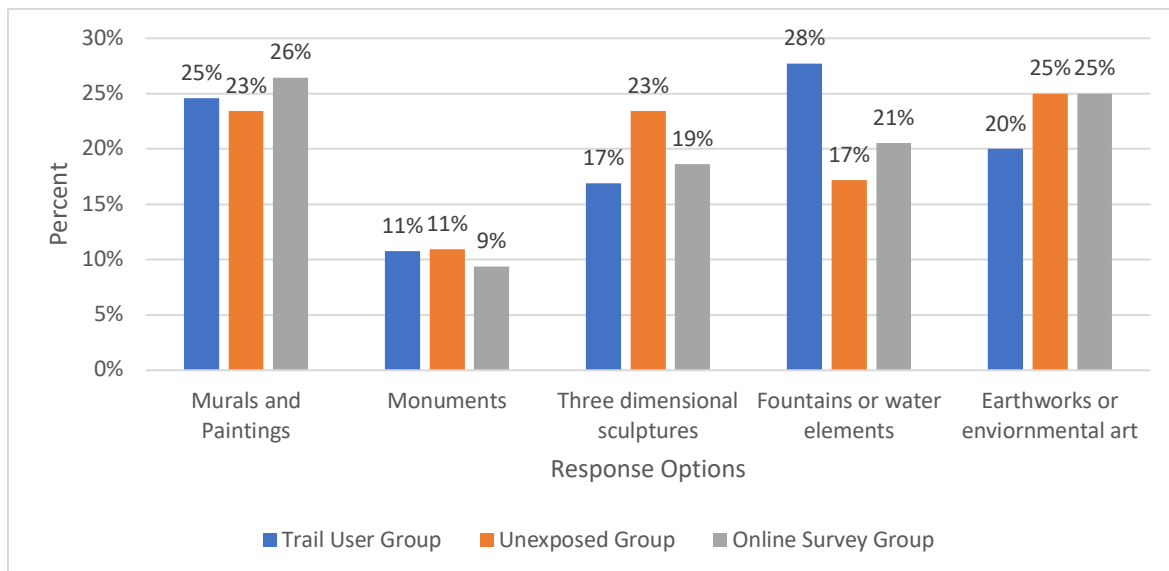
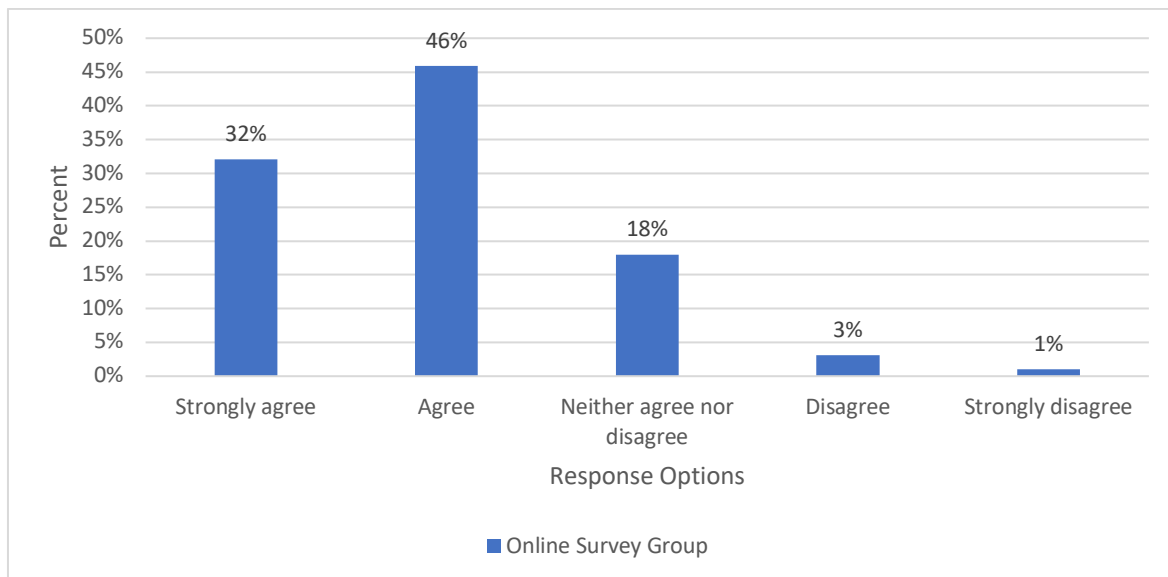


Figure 6. Bar graph illustrating results among the three groups of respondents for what type of artwork they prefer added to the Oklahoma City urban trails.

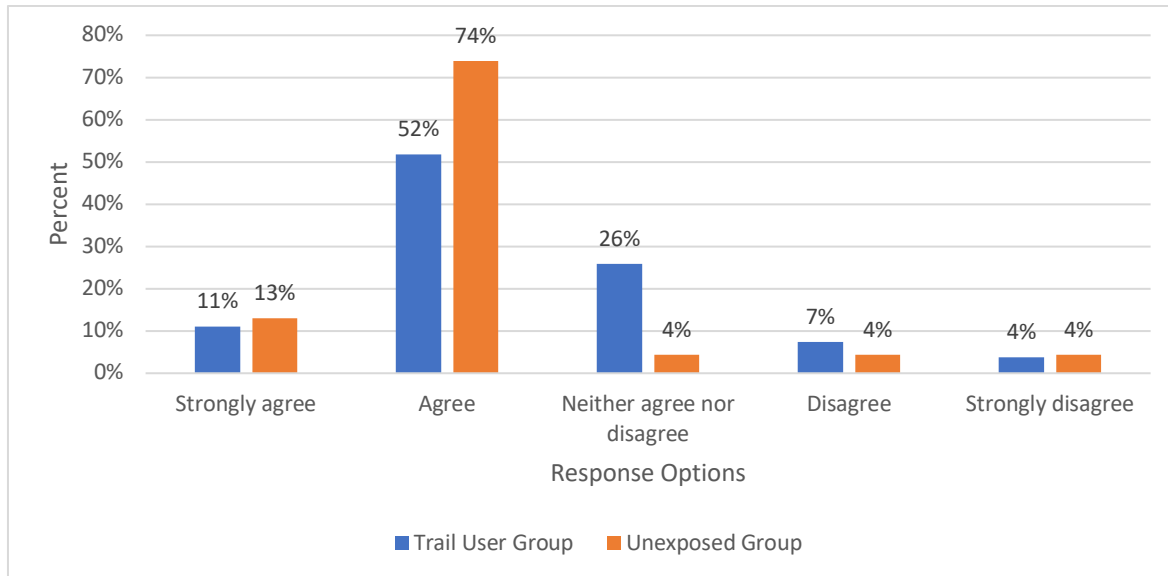
For the remainder of data responses within this section, the online survey group has been separated out due to slight variations in survey question wording.

A total of 226 (77.9%) out of 290 online survey group respondents *agree* or *strongly agree* with the statement: If there was more artwork along the Oklahoma City urban trails, I would visit them more often. Figure 7 illustrates all response results within the online survey group for how artwork would impact their urban trail use.

Figure 8 shows the comparison across the unexposed and trail user groups. A total of 37 (74%) out of 50 respondents *agree* or *strongly agree* with the statement: If there was more artwork along this trail (WRT), I would visit the trail more often.



*Figure 7.* Bar graph representing results across the online survey group for how much respondents agree or disagree the statement: If there was more artwork along the Oklahoma City urban trails, I would visit them more often.



*Figure 8.* Bar graph representing the comparison results between the trail user and unexposed groups for how much respondents agree or disagree the variable: If there was more artwork along this trail (Will Rogers Trail), I would visit it more often.

A total of 224 (77.8%) out of 288 respondents within the online survey group *agree* or *strongly agree* with the statement: If there was more artwork along the Oklahoma City urban trails, I would visit them with family. Figure 9 illustrates all response option results within the online survey group.

A total of 39 (78.0%) out of 50 respondents between the unexposed group and trail user group *agree* or *strongly agree* with the statement: If there was more artwork along this trail (Will Rogers Trail), I would visit the trail more with family. Figure 10 shows the comparison results across the unexposed and trail user groups.

