I am Terrance Law and I am a PhD student at the Visualization Lab at Georgia Tech.

We are conducting a study about the practice of visualization end users and their views on automated insights in visualization tools such as Tableau and PowerBI.

This interview will take around an hour. Can I record audio? I don't want to miss any important comments from you.

Part 1: Background

1. Can you tell me a bit about your year of experience with Tableau and other visualization tools? What is your role in your team? How does your job relate to understanding data?

Great! Thank you!

Part 2: Current Practice

When it comes to visualization tools, I think they support two main things: analysis and reporting. Let us talk about analysis first.

1. Can you walk me through a typical or recent data analysis scenario in which you use visualization tools to analyse or understand data?
    - Where does the data come from?
    - What is the purpose of the analysis?

2. How much visualizations are involved in the analysis? Do you do use non-visualization tools for doing the analysis?

3. For reporting, can you tell me about a scenario in which you use visualization tools to report your findings?
    - Who is the audience?
    - Are you also the end users of your dashboards or reports?

4. I think data analysis can mean a lot of things. It can mean the analysis you do to prepare for reporting; it can mean the analysis you do while you are creating a report; it can mean the analysis your audience do with your interactive dashboards; it can mean the ad-hoc analysis that is not immediately driven by the need for creating reports. Let us talk about them one by one.
    - Can you tell me a bit about the data analysis you do to prepare for reporting?
    - How about while you are creating a report? What analysis do you typically do?
        - When you get feedback from your end users, I am guessing you need to refine your reports. Do you do further analyses based on the feedback from users?

- Do you recall any instances where your analysis is more ad-hoc and is not driven by the need for reporting?

5. Can you tell me about the challenges you face in your analysis workflow?
    - Ask about other challenges if talk about data preparation.

Part 3: Perception of Current Tools

Before we talk about how future auto-insight tools should look like, let me show you the current tools. I am going to show you demos of three auto-insight tools. These tools are inspired by existing products and I have some questions about their utility to your workflow.

I am going to use a US college data set for all the demos. In the data set, each row is the record of a college in a year. There are attributes such as Admission Rate, SAT Average, and Average Cost of Attendance in a year.

[Order of Presentation Counterbalanced]

[Tool A] This tool is modelled on Tableau. You can drag and drop attributes to the shelves to create visualizations. While you are creating visualizations, this pane here shows you some other interesting visualizations based on the selected attributes. For example, if I select time, it shows you some trends. If I drag X and Y onto the shelves, it will show me some insights related these attributes. When you click on a recommendation, the recommendation will be shown in the main view.

[Tool B] This tool is modelled on Microsoft PowerBI. As you load your data into the tool, it shows you a page of findings before you even start your data analysis. For example, is tells you things like … As you review this page of insights, you may find something interesting, so you can bookmark the insights. The bookmarked insights will appear in a dashboard. You can edit the dashboard by moving the charts around and adding some text.

[Tool C] This tool is inspired by the products of a company called Narrative Science. Here is a dashboard on the right. On the left are some computationally generated findings from the dashboard. For example, from this view, the tool finds that … From this view, the system finds that … As you change the attribute in a view, the insights are updated. You can also click on a state to update the insights. For example, as you click on California, the insights will be updated to tell me things related to California.

I have some questions.

1. Can you see yourself using this tool to help with your workflow? If no, what do you think might be the limitations of the tool? if yes, how do you think the tool will help?
2. Ask about limitations if say something positive for the first one.

Part 4: Future Tools

Let us talk about the future auto-insight tools. So, basically what these auto-insight tools do is they try to generate some facts about your data to make your analysis easier. And analysis can happen in different stages: like in data wrangling, you may want to get a sense of the structure of your data; in data cleansing, you may want to understand data quality issues; and in typical data analysis, you want to extract meaningful insights.

1. What are the kinds of auto-insights you want to have for your workflow?
    - [Cannot think of one] Let me put in in this way… What are the challenges within your workflow? Maybe those are places that can be benefitted by tools that generate useful facts about your data.

2. So, we want to get a sense of what are the findings that people think are insightful. I wonder if you can tell me a finding, maybe from your data, that you think are really useful and insightful.
    - Why is that a useful insight to you? What are the characteristics of the finding that makes it insightful?

3. And in psychology, when people talk about insights, they usually refer to some weird psychological states … like a eureka moment. I wonder if you had these moments of enlightenment when you analyse data. If yes, can you share a bit with me? If no, why do you think that it does not happen as often?

4. I think in practice, there is usually a separation between technical expertise and domain knowledge. You have data analysis expertise but you probably don't have complete knowledge about the domain of a problem. There are some other stakeholders who have domain knowledge but do not have technical expertise to analyze data. These two groups of people have to work together to collaboratively refine the goal of the project.
    - Can you use your project as an example to walk me through the collaboration process?
    - Can you recall a scenario where you find something interesting from the data and want to discuss the findings with the stakeholders? [probably you are not sure about whether something you find is meaningful or useful to your stakeholders and you want to verify the finding with the stakeholders]

5. How do you think about a tool that simply shows you a list of computationally generated insights? What do you think might be the problems of this approach?

Thank you very much for you time!