



Research Methodologies and Frameworks  
for Understanding User Experience:

RTD A Line Case Study



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*This case study in innovation research is longer than most blog posts, but it's rich with information and insights into our work. It will take you 10-15 minutes to read. If you ride RTD's A Line in Denver, it provides a new way of looking at an everyday experience – you may even want to read it on the train! If you don't ride RTD's A Line, it's a quick example of a research methodology we use to improve customer communication and experience.*

### Our RTD A Line Experience

Nearly 20,000 people ride Denver's RTD A Line each day, boarding and un-boarding at any of eight stations that dot the 23 miles of track running between Denver International Airport and downtown's Union Station.

Since its April 2016 opening, the route has been plagued by signal and gate issues. The greatest effect this had on passengers in the earliest days was delayed trains. Clearly that's a big issue when it comes to missing flights. However, the laser focus on fixing technology appears to have taken away from valuable attention to other aspects of passenger experience.



Denver's RTD A Line runs between the airport and downtown (pictured).

As communication and research professionals, our team is always looking at ways to improve messaging and experiences in the often mundane and routine. As frequent riders of the A Line to both downtown and the airport, we all had our personal gripes – “jeez, it would be so much better if they did this instead of that.”

One day while trying to ride the train the two stops from Park Hill to downtown for a client meeting, this came to a head. We all parked and approached the ticket vending machine near the west end of the platform, by the main lot. One by one we purchased tickets. Our train was scheduled to arrive in five minutes and our meeting to start in 25. We were doing well!

Then we walked over to the platform area, crossed it to reach the far platform and saw the digital display – trains were running 15 minutes late. Now what exactly does that mean when the train runs every 15 minutes – is MY train 15 minutes late? Is the train that was supposed to be here 15 minutes ago now arriving...now? Suddenly feeling a time crunch, I tweeted RTD to find out. While waiting for a reply, we asked a uniformed employee across the platform. The answers couldn't have been more different OR unexpected: one told us “don't worry, that information is for us and means nothing to you,” while the other told us it meant that trains are now running at 30-minute, not 15-minute, intervals.

Who to trust? We had no idea, so we piled into one car and drove to our meeting. Angered that we'd wasted money on tickets we wouldn't use, we all came to the same conclusion – had there been clear and succinct rider notifications near where we purchased tickets we would have avoided this whole debacle. Now there's a very simple innovation!



Ticketing purchase and decisions are all made in a zone void of any delay or performance information, limiting rider ability to make informed and critical timing decisions.



## Guerrilla Research Hits the A Line

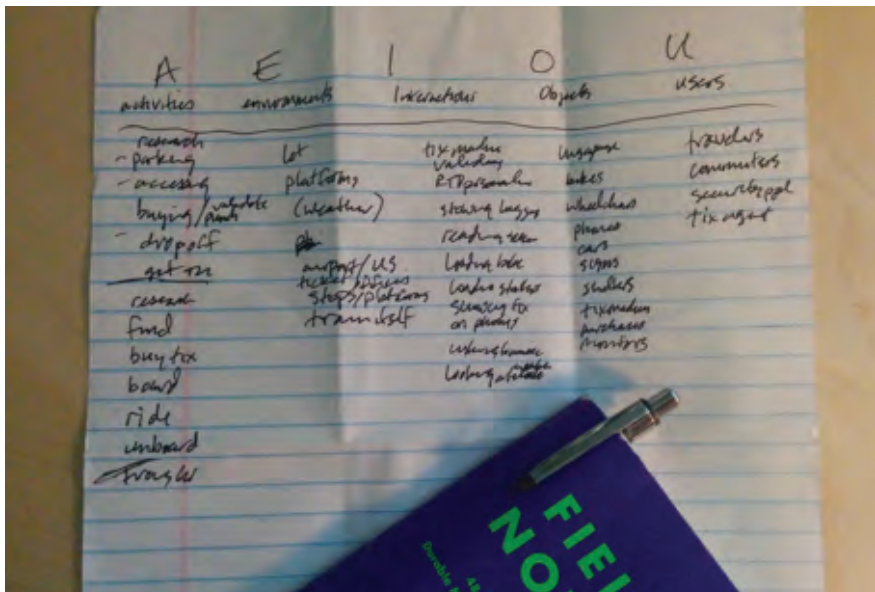
We all love the concept of public transportation and have benefitted greatly from the new train. However, as you can imagine, this communally bad experience led us to share all our stories about inefficiencies in the passenger experience. We decided there were enough that we needed to do what we do best – document the experience through in-depth observational research and identify opportunities for improvement and innovation.

Early one June morning, we embarked on two days of observational research, riding the train all day, boarding and un-boarding in teams of two at various stops along the A Line. Our goal was to approach riding the train with fresh eyes – what is this train, where is it, where does it go, and how do I use it?

## Identifying a Framework for Research and Analysis

We use frameworks to codify data, group our observations, and identify opportunities. For this guerrilla research, we selected the AEIOU Framework. This Framework allows us to group observations into buckets of Activities, Environments, Interactions, Objects and Users as follows:

- Activities are goal-directed sets of actions—paths towards things people want to accomplish. For example, finding the train, boarding the train, etc.
- Environments include the entire arena where activities take place. For example, the platform, inside the train, etc.
- Interactions are between a person and someone or something else; they are the building blocks of activities. For example, buying a ticket at the vending machine, validating a ticket with security, etc.
- Objects are building blocks of the environment, key elements sometimes put to complex or unintended uses. For example, luggage, in-train monitors, bicycles, etc.
- Users are the people whose behaviors, preferences, and needs are being observed. For example, passengers (commuters, travelers), Security guards, etc.