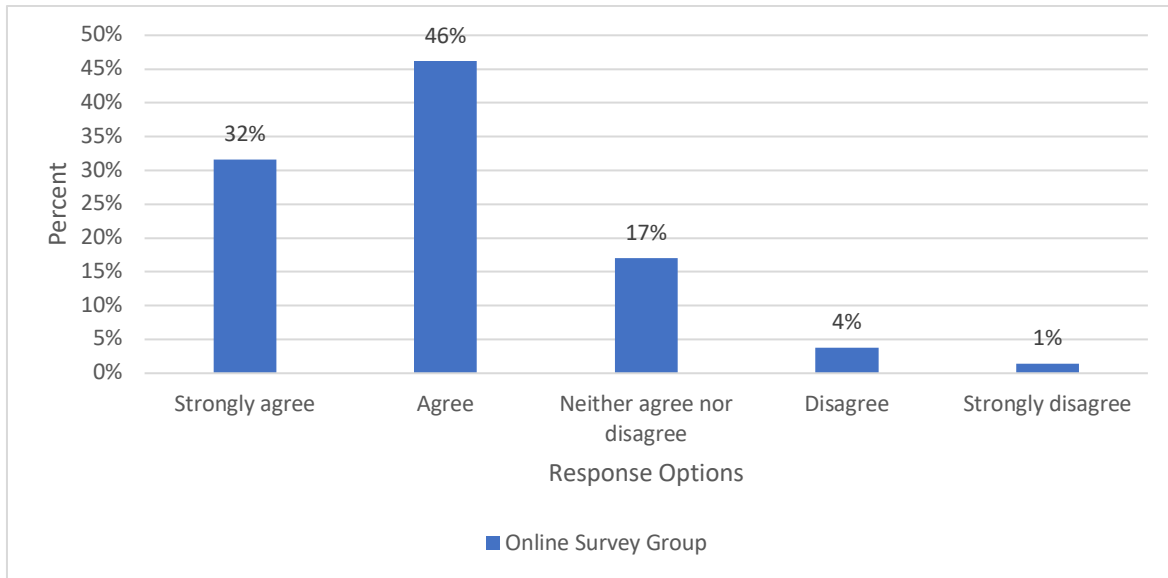


Figure 9. Bar graph representing results for how much respondents agree or disagree with the statement: If there was more artwork along the OKC urban trails I would visit them more with family.

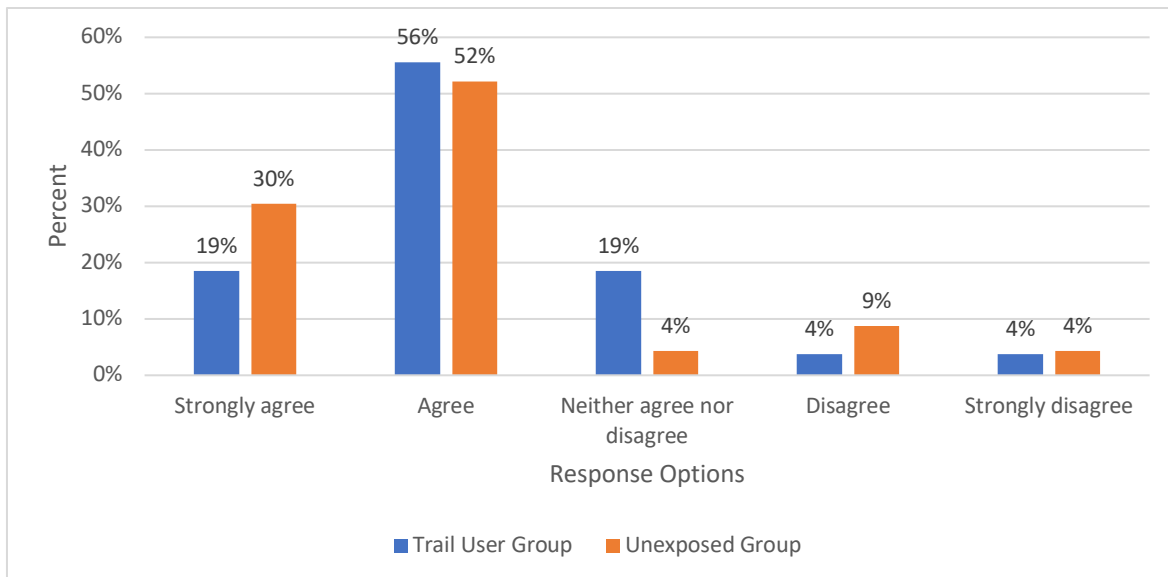


Figure 10. Bar graph representing the comparison results between the trail user and unexposed groups for how much respondents agree or disagree the variable: If there was more artwork along this trail (Will Rogers Trail), I would visit it more with family.

A total of 246 (84.5%) out of 291 respondents within the online survey group *agree* or *strongly agree* with the statement: If there was more artwork along the Oklahoma City urban trails, I would visit them with friends. A total of 41 (82.0%) out of 50 respondents among the unexposed and trail user groups *agree* or *strongly agree* with the statement: If there was more artwork along this trail (Will Rogers Trail), I would visit the trail more with friends. Figure 11 shows the comparison results within the online survey group. Figure 12 shows the comparisons across the unexposed and trail user groups.

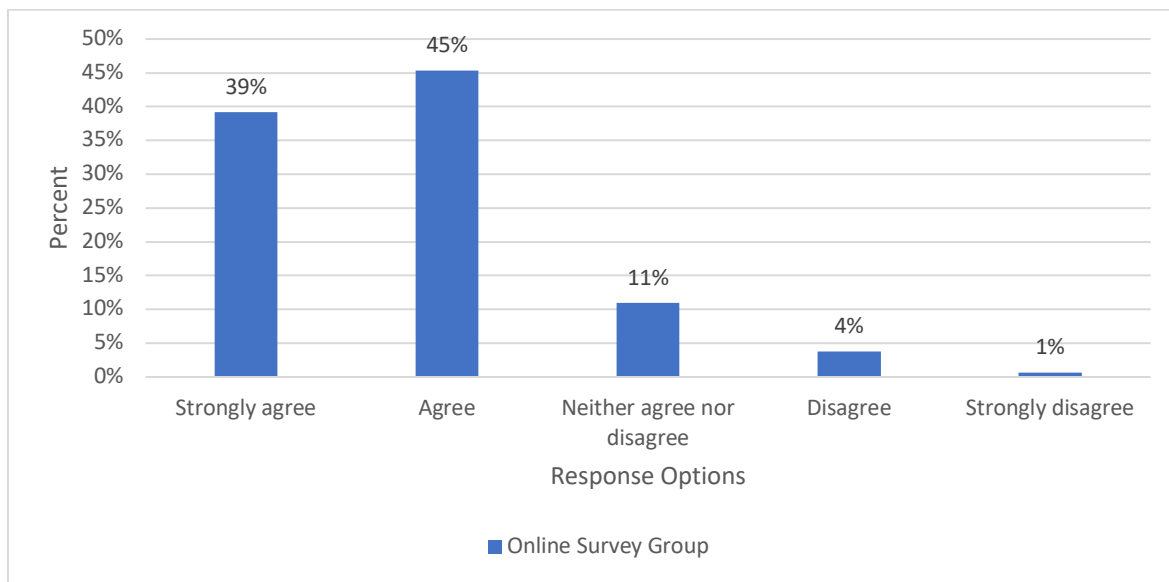
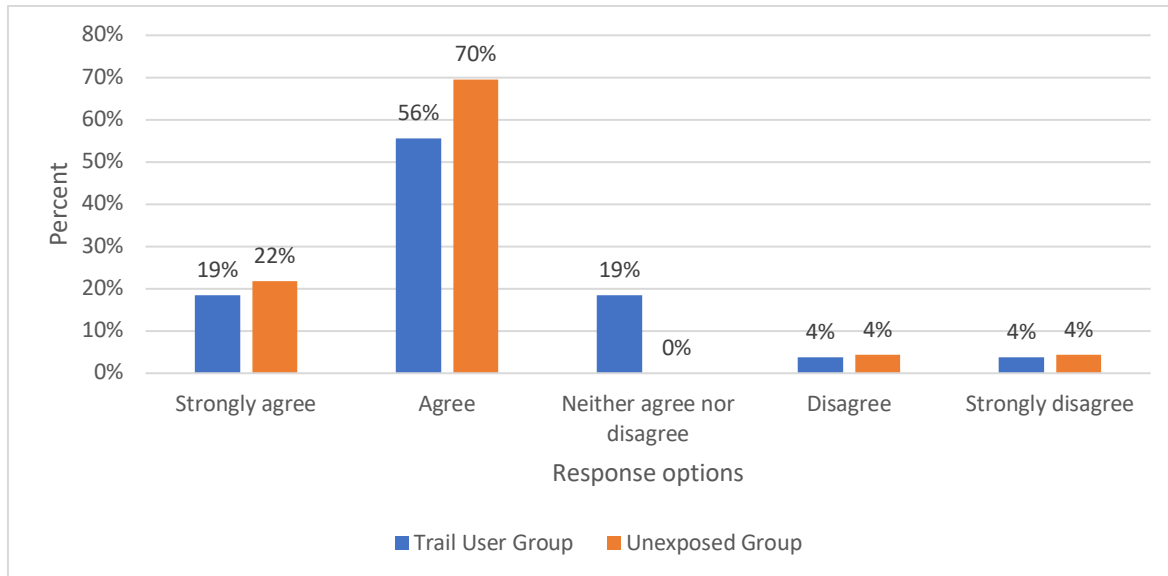


Figure 11. Bar graph representing results from the online survey only for how much respondents agree or disagree with the statement: If there was more artwork along the OKC urban trails I would visit them with friends.



