Combining Visual Analytics and Enterprise Social Media to Enable Innovative Practice-Inspired Learning Activities

Synopsis

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Introduction

Complex problems need to be examined from different perspectives, often by decision-makers from different functional areas and/or different professional backgrounds. Often, they need to collaborate in order to combine and negotiate their individual, departmental and disciplinary insights in order to gain a more holistic perspective and decide on the most appropriate action. In fact, the importance of collaboration for deriving insights from data has been confirmed by both research and practice. “With more data in the hands of more people – and easier access to easy-to-use analytics – conversations about data and results from data analysis are happening more often. And becoming more important. And expected. So it’s not surprising that improved collaboration is one of the most common organizational goals” (Bailey, Fu, Luppi, et al., 2014). The process of generating insights from data generally involves multiple actors from different parts of the organization and it is challenging for many organizations (Sharma et. al., 2014).

Informed by these industry trends, in this paper we describe an innovative teaching and learning activity designed to extend data visualization with collaboration structured around sharing, co-creation and negotiation of departmental/disciplinary insights, using both internal and external data. In terms of educational resources, this activity combines the existing SAS-VA platforms currently available on Teradata University Network (www.teradatauniversitynetwork.com) with the leading enterprise social media platform called Yammer — with both platforms being well-known industry leaders in their own (individual) application domains. In addition to giving students access to state-of-the-art tools for visualization and collaboration, an even more important educational objective is to expose students to current industry practices with individual data-driven disciplinary insights no longer considered to sufficient when dealing with complex multi-disciplinary challenges.

Motivation

Using industry-based cases, we identified a pattern of situations that require sharing of analytical insights across functional silos and collaboration to bring different perspectives together in order to better understand a particular business problem. Although collaboration is recognized as very important, the cases remain silent when it comes to the actual details of collaboration, in particular with regards to organizational challenges of sharing VA-enabled insights across functional, hierarchical, organizational and even professional boundaries.

This particular limitation has led to an idea to combine VA with collaborative activities focused on sharing VA-enabled insights, deemed necessary in order to convert these insights into value-adding actions. The resulting activity is designed to combine two leading industry platforms for data visualization (SAS VA) and enterprise social media-enabled collaboration (Yammer). We used the currently available cloud-based version of SAS VA (Sept, 2014), hosted by Teradata University Network (www.teradatauniversitynetwork.com) and designed our activity around the provided data sets. For the collaborative part, we used a corporate (industrial-strength) version of the enterprise social-media platform Yammer (www.yammer.com) that is often described as the leading enterprise (corporate) Facebook-like web 2.0 platform (Chacos, 2012).

Results

An example of business scenario

Insight Toy Company is an international company that manufactures and sells toys to retailers (i.e. resellers “vendors”) all over the world (SAS Visual Analytics, 2014). In this context, students are asked to assume the roles of different functional managers and help the company’s CEO to make an important decision about future product lines. More precisely, students are asked to analyze data
and decide which products the company should produce next year, in order to maximize its profit. To complete this activity, students need to use the Insight-Toy-Company data (“Insight_Toy_Demo”) provided by SAS Visual Analytics on Teradata University Network and then proceed with sharing and discussing individual insights on the enterprise social media platform called Yammer.

Learning activity: An overview of main steps

Step 1: Data visualization using SAS VA (on Teradata University Network)
Step 2: Importing the resulting SAS VA visualizations into Yammer
Step 3: Collaborative activity based on a single (functional) perspective
Step 4: Collaborative activity of exploring multiple (disciplinary) perspectives, using internal and external data.
Step 5: Collaborative activity to translate VA-enabled insights into action
Step 6: Reflection-on-action (individual and/or collaborative)

For the purposes of this activity, students are divided into three groups (of two or more members), corresponding to three different functional areas/departments. Using the data set “Insight-Toy-Demo” (from SAS-VA) their first task is to create three different visualizations (one per group) corresponding to three areas/departments: sales, finance and customer service.

Figure 1 shows the screenshot of the finance team’s collaborative workspace (in Yammer) created by importing the Product material costs by product line visualization created by SAS-VA for the previously described business scenario.

Figure 1: A collaborative workspace

Figure 2. illustrates student collaboration across different functional silos (also supported by Yammer) and consensus building though voting, after they discussed and negotiated different perspectives of their assigned functional departments.

Figure 2: Cross-functional collaboration across data silos

Figures 3 and 4 illustrate a further complication created by external sources of data (i.e. Google Analytics and Twitter data) that require students to re-consider their previous decisions (based on disciplinary perspectives). The main reason for incorporating social media (Twitter data in this case) and Google trends is to give students an important opportunity to consider how businesses currently use social media data and Google data as additional sources that help them better understand their customers’ response to their products.

The final step of this learning activity provides an opportunity for students to reflect on their experience, in particular the challenges of co-creating analytical insights across functional boundaries through collaboration, using internal and external data to create and refine analytical insights as well as think about the role of data visualization and collaboration platforms. This reflective step could be done individually or in groups, prompting further discussion, face-to-face or online.

Reflection and future work

The presented activity is supported by two leading software platforms SAS-VA used data visualization and Yammer Enterprise Social Media used for collaboration. Apart from giving students hands on experience with these two leading software platforms, this innovative activity makes a contribution to both industry and educational practices. For example, a very recent thought leadership white paper on collaboration by SAS (Bailey, et. al. 2014) offers further support for our
idea of combining visualization and collaboration. We go one step further and propose to combine SAS VA with the leading enterprise social media platform made available to staff and students in our university environment.

Furthermore, instead of Yammer that is an enterprise social media platform and therefore requires a site license, it would be possible to use other social media platforms such as Facebook. However, in our university environment any use of Facebook for teaching and learning purposes was not possible due to the current and unforeseen ethical consequences. For example, asking students to open new or use their private Facebook accounts for teaching and learning activities (especially group activities) is not considered to be ethical due to lasting effects and possibly yet unforeseen future consequences, associated with this public social media platform. This may not be the case with other universities, but nevertheless should be taken into account by the educators.

Our future work includes further refinement and extension of the presented learning activity (using for example sentiment analysis) as well as design of new activities. Finally, our insights into practitioner stories (obtained through case studies, practitioner interviews and observations) have also inspired our current exploration of data-driven storytelling that we also plan to incorporate into future learning and teaching activities.

References