As you can see in the image to the left, we created lists for each category of observation. The lists allow us to address each item individually and as it relates to other items in the AEIOU columns.

Notes from the field: a quick list of AEIOUs generated on our first trip to the airport during this study.

## Detailed Observation 1: Onboard Video Monitors

We're going to look at two of the items in the AEIOU framework for opportunities to improve service. Let's start with the on-board video monitors.

On our first ride TO the airport, we noticed the monitor cycling a series of images and messages related to RTD and the City of Denver. Messages included:

1. Free mall rides
2. Welcome to Denver
3. Tourist information office locations
4. Ticket books
5. Stowing luggage and bikes
6. How parking at the stations works
7. How to board the train

*Note that these were all messages playing for people who were already on the train and LEAVING Denver.*



Onboard monitors with rider messages.

We were curious if the messages on the way from the airport would be the same. With few exceptions, they were.

### Onboard Video Monitor: Solutions to Improve Experience

As communication practitioners, we understand that getting the right message at the right time and place is vital to effective communication.

If you're visiting Denver and riding the train from the airport TO downtown, items 1-4 above are very helpful. Item 5, stowing luggage, can be helpful too – in case a rider had improperly stowed her luggage and wanted to correct herself. But wouldn't that information, as well as how to board the train, be best relayed outside the train as passengers boarded?

The ride itself produces few postcard-worthy vistas until the train approaches downtown. In fact, the ride is visually uninspiring, and monitors could effectively serve up tidbits about each station or tips about the region to keep the excitement of arriving visitors piqued. For example, “Central Park Station is the transit hub of Stapleton, a master-planned community with 75,000 residents developed on the site of the old Stapleton Airport” or “Take the W line from Union Station to Golden and enjoy...”

Similarly, monitors on trains TO the airport could have better information for travelers heading out of town. Examples include: TSA security wait times, using the bag drop near the train, which airlines are on which side of the terminal, ETA, etc. We heard passengers asking one another and security guards questions like these. We saw others looking information up on their phones – or trying to – wouldn’t Wi-Fi be a nice addition for the anxious traveler?

And if there isn’t a feasible way to educate passengers before they board the train, some may need more in-your-face education than a rotating message on a monitor:



A passenger that lacks the right information at the right time can ruin the experience for those that end up on a standing-room-only train.

## Detailed Observation 2: Accessing the Train from the Airport

As we noted before, it’s important to approach seemingly every day experiences with fresh eyes. Imagine arriving in Denver for the first time having been told to “Take the train downtown and I’ll pick you up at Union Station.”

As frequent flyers know, the airport’s internal train between concourses and the terminal drops ALL arriving passengers at the same point in the middle of the main terminal. Here’s the view when incoming passengers arrive:

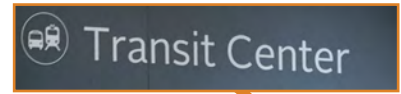


Welcome to Denver – the view all arriving passengers see when getting to the terminal.



You've carried on all your luggage to make good time. "Okay, so where's the train?" There's no sign in clear sight. Follow the flow to the right and there's a large "Ground Transportation" desk where they want to order you a shuttle van more than they want to direct you to the train. Go back and try the other way – there's a small sign in the middle of a bustling terminal that directs you to a "Transit Center." We suspect that's where we want to go, but still we need to ask folks as we follow the arrows, thinking all the way "does transit center equal train?"

"Okay, so where's the train?"



Where is the train?



Where is the train?

In short, wayfinding for those with no luggage to pick up is quite difficult. We asked a few airport workers as we strolled through the terminal – they all had the same canned response. Clearly, it's a question they get often.

Next, we imagined having to retrieve our luggage from baggage claim, then find the train. Thank goodness someone had us in mind when they planned the wayfinding:



Okay, I may not know how to use the train yet, but I know which way to go to find it!

## Accessing the Train from the Airport: Solutions to Improve Experience

What do you look for when you're in an unfamiliar environment? Signs that guide you to the right place. Wouldn't it be great if the train was as easy to find as this elevator?



Now this is hard to miss!

We realize that building services such as elevators, restrooms and information desks have both ubiquity and universal visual iconography. In fact, they're so iconographic that sometimes a simple image is all that you need to find these services.

But the train is a challenge. People readily recognize train icons – except when they might look like a bus icon, or you've just gotten off another train that shuttles passengers between concourse and terminal. In these cases, language becomes even more important. Instead of the small "Transit Center" post, something larger with the words "Trains to city" and "Public busses" would be very clear. In fact, it would behoove RTD to have a small desk near all the other transit options. They might even sell tickets there to avoid congestion at the ticket machines near the platform. We'll save that analysis for another day.

## The Value of Observational Research

We conducted this informal research with minimal engagement of RTD and airport personnel and fellow travelers – it was 99.9% observational. The insights we derived from our observations came from a research framework we know well and use often. The solutions we derived from those insights are rooted in decades of design and innovation thinking.

Every product and service needs fresh eyes from time to time. When you ride the train regularly, the monitors become white noise. When you ride the train often and know where to go, how to find it, and what it's called, you don't notice the lack of signage and the inconsistent terminology used to describe it.

The solutions presented here were generated by looking at just two of the items we noted in our AEIOU Framework. There are undoubtedly more opportunities for innovation and experience improvement in both and ALL the others. We just highlighted two opportunities to show how we work and think.

Contact us if you'd like to learn how observational research and message improvement can help your organization.

PS – we still don't know what it means when we hear that trains are running 15 minutes late!