*Figure 12.* Bar graph representing the comparison results between the trail user and unexposed groups for how much respondents agree or disagree the variable: If there was more artwork along this trail (Will Rogers Trail), I would visit it more with friends.

### Trail Awareness and Knowledge

The majority of online survey (255, 82%) and trail user respondents (17, 63%) indicated that they did not know that there were over 10 urban trails in Oklahoma City (OKC). Nearly one third (32.9%) of online survey respondents were not sure if they have ever used an urban trail in Oklahoma City.

### Artwork to Better the Trail Environment and Experience

Figure 13 illustrates the results in respondent's agreement of how art would impact the trail environment. A total of 42 (84.0%) out of 50 trail user group and unexposed group respondents combined agree (strongly agree or agree) that adding artwork along this trail (Will Rogers Trail) would make the trail environment better, compared to those that disagree (strongly disagree or disagree; 8.0%), and neither agree nor disagree (8.0%).

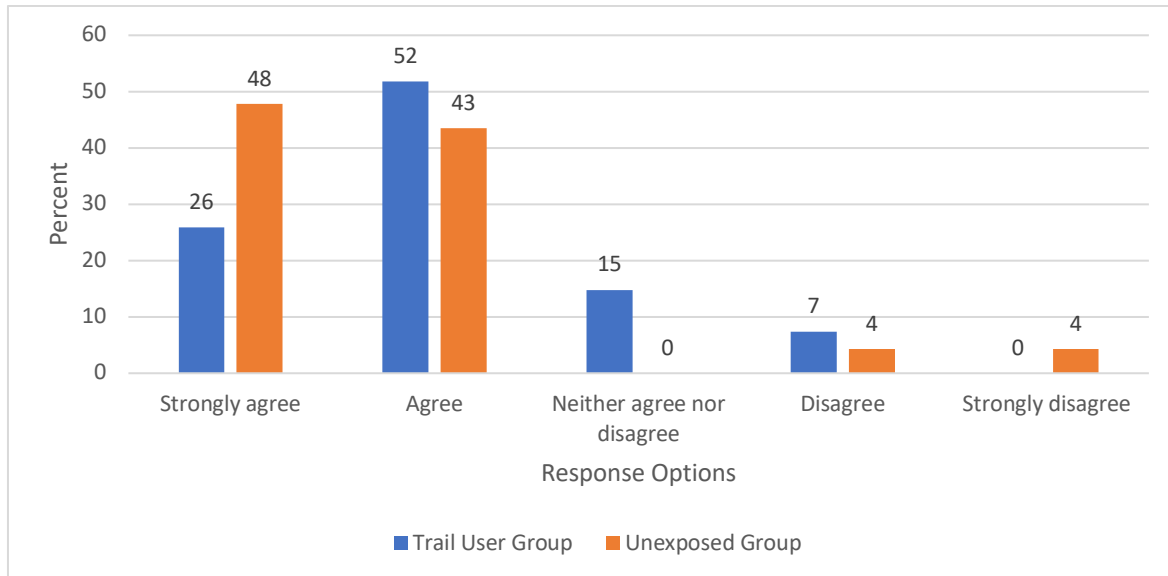


Figure 13. Bar graph illustrating the differences in trail user and unexposed group responses of how much they agree or disagree that art would make the trail environment better.

Figure 14 illustrates the two images that the trail user group and unexposed group participants were asked to look at and then decide how much they agree or disagree with the statement: Seeing artwork like this along the trail would make my experience better. A total of 44 (88.0%) out of 50 participants from both groups combined agree (strongly agree or agree) that artwork like this would make their experience better, compared to two (4.0%) that disagree (strongly disagree or disagree), three that neither agree nor disagree (6.0%). There was one missing or invalid response (2.0%).





Figure 14. Example of painted art murals that participants were asked to observe and decide if artwork like these would make their trail experience better.

### Online Survey Group

#### Trail Use

Among online survey respondents, 35.1% (109) indicated they have *never* used an OKC urban trail, followed by 32.9% (102) who are *not sure* if they have used an OKC urban trail, and 31.9% (99) who *have used* an OKC urban trail. Participants who *have used* an OKC urban trail, use it between one and three times per month (82.7%) followed by eight to 11 times (9.2%), and four to seven times (8.0%). Participants who *have used* an OKC urban trail use it to exercise or do recreational activity (83%). Recreational activity included walking (68.2%) followed by jogging (17.1%), cycling (11.4%), and other (3.4%).

#### Artwork to Increase Use

Survey participants were asked if they have ever traveled to a destination to see artwork such as a painted mural, statue, sculpture, etc. A total of 80.4% (234) selected *Yes* and 19.6% (57) selected *No*. Among survey respondents who selected *Yes*, 80% (188) *agree* (either strongly agree or agree) that they would use the trails more often if there was artwork added to them

compared to 4% that disagree and 16% that neither agree nor disagree. Similarly, among survey respondents who selected *No*, 66.7% *agree* (either strongly agree or agree) that they would use the trails more often if there was artwork added to them compared to 5.4% that disagree (disagree or strongly disagree), and 26.8% that neither agree nor disagree.

Among the survey respondents who *have not* used an OKC urban trail, 75.5% agree (agree or strongly agree) that if there was more artwork added along the trails, they would use them more often. Compared to 3.9% that disagree (disagree or strongly disagree) and 20.6% that neither agree nor disagree. Similarly, among the survey respondents who *have* used an OKC urban trail, 77% agree (agree or strongly agree) that they would use the trails more often if there was artwork added to them. Compared to 5.7% that disagree (disagree or strongly disagree) and 17.3% that neither agree nor disagree.

Among survey respondents who indicated that they use an OKC urban trail one to three times per month, 47.2% *agree* and 30.6% *strongly agree* that they would use the trails more often if there was artwork added to them. Table 1 below shows all results.

Table 1. *Percent of How Much Online Survey Group Respondents Agree or Disagree That They Would Use the Trails More if There Was Artwork Added to Them by Frequency of Current Use*

Response Option	Trail use (times per month)			
	1-3	4-7	8-11	12 or more
Strongly Agree	30.6	42.9	50.0	0.0
Agree	47.2	14.3	37.5	0.0
Neither agree nor disagree	16.7	28.6	12.5	0.0
Disagree	5.6	14.3	0.0	0.0
Strongly Disagree	0.0	0.0	0.0	0.0
Total	100	100	100	0.0

## Trail User Group

### Trail Use

Survey respondents typically use the Will Rogers Trail (WRT) 12 or more times per month (9, 33.3%) to exercise or do recreational activity (26, 96.3%), and spend an average of 45-59 minutes on the trail (13, 48.1%). See Appendix I for additional trail use data.

### Artwork to Increase Use

The majority of trail user respondents (6, 75.0%) who indicated they use the WRT one to three times per month agree (agree or strongly agree) that they would use the trail more often if there was artwork added to it, compared to those that disagree (1, 12.5%), and neither agree nor disagree (1, 12.5%).

## Unexposed Group

### Trail Experience

There were 18 out of 23 participants (78.2%) that indicated their overall experience on the trail as *excellent* or *good*, compared to five that indicated a *fair* experience (21.7%). Nine (39.1%) participants rated the trail maintenance as *good*, seven indicated it as *excellent* (30.4%), and seven indicated *fair* (30.4%). A majority of participants indicated the safety and security along the trail as *fair* (13, 56.5%), followed by *good* (7, 30.4%), while *excellent* and *poor* received equal indication (1, 4.4%).

Twenty-one participants *strongly agree* or *agree* that adding artwork along the trail would make their experience better (91.3%), compared to two that *disagree* or *strongly disagree* (8.7%).

## CHAPTER FIVE: DISCUSSION

The purpose of this study was to identify if artwork on an urban trail would be an amenity that could increase trail use. This study is different when compared to other urban trail research studies because this study looked specifically at artwork as a trail amenity. The findings show that adding artwork to an urban trail in Oklahoma City (OKC) could be an amenity to increase trail use. Increased trail use may be seen among individuals that currently use the trails frequently, less frequently, and those that have never used one of the trails.

The majority of participants among all groups combined were white, females between the ages of 18-24. Those that currently use or have used one of the OKC urban trails use them to exercise or do recreational activities. These findings are supported by current urban trail use research (Chen et. al., 2019; Maslow et. al., 2012; Akpınar, 2016; Price, Reed & Muthukrishnan, 2012; Wolff-Hughes, Fitzhugh, Bassett & Cherry, 2014; Orstad, McDonough, Klenosky, Mattson & Troped, 2016; Arnberger & Eder, 2015). However, this study saw a difference in age category results, primarily due to the online survey group results. The online survey group consisted of UCO college students who are primarily within the age category of 18-24.

When compared to other trail amenities such as restrooms, water fountains, and more greenery (plants, bushes or trees), *Artwork on the trail* was selected most across all three groups as an amenity that would make their trail experience better. These results indicate that artwork along an urban trail would be an amenity to better the trail experience. Adding artwork to urban trails has become more popular and is now being planned at the conception of urban trail development as indicated by Bressi & Levy (2010). Artwork on urban trails is gaining popularity among online news agencies and in social media as well (Mueller, 2018). Additional evidence

can be found through a simple google search of *art and urban trails*. Although there is plenty of evidence there is still a large gap in urban trail and artwork research studies.

This study also attempted to explore what types of artwork participants would most like to see added to the trails. There were differences among groups when comparing what types of artwork participants would most like to see. Trail user group participants wanted to see more fountains or water elements. Unexposed group participants wanted to see more earthworks or environmental art. Online survey group participants wanted to see more murals and paintings. This shows that there is a desire for various types of artwork to be added to the urban trails. Friends of the Hank Aaron Trail Association (2019) indicate that various types of artwork such as sculptures, murals, and stained-glass installations can better the urban trail environment and draw community members in. When artwork is featured on an urban trail there are often multiple mediums used such as mural painting, sculptures, and statues (Mueller, 2018).

Among those in the online survey group that indicated they use an OKC urban trail 1-3 times per month, 47.2% agree and 30.6% strongly agree that they would use the trails more often if there was artwork added to them. Similarly, 75% of those within the trail user group who use the WRT trail 1-3 times per month would use it more if there was artwork added to it. These results indicate that trail users who use the trails less frequently would use them more often if there was artwork added to them. Current urban trail development plans support artwork on an urban trail as a highlighted feature in new trail development (Bressi & Levy, 2010; City of La Mesa, 2016); this shows that having artwork featured on an urban trail is being recognized by city and state planning.

The majority of participants within the online survey, trail user, and unexposed groups agreed (strongly agree or agree) that they would visit the OKC urban trails more if there was

more artwork added to them at 78%, 63%, and 87% respectively. Not only did participants agree that they would visit the trails more themselves, they also agreed that they would visit the trails more with friends and family. Artwork in public spaces is often supported and featured as a community and family friendly source of recreation. Public art can be a source of education on local history for community members and families (Friends of Hank Aaron State Trail, 2019; Menominee Valley Partners, 2019; Walker, 2019).

Online survey and trail user participants indicated that they did not know there are more than 10 urban trails in OKC. These results indicate similarities of lack of urban trail awareness/knowledge between users who have seldom or never used an OKC urban trail, and users who use the Will Rogers Trail frequently. If current trail users do not know there are more than 10 trails throughout OKC, it could be possible that other OKC residents also do not know. Adding artwork to the trails could allow for multiple social media campaigns to advertise the trails throughout OKC. Current research shows that using media campaigns to promote healthy behaviors in conjunction with promoting urban trails can increase trail use (Clark, et. al., 2014). Conducting art projects along the trails could also garner interest of local media which could reach a larger segment of OKC community members similar to large art mural projects identified by Wyles (2000). Adding artwork like entry point plaques, access point identification signs, and wayfinding signs are all ways to inform the public of where trails are located and how to access them (Rails to Trails Conservancy, 2020). Not only could artwork along the trails increase trail usage of the participants in this study, but it could also increase use by community members that are unaware of the trails throughout OKC.

Participants from both the trail user group and unexposed group agree that adding artwork to the trail would make the trail environment better. These findings are supported by

Patterson (2006), which illustrates how artwork can be used to increase the visual aesthetics of an urban trail by adding realistic nature sculptures onto the walls of underpasses along the trail. The Friends of Hank Aaron State Trail (2019) also support the idea that artwork on an urban trail can be used to make the environment more appealing and provide ways to draw people to the trails. Their website indicates that artwork “invigorates public spaces and helps to engage the community.” Organizations that fund community artwork opportunities also identify that public art can create spaces for community members to enjoy at relatively low costs (Walker, 2019).

Online survey group participants were asked if they have ever traveled to a destination to see artwork. Among those that have, 188 of them (80.4%) agree (agree or strongly agree) that they would use the trails more often if there was artwork added to them. Among those that have not, 38 of them (66.6%) agree (agree or strongly agree) that they would use the trails more if there was artwork added to them. These results indicate that those participants that may or may not be attracted to art so much to travel to a specific destination, would still travel to the urban trails and use them if there was artwork added to them.

This study provides a small insight of how frequent, less-frequent, first-time, and non-trail users feel about adding artwork to the OKC urban trails. This study also provides an insight into how younger adults (18-34) feel about adding artwork to the trails. The results above indicate that artwork may be a trail amenity to increase trail use within these populations for this specific geographic region and specific trail.

### **Implications for Local Government**

Adding artwork to the urban trails could increase trail use, increase community connectedness, and create opportunities for collaboration among multiple community stakeholders. Current research shows that community art projects can increase community

connectedness and the environment of a community (Desmarais & Larivée, 2017; Wyels, 2000; Zander, 2004). One drawback for local, city, and state governments to add more artwork to urban trails could be the associated costs, but there are many ways to mitigate this. One way is to search out public and private grant funding to create such artwork. Philanthropic organizations such as the Bloomberg Philanthropies have provided large grant funded opportunities to create public art (Kanzinger, 2019). Not only does Bloomberg Philanthropies help fund these types of projects they also offer a how-to guide for organizations. There are other organizations, like the Rails to Trails Conservancy (2020) that offer how-to kits on installing art on public spaces as well. These kits outline all steps including identifying the right location to install art, identifying local artist, securing funding, and trail maintenance. Another way is to utilize recycled materials in the process of creating art. Such as transforming old train car stations into renewed gazebos for trail users (Menominee River Valley, 2019). Government agencies could also conduct a request for proposals process in which they solicit artwork proposals from community members, local arts councils, or higher education art departments. This process could include not only asking for designs, but for designs and materials to be fully supplied by the submitter, similar to the process conducted by artdeadline.com (2019). Artist in residency programs can also be created to provide a steady flow of artwork similar to ones implemented within the Atlanta Beltline (Kanzinger, 2019).

### **Implications for Health Organizations**

Community health organizations, non-profits, and other local agencies that are focusing on improving the health of community members could utilize artwork on urban trails as an intervention to increase physical activity. The results from this study show that adding artwork to urban trails could increase the trail use of those that have never used an urban trail as well as



those that use them less often. Creating a strategy that would promote an urban trail with artwork additions and healthy messaging may result in increased urban trail use and higher physical activity levels as supported by Clark, et. al., (2014). Adding artwork to urban trails as a physical activity intervention can also provide opportunities for un-paid media attention similar to the Charlotte Rail Trail (Mueller, 2018). Mueller (2018) wrote an article that highlights the top 10 art pieces to experience along the trail. This is a way to provide grassroots media exposure to the general public, get them interested in seeing art pieces, and visiting the trail more.

As artwork and other features are added to urban trails, local health organizations could utilize these features to conduct health focused activities on the trails. Walking groups and holiday centered health activities could be conducted on the trails (City of La Mesa, 2016).

### **Implications for Future Research**

This study provides additional implications that artwork is a trail amenity that is desired by both trail users and non-trail users. Future studies could investigate what specific kinds of artwork would be wanted within various categories (mural paintings, sculptures, fountains, etc.). Surveys could feature multiple images of different types of paintings or designs in which participants could select which they prefer. The same could be done with images of sculptures, fountains or water elements, earthworks, and environmental art. The current literature on art in public spaces indicates that it can be an educational tool to teach community members about the history of the town or city as well as teaching about social issues. Future studies could focus on how community members feel about social justice artwork, indigenous artwork, and what other topics they might want to see covered. Research being conducted specifically within Oklahoma could explore how community members would feel about adding Native American artwork to the trails and what kind of art they might want to see.

Future research could explore what locations might be good for artwork installation along the OKC urban trails. When selecting a site to place artwork it is very important to consider the physical space, natural structures, and what man-made materials or nature materials already exist (Rails to Trails Conservancy, 2020). Research could focus on getting community members input as well as collaborating with city planners to survey the physical landscapes of the urban trails. Research could also focus on local agencies (local government, universities, art councils, etc.) interest and readiness to collaborate and implement art projects along urban trails.

Researchers could also partner with parks and recreation departments, local art agencies, and other community organizations to recruit survey participants by promoting and advertising online electronic surveys through social media. These departments and agencies could also provide incentive items for survey participants. Using this strategy could increase the sample size and expand the data collection areas. Recruiting through university classrooms, university information technology e-mail blasts, and providing small incentive items (\$25 and \$50 gift card drawings) for online survey participants proved to be successful as there were over 300 online survey participants.

### **Limitations and Conclusions**

This study has several limitations. First, only one researcher recruited study participants and collected data. Collecting surveys along the WRT of trail users proved to be a difficult task as there are multiple trail access points and the researcher could only cover one access point at a time. Second, the majority of trail users were doing some kind of physical activity (biking, running, roller blading, or skateboarding) along the WRT making it difficult to recruit those individuals to stop what they are doing to take a survey. Third, on-trail recruitment was challenging because trail users were often wearing some kind of headphones making it difficult

to get their attention. To mitigate these limitations, ideas for future research include setting up a table booth with signage advertising the survey and offering incentive items to recruit more trail users. Fourth, each of the surveys implemented have very limited results among individuals who have not used an urban trail in OKC before. Additional recruitment and survey administration could be conducted within surrounding neighborhoods of the trail to try and capture additional non-trail user perceptions and what amenities would increase their trail use. Fifth, there were no incentive items provided. Sixth, the generalizability of this study is limited by the data only being collected on one trail in one city. Future studies could expand to do multiple trails within one city as well as expanding into multiple cities or geographic locations to be able to compare results. Seventh, there were slight difference in question wording between each of the three surveys making the data analysis and results slightly difficult to prepare and illustrate. Future studies using multiple evaluation surveys will want to ensure as many questions as possible can be the exact same wording across them.

## References

Access Arts Network (2020). Public art design competition. Retrieved from

<https://artdeadline.com/ops/lcor/>

Active Living Research. (2006, January). Tools and Measures. SOPARC: System for observing play and recreation in communities webpage. Retrieved from

<https://activelivingresearch.org/soparc-system-observing-play-and-recreation-communities>

Akpinar, A. (2016). Factors influencing the use of urban greenways: A case study of Aydin, Turkey. *Urban Forestry & Urban Greening*, 16, 123-131.

<http://dx.doi.org/10.1016/j.ufug.2016.02.004>

Anderson, C. E., Zimmerman, A., Lewis, S., Marmion, J., & Gustat, J. (2019). Patterns of cyclist and pedestrian street crossing behavior and safety on an urban greenway. *International Journal of Environmental Research and Public Health*, 16, 201.

doi:10.3390/ijerph16020201

Arnberger, A. & Eder, R. (2015). Are urban visitors' general preferences for green-spaces similar to their preferences when seeking stress relief? *Urban Forestry & Urban Greening*, 14, 872-882. <http://dx.doi.org/10.1016/j.ufug.2015.07.005>

Bloomberg Associates, 2019. Asphalt art guide pdf. Retrieved from

<https://data.bloomberglp.com/dotorg/sites/43/2019/10/asphalt-art-guide.pdf>

Bressi & Levi (2010) Legacy trail public art master plan. Retrieved from

[https://www.railstotrails.org/resourcehandler.ashx?name=legacy-trail-public-art-master-plan&id=4762&fileName=art\\_master\\_plan.pdf](https://www.railstotrails.org/resourcehandler.ashx?name=legacy-trail-public-art-master-plan&id=4762&fileName=art_master_plan.pdf)

- Burchfield, R. A., Fitzhugh, E. C., & Bassett, D. R. (2012). The association of trail use with weather related factors on an urban greenway. *Journal of Physical Activity & Health*, 9(2), 188-197. Retrieved from <https://web-b-ebshost-com.vortex3.uco.edu/ehost/detail/detail?vid=0&sid=bcc18f21-5e86-45f7-935a-176042d779a2%40pdc-v-sessmgr03&bdata=JnNpdGU9ZWwhvc3QtbG12ZQ%3d%3d#db=s3h&AN=73951900>
- Centers for Disease Control and Prevention (CDC). (2019, April). Nutrition, physical activity, and obesity: Data, trends and maps webpage. Retrieved from [https://nccd.cdc.gov/dnpao\\_dtm/rdPage.aspx?rdReport=DNPAO\\_DTM.ExploreByLocation&rdRequestForwarding=Form](https://nccd.cdc.gov/dnpao_dtm/rdPage.aspx?rdReport=DNPAO_DTM.ExploreByLocation&rdRequestForwarding=Form)
- Centers for Disease Control and Prevention (CDC). (2014, October). Parks, trails, and health webpage. Retrieved from <https://www.cdc.gov/healthyplaces/healthtopics/parks.htm>
- Chen, N., Lindsey, G., & Wang., C. (2019). Patterns and correlates of urban trail use: Evidence from the Cincinnati metropolitan area. *Transportation Research*, 67, 303-315. <https://doi.org/10.1016/j.trd.2018.12.007>
- Chen, Y., Gu, W., Liu, T., Yuan, L., & Zeng, M. (2017). Increasing the use of urban greenways in developing countries: A case study on Wutong greenway in Shenzhen, china. *International Journal of Environmental Research and Public Health*, 14(6), 554. doi: <http://dx.doi.org/10.3390/ijerph14060554>
- City of Lamesa (2016). La Mesa urban trails mobility action plan. Retrieved from <http://www.cityoflamesa.com/DocumentCenter/View/9171/Mobility-Action-Plan-for-website?bidId=>

City of Oklahoma City (OKC). (n.d.). Parks and recreation, trails. Retrieved from

<https://www.okc.gov/departments/parks-recreation/trails>

City of Oklahoma City (OKC). (n.d.). Parks and recreation, trails map. Retrieved from

<https://www.okc.gov/departments/parks-recreation/trails/trails-map>

Clark, S., Bungum, T., Shan, G., Meacham, M., & Coker, L. (2014). The effect of a trail use intervention on urban trail use in southern Nevada. *Preventive Medicine*, 67, S17-S20.

<http://dx.doi.org/10.1016/j.ypmed.2014.04.027>

Desmarais, L., & Larivée, C. (2017, Fall). TAKE BACK THE STREETS. *Canadian Art*, 34,

108-109. Retrieved from <http://vortex3.uco.edu/login?url=https://search-proquest-com.vortex3.uco.edu/docview/1943035723?accountid=14516>

Deyo, N., Bohdan, M., Burke, R., Kelley, A., van der Werff, B., Blackmer, E. D., Grese, R. E.,

& Reo, N. J. (2014). Trails on tribal lands in the United States. *Landscape and Urban Planning*, 125, 130-139. <http://dx.doi.org/10.1016/j.landurbplan.2014.02.020>

Dorwart, C. E. (2015). Views from the path: Evaluating physical activity use patterns and design

preferences of older adults on the Bolin Creek Greenway Trail. *Journal of Aging and Physical Activity*, 23, 513-523. <http://dx.doi.org/10.1123/japa.2014-0128>

Dunton, G. F., Spruijt-Metz, D., Wolch, J., Chou, CP., Jerrett, M., Byrne, J., Weaver, S., &

Reynolds, K. D. (2009). *Reasons for urban trail use predict levels of trail-related physical activity*. *Journal of Physical Activity and Health*, 6, 426-434.

Fitzhugh, E. C., Bassett Jr., D. R., & Evans, M. F. (2010). Urban trails and physical activity a natural experiment. *American Journal of Preventative Medicine*, 39(3), 259-262. doi:

10.1016/j.amepre.2010.05.010

Forsyth, Ann. 2015. What is a walkable place? The walkability debate in urban design. *Urban Design International* 20, no.4: 274-292. Retrieved from

<https://dash.harvard.edu/handle/1/29663388>

Friends of Hank Aaron State Trail. (2019). Art on the trail webpage. Retrieved from

<https://www.hankaaronstatetrail.org/art-on-the-trail>

Google Maps. (2019). Walking directions for the Will Rogers Trail selected portion. Retrieved

from <https://www.google.com/maps/dir/35.5337807,-97.583602/35.5418832,-97.6005999/@35.537756,-97.6010331,15z/am=t/data=!4m9!4m8!1m5!3m4!1m2!1d-97.6011385!2d35.5377281!3s0x87b21ad09a586607:0xb08f0600c9e3bacc!1m0!3e2?hl=en&authuser=0>

Google Maps. (2019). Walking directions for the Oklahoma River Trail North selected portion.

Retrieved from <https://www.google.com/maps/dir/35.4495671,-97.5182166/35.4550472,-97.5076801/@35.452016,-97.5175718,16z/am=t/data=!3m1!4b1!4m2!4m1!3e2?hl=en&authuser=0>

Kanzinger, E (2019). Colorful trails: the intersection of art and nature. Retrieved from

<https://www.blueridgeoutdoors.com/magazine/november-december-2019/colorful-trails-the-intersection-of-art-and-nature/>

Keith, S. J., Larson, L. R., Shafer, C. S., Hallo, J. C., & Fernandez, M. (2018). Greenway use and preferences in diverse urban communities: Implications for trail design and management.

*Landscape and Urban Planning*, 172, 47-59.

<https://doi.org/10.1016/j.landurbplan.2017.12.007>

Lee, R. E., Booth, K. M., Reese-Smith, J., Y., Regan, G. & Howard, H. H. (2005). The physical activity resource assessment (PARA) instrument: Evaluating features, amenities and

- incivilities of physical activity resources in urban neighborhoods. *International Journal of Behavioral Nutrition and Physical Activity*, 2(13). doi:10.1186/1479-5868-2-13
- Lindsey, G., Wilson, J., Anne Yang, J., & Alexa, C. (2008). Urban greenways, trail characteristics and trail use: Implications for design. *Journal of Urban Design*, 13(1), 53–79. DOI: 10.1080/13574800701804033
- Maslow, A. L., Reed, J. A., Price, A. E., & Hooker, S. P. (2012). Associations between sociodemographic characteristics and perceptions of the built environment with the frequency, type, and duration of physical activity among trail users. *Preventing chronic disease*, 9, E53. <http://dx.doi.org/10.5888/pcd9.110114>
- McNeill, L. H., Murguia, K., Nguyen, N., & Taylor, W. C. (2015). Walking trail use among a sample of Black, White, Hispanic, and Asian adult walkers. *Journal of Physical Activity and Health*, 12(Suppl. 1), S31 -S39. <http://dx.doi.org/10.1123/jpah.2013-0391>
- Menominee Valley Partners (2019). Art in the valley webpage. Retrieved from <https://www.thevalleymke.org/art-in-the-valley>
- Merriam-Webster Online Dictionary. (2019). Dictionary homepage search. Retrieved from <https://www.merriam-webster.com/dictionary/commuting>
- Merriam-Webster Online Dictionary. (2019). Dictionary homepage search. Retrieved from <https://www.merriam-webster.com/dictionary/underpass>
- Meyers, D. C., Wilson, D. K., Kugler, K. A., Colabianchi, N., McKenzie, T. L., Ainsworth, B. E., Reed, J. & Schmidt, S. C. (2012). Assessing urban walking trail use and changes in the trail environment using systematic observational protocols. *Health & Place*, 18, 991-999. DOI <http://dx.doi.org/10.1016/j.healthplace.2012.06.008>



Moore, R. L., Leung, YF., Matisoff, C., Dorwart, C., & Parker, A. (2012). Understanding users' perceptions of trail resource impacts and how they affect experiences: An integrated approach. *Landscape and Urban Planning, 107*, 343-350.

<http://dx.doi.org/10.1016/j.landurbplan.2012.06.016>

Morgan Hughey, S. M., Reed, J. A., & Kaczynski, A. T. (2015). Demographic differences in reported reasons for non-use of a prominent community trail. *Journal of Outdoor Recreation and Tourism, 10*, 78-83. <http://dx.doi.org/10.1016/j.jort.2015.06.011>

Mueller, J (2018). Top 10 art pieces to experience on the Charlotte rail trail, ranked. Retrieved from <https://www.charlotteobserver.com/charlottefive/c5-things-to-do/article236112828.html>

Orstad, S. L., McDonough, M. H., Klenosky, D. B., Mattson, M., & Troped, P. J. (2016). Correlates of trail use for recreation and transportation on 5 Massachusetts trails. *Journal of Physical Activity and Health, 13*, 845-853. <http://dx.doi.org/10.1123/jpah.2015-0457>

Patterson, L. J. (2006). Concrete in touch with nature. *Concrete International, 26-27*. Retrieved from <http://vortex3.uco.edu/login?url=https://search-proquest-com.vortex3.uco.edu/docview/198737750?accountid=14516>

Pikora, T. J, Bull, F. C.L., Jamrozik, K., Knuiman, M., Giles-Corti, B. & Donovan, R. J. (2002). Developing a reliable audit instrument to measure the physical environment for physical activity. *American Journal of Preventative Medicine, 23*(3), 187-194. Retrieved from [https://www-sciencedirect-com.vortex3.uco.edu/search/advanced?docId=10.1016/S0749-3797\(02\)00498-1](https://www-sciencedirect-com.vortex3.uco.edu/search/advanced?docId=10.1016/S0749-3797(02)00498-1)

- Price, A. E., & Reed, J. A. (2014). Use and nonuse of a rail trail conversion for physical activity: Implications for promoting trail use. *American Journal of Health Education, 45*(4), 249-256, DOI: 10.1080/19325037.2014.917060
- Price, A. E., Reed, J. A., Grost, L., Harvey, C., & Mantinan, K. (2013). Travel to, and use of, twenty-one Michigan trails. *Preventative Medicine, 56*, 234-236.  
<http://dx.doi.org/10.1016/j.ypmed.2013.01.009>
- Price, A. E., Reed, J. A., & Muthukrishnan, S. (2012). Trail User Demographics, Physical Activity Behaviors, and Perceptions of a Newly Constructed Greenway Trail. *Journal of Community Health, 37*, 949-956. DOI: 10.1007/s10900-011-9530-z.
- Project for Public Spaces. (2010). Public art: An introduction. Retrieved from  
<https://www.pps.org/article/pubart-intro>
- Quinn, M. (2017). The walking cure: How Oklahoma City lost 1 million pounds. *Governing the States and Localities*. Retrieved from <https://www.governing.com/topics/health-human-services/gov-oklahoma-city-walking-obesity.html>
- Rails to Trails Conservancy (2020). Public Art homepage. Retrieved from  
<https://www.railstotrails.org/build-trails/trail-building-toolbox/design/public-art/>
- Reed, J. A., Hooker, S. P., Muthukrishnan, S., & Hutto, B. (2011). User demographics and physical activity behaviors on a newly constructed urban rail/trail conversion. *Journal of Physical Activity & Health, 8*(4), 534–542. Retrieved from  
<http://vortex3.uco.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=s3h&AN=61774117&site=ehost-live>
- Troped, P.J., Whitcomb, H. A., Hutto, B., Reed, J. A., & Hooker, S. P. (2009). Reliability of a brief intercept survey for trail use behaviors. *Journal of Physical Activity & Health, 6*(6),

- 775-780. Retrieved from <https://web-a-ebSCOhost-com.vortex3.uco.edu/ehost/pdfviewer/pdfviewer?vid=2&sid=6a0c6e4a-f3dd-472a-9351-acff033a045e%40sessionmgr4009>
- University of Central Oklahoma. Enrollment statistics and demographics spring 2019. Retrieved from <https://www.uco.edu/academic-affairs/files/oie/demobook/2019-spring-demo-book.pdf>
- University of Waterloo. (n.d.). Survey research centre, sample introductory scripts. Retrieved from <https://uwaterloo.ca/survey-research-centre/survey-services/types-survey-research/telephone-surveys/introductory-scripts/sample-introductory-scripts>
- Walker, A. (2019). Colorful street transformations coming to 10 U.S. cities. Retrieved from <https://www.curbed.com/2019/10/28/20935683/best-street-plazas-bloomberg-asphalt-art>
- Walk Score. (2019, April). Living in Oklahoma City webpage. Retrieved from [https://www.walkscore.com/OK/Oklahoma\\_City](https://www.walkscore.com/OK/Oklahoma_City)
- Widewalls. (2018). Mural. The history and the meaning. Retrieved from <https://www.widewalls.ch/what-is-a-mural-the-history-and-meaning/>
- Wolff-Hughes, D. L., Fitzhugh, E. C., Bassett, D. R., & Cherry, C. R., (2014). Greenway siting and design: relationships with physical activity behaviors and user characteristics. *Journal of Physical Activity and Health, 11*, 1105-1110.  
<http://dx.doi.org/10.1123/jpah.2012-0444>
- Wyers, J. G. (2000, Jan). Great walls, vibrant voices. *Americas, 52*, 22-30. Retrieved from <http://vortex3.uco.edu/login?url=https://search-proquest-com.vortex3.uco.edu/docview/235263068?accountid=14516>

Zander, M. J. (2004). Murals as documents of social history. *Art Education*, 57(5), 25-31.

Retrieved from <http://vortex3.uco.edu/login?url=https://search-proquest-com.vortex3.uco.edu/docview/199423751?accountid=14516>

## APPENDICES

## Appendix A: UCO IRB Application Approval Letter



July 16, 2019

IRB Application #: 2019-103

Proposal Title: Painting the Trails: Can Artwork Affect Urban Trail Use

Type of Review: Initial Review-Expedited Exempt

Investigator(s):

Jerel Cowan, Ph.D.

Dear Dr. Cowan:

**Re: Application for IRB Review of Research Involving Human Subjects**

We have received your materials for your application. The UCO IRB has determined that the above named application is APPROVED BY EXEMPT REVIEW. The Board has provided expedited review under 45 CFR 46.110, for research involving no more than minimal risk and research category (3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under paragraph (b)(2) of this section, if: (i) the human subjects are elected or appointed public officials or candidates for public office; or (ii) federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter..

Date of Approval: July 16, 2019

If applicable, informed consent (and HIPAA authorization) must be obtained from subjects or their legally authorized representatives and documented prior to research involvement. A stamped, approved copy of the informed consent form will be made available to you. The IRB-approved consent form and process must be used, where applicable. Any modification to the procedures and/or consent form must be approved prior to incorporation into the study.

Please let us know if the IRB or Office of Research Integrity and Compliance can be of any further assistance to your research efforts. Never hesitate to contact us.

Sincerely,

A handwritten signature in blue ink that reads 'MPowers'.

Melissa Powers, Ph.D.  
Chair, Institutional Review Board  
University of Central Oklahoma  
100 N. University Dr.  
Edmond, OK 73034  
405-974-5497  
[irb@uco.edu](mailto:irb@uco.edu)

**Appendix B: Trail User Recruitment Script**

Researcher:	<p>Hello, my name is Aron Wahkinney and I am a graduate student at the University of Central Oklahoma. I am conducting a research survey on urban trails and artwork and I would like to see if you would be interested in filling out a short survey?</p> <p>The survey should take no more than five minutes to complete. I am not asking for any personal information such as name, phone number or address. The survey asks questions on your perceptions and experience using the Oklahoma City urban trails. Do you have a few minutes to do the survey?</p> <p>If they answer yes: Great! Here is an information sheet on the research study that has all important information on it. Once you review that and if you would still like to take the survey, I will hand you a paper copy to complete.</p> <p>If they answer no: Okay thank you for your time and enjoy your day.</p> <p>(University of Waterloo, Survey research centre, sample introductory scripts)</p>
-------------	--

## Appendix C: Participant Information Sheet

### Participant Information Sheet

Title of the study:	Painting the Trails: Can Art Affect Urban Trail Use
Researcher:	Aron Wahkinney, Student, University of Central Oklahoma
Topic of study:	This research study is designed to examine how artwork may affect urban trail use by community members.
What does participation involve:	As a participant in this study you will be asked to travel a selected portion of an urban trail either by walking, biking, or other form of your choice and then completing the urban trails and artwork follow up assessment survey. The survey has 18 questions and takes no more than 10 minutes to complete. The walking portion should take no more than one hour to complete.
Participant Selection:	You are being selected to participate in this study because you are a student at the University of Central Oklahoma, you may or may not have experience using the urban trails, and your input is very valuable.
Voluntary Participation:	Participation in this study is completely voluntary and you have the right to refuse participation, refuse any question and withdraw at any time without any consequence.
Potential risks:	There is minimal risk or harm involved with participating in this study. You will be giving up approximately one hour of your time to complete the trail travel and to complete the survey.
Potential benefits:	Your participation in this study may benefit future planning and development of urban trails or urban trail artwork projects. You will be entered into a drawing to potentially win a \$50 gift card.
Confidentiality:	Your participation in this study and your survey answers will be completely anonymous and NO identifiable information (name, address, phone number) will be obtained.
Information storage:	The data collected in this study will be securely stored in a locked file cabinet office 13B of Wantland Hall at the University of Central Oklahoma.
Results:	The final results of this study will be incorporated into my thesis final report for graduation. Additionally, the data will be shared with the Oklahoma City Planning and Parks and Recreation Department for their use in planning future projects.
Contact information:	Aron Wahkinney, 405-585-1573, <a href="mailto:awahkinney@uco.edu">awahkinney@uco.edu</a>
Faculty Mentor:	Dr. Jerel Cowan, 405-974-5235, <a href="mailto:jcowan2@uco.edu">jcowan2@uco.edu</a>

APPROVED  
July 16, 2019  
UCO IRB

Institutional Review Board 405-974-5497, [irb@uco.edu](mailto:irb@uco.edu)

### Appendix D: Urban Trail and Artwork Survey-UCO Student Online Version

<b>1. Did you know that there are more than 10 urban trails in OKC?</b>		<b>YES</b>	<b>NO</b>	
<b>2. Have you ever used an urban trail in Oklahoma City?</b>		<b>YES</b>	<b>NO</b>	
<b>*If NO, please skip to question #10</b>				
<b>3. *If YES, which trail did you visit: _____</b>				
<b>4. In a typical month, how many times do you use this trail?</b>				
1-3	4-7	8-11	12 or more	
<b>5. What is your usual reason for using this trail?</b>				
To exercise or do recreational activity	To travel somewhere	Both for recreational and transportation purposes		
<b>6. What type of activity do you usually do when you are on this trail for recreational purposes?</b>				
Walk	Jog or run	Bicycle	Other	
<b>7. How much time do you usually spend on this trail per visit when you use it for recreational purposes?</b>				
Less than 30 minutes	30-44 minutes	45-59 minutes	1-2 hours	More than 2 hours
<b>8. In your opinion, is the maintenance of the trail excellent, good, fair, or poor?</b>				
Excellent	Good	Fair	Poor	
<b>9. What kinds of trail amenities would make your experience better (select all that apply)?</b>				
Artwork on the trail	More water fountains	More restrooms	More trees, bushes, or flowers	More hills, twists, or turns along the trail
<b>10. Have you ever traveled to a destination to see artwork (painted mural, statue, sculpture, etc.)?</b>				
Yes		No		
<b>11. If artwork was added along urban trails, what would you most like to see?</b>				
Murals, drawings, and paintings	Monuments	Three dimensional Sculptures	Fountains or water elements	Earthworks or environmental art



**When thinking about what kind of artwork you would most like to see, please identify how much you agree or disagree with the following statements:**

**12. If there was more artwork along OKC urban trails, I would visit them more often.**

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	-------------------------------	----------	----------------------

**13. If there was more artwork along OKC urban trails, I would visit them with family**

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	-------------------------------	----------	----------------------

**14. If there was more artwork along OKC urban trails, I would visit them with friends**

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
----------------	-------	-------------------------------	----------	----------------------

**15. What is your age?**      18-24      25-34      35-44      45-54      55-64      65+

**16. What do gender do you identify as?**      Male      Female      Prefer not to answer

**17. What is your race? (choose all that apply)**

White	Black / African American	American Indian/Native American	Asian/Pacific Islander	Hispanic/ Latino	Other
-------	-----------------------------------	---------------------------------------	---------------------------	---------------------	-------

18. To be entered into the drawing for a chance to win a \$25 Amazon gift card for completing this survey please enter in your email address

19. To participate in the additional follow up portion of this project please re-enter your email address below. If you participate in the additional portion you will be entered into a drawing for a chance to win a \$50 Amazon gift card

### Appendix E: Urban Trails and Artwork Survey: Trail Users

1. Did you know that there are more than 10 urban trails in Oklahoma City?

YES

NO

2. Did you know that you are currently on/using one of the urban trails?

YES

NO

3. In a typical month how, many times do you use this trail?

1-3

4-7

8-11

12 or more

4. What is your usual reason for using this trail?

To exercise or  
do recreational activity

To travel somewhere

Both for recreation and  
transportation purposes

5. What type of activity do you usually do when you are on this trail for recreational purposes?

Walk

Jog or run

Bicycle

Other

6. How much time do you usually spend on this trail per visit when you use it for recreational purposes?

Less than 30  
minutes

30-44  
minutes

45-59 minutes

1-2 hours

More than 2  
hours

7. In your opinion, is the maintenance of the trail excellent, good, fair, or poor?

Excellent

Good

Fair

poor

Do not know

8. What kinds of trail amenities would make your experience better (choose all that apply)?

Artwork on the  
trail

More water  
fountains

More restrooms

More trees,  
bushes, or  
flowers

More hills,  
twists, or turns  
along the trail

9. Have you ever traveled to a destination to see artwork (painted mural, statue, sculpture, etc.)?

YES

NO

**10. If artwork was added along the trail, what would you most like to see (choose all that apply)?**

- |                            |           |                                    |                                   |                                    |
|----------------------------|-----------|------------------------------------|-----------------------------------|------------------------------------|
| Murals<br>and<br>paintings | Monuments | Three<br>dimensional<br>Sculptures | Fountains or<br>water<br>elements | Earthworks or<br>environmental art |
|----------------------------|-----------|------------------------------------|-----------------------------------|------------------------------------|
- 

When thinking about what kind of artwork you would most like to see, please identify how much you agree or disagree with the following statements:

**11. If there was more artwork along this trail, I would visit the trail more often.**

- |                |       |                               |          |                   |
|----------------|-------|-------------------------------|----------|-------------------|
| Strongly Agree | Agree | Neither agree<br>nor disagree | Disagree | Strongly disagree |
|----------------|-------|-------------------------------|----------|-------------------|

**12. If there was more artwork along this trail, I would visit the trail more with family**

- |                |       |                               |          |                   |
|----------------|-------|-------------------------------|----------|-------------------|
| Strongly Agree | Agree | Neither agree<br>nor disagree | Disagree | Strongly disagree |
|----------------|-------|-------------------------------|----------|-------------------|

**13. If there was more artwork along this trail, I would visit the trail more with friends**

- |                |       |                               |          |                   |
|----------------|-------|-------------------------------|----------|-------------------|
| Strongly Agree | Agree | Neither agree<br>nor disagree | Disagree | Strongly disagree |
|----------------|-------|-------------------------------|----------|-------------------|

**14. Looking at the images below, how much do you agree or disagree with this statement:**

‘Seeing artwork like this along the trail would make my experience better’

- |                   |       |                               |          |                      |
|-------------------|-------|-------------------------------|----------|----------------------|
| Strongly<br>Agree | Agree | Neither agree<br>nor disagree | Disagree | Strongly<br>disagree |
|-------------------|-------|-------------------------------|----------|----------------------|



**15. Adding artwork along this trail would make the trail environment better**

Strongly Agree      Agree      Neither agree nor disagree      Disagree      Strongly disagree

**16. What is your age?**      18-24      25-34      35-44      45-54      55-64      65+

**17. What do gender do you identify as?**      Male      Female      Prefer not to answer

**18. What is your race? (choose all that apply)**

White      African American      American Indian      Asian/Pacific Islander      Hispanic / Latino      Other

### Appendix F: UCO Student Participant Trail Walking Follow Up Assessment

**1. How would you rate your overall experience on the trail?**

Excellent                      Good                      Fair                      poor                      Do not know

**2. In your opinion, is the maintenance of the trail excellent, good, fair, or poor?**

Excellent                      Good                      Fair                      poor                      Do not know

**3. In your opinion, is the safety and security along the trail excellent, good, fair, or poor?**

Excellent                      Good                      Fair                      poor                      Do not know

**4. What kinds of trail amenities would make your experience better (circle all that apply)?**

Artwork on the trail	More water fountains	More restrooms	More trees, bushes, or flowers	More hills, twists, or turns along the trail
----------------------	----------------------	----------------	--------------------------------	--

**5. If artwork was added along the trail, what would you most like to see (circle all that apply)?**

Murals, drawings, and paintings	Monuments	Three dimensional Sculptures	Fountains or water elements	Earthworks or environmental art
---------------------------------	-----------	------------------------------	-----------------------------	---------------------------------

When thinking about what kind of artwork you would most like to see, please identify how much you agree or disagree with the following statements:

**6. If there was more artwork along this trail, I would visit the trail more often.**

Strongly Agree                      Agree                      Neither agree nor disagree                      Disagree                      Strongly disagree

**7. If there was more artwork along this trail, I would visit the trail more with family.**

Strongly Agree                      Agree                      Neither agree nor disagree                      Disagree                      Strongly disagree

**8. If there was more artwork along this trail, I would visit the trail more with friends.**

Strongly Agree      Agree      Neither agree nor disagree      Disagree      Strongly disagree

**9. Adding artwork along this trail would make my experience better.**

Strongly Agree      Agree      Neither agree nor disagree      Disagree      Strongly disagree

**10. Adding artwork to the trail would make the trail environment better.**

Strongly Agree      Agree      Neither agree nor disagree      Disagree      Strongly disagree

**11. Looking at the images below, how much do you agree or disagree with this statement:**

‘Seeing artwork like this along the trail would make my experience better’

Strongly Agree      Agree      Neither agree nor disagree      Disagree      Strongly disagree



**12. What is your age?**      18-24      25-34      35-44      45-54      55-64      65+

**13. What do gender do you identify as?**      Male      Female      Prefer not to answer

**14. What is your race? (choose all that apply)**

White	Black / African American	American Indian/Nativ e American	Asian/Pacific Islander	Hispani c/ Latino	Other
-------	--------------------------------	--	---------------------------	-------------------------	-------

**Appendix G: Trail User Survey Tracking Sheet**

<b>Date</b>	<b>Time</b>	<b>Duration</b>	<b>Participated</b>	<b>Denied</b>
7-22-19	5:30 PM	2 hours	4	0
7-28-19	12:53 PM	2 hours	0	0
8-5-19	7:00 PM	1.5 hours	4	0
9-11-19	6:16 PM	1 hour	1	1
9-7-19	11:45 AM	1	1	2
9-14-19	12:00 PM	1.5 hours	1	1
9-15-19	12:00 PM	1.5 hours	0	0
8-11-19	1:00 PM	2 hours	1	3
9-22-19	11:00 AM	4 hours	1	1
10-5-19	9:45 AM	1 hour	0	0
10-7-19	6:00 PM	1 hour	0	0
10-13-19	4:30 PM	2 hours	3	2
10-16-19	5:57 PM	1 hour	0	0
10-17-19	5:56 PM	2 hours	3	1
10-18-19	5:55 PM	1 hour	1	1
10-19-19	5:30 PM	1 hour	3	1
10-20-19	11:45 AM	2 hours	2	1
10-21-19	5:45 PM	1 hour	1	1
10-23-19	6:10 PM	2 hours	0	1
10-27-19	11:45 AM	2 hours	1	0
20 Total Days		32.5 Total Hours	27	16



**Appendix H: Participant Demographics**Table 2. *Demographics of All Participants*

Indicator	Frequency	Percent
<b>Online Survey</b>		
Age		
18-24	196	67.3%
25-34	54	18.6%
35-44	22	7.6%
45-54	14	4.8%
55-64	4	1.4%
64+	1	0.3%
Total	291	100%
Sex		
Male	55	19.0%
Female	229	79.3%
Prefer not to answer	5	1.7%
Total	289	%
Race		
White	178	61.6%
Black/African American	30	10.4%
American Indian or Alaska Native	24	8.3%
Asian	22	7.6%
Native Hawaiian or Pacific Islander	1	0.3%

Other	34	11.8%
Total	289	100%
<b>Trail User</b>		
Age		
18-24	2	7.4
25-34	6	22.2
35-44	6	22.2
45-54	8	29.6
55-64	4	14.8
64+	1	3.7
Total	27	100
Sex		
Male	15	55.6
Female	12	44.4
Total	27	100
Race		
White	19	70.4
African American	1	3.7
American Indian	4	14.8
Asian/Pacific Islander	2	7.4
Hispanic/Latino	1	3.7
Total	27	100
<b>Unexposed Group</b>		

## Age

18-24	8	34.8
25-34	9	39.1
35-44	3	13.0
45-54	1	4.3
55-64	2	8.7
64+	0	0
Total	23	100

## Sex

Male	11	47.8
Female	11	47.8
Prefer not to answer	1	4.3
Total	23	

## Race

White	17	73.9
African American	1	4.3
American Indian/Alaska Native	1	4.3
Asian/Pacific Islander	1	4.3
Hispanic/Latino	1	4.3
White and American Indian/Alaska Native	1	4.3
White and Hispanic/Latino	1	4.3
Total	23	100

---

**Appendix I: Trail User Knowledge and Trail Use**Table 3. *Trail User Survey Results of Trail Knowledge and Trail Use*

Variable	Frequency	Percent
Did you know that there are more than 10 urban trails in Oklahoma City		
YES	10	37.0
NO	17	63.0
Total	27	100
Did you know that you are currently on/using one of the trails		
YES	24	88.9
NO	3	11.1
Total	27	100
In a typical month how many times do you use this trail		
1-3	8	29.6
4-7	3	11.1
8-11	6	22.2
12 or more	9	33.3
Missing answer	1	3.7
Total	27	100
What is your usual reason for using this trail		

To exercise or do recreational activity	26	96.3
To travel somewhere	0	0
Both for recreation and transportation purposes	1	3.7
Total	27	100

How much time do you usually spend on the trail

Less than 30 minutes	0	0
30-44 minutes	2	7.4
45-59 minutes	13	48.1
1-2 hours	10	37.0
More than 2 hours	2	7.4
Total	27	100

---