
Software User Experience and Likelihood to Recommend: Linking UX and NPS

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Abstract

This study reports on a two-year survey in which user experience attributes, e.g. ease-of-use, were found to contribute significantly to users' willingness to recommend a product. It is a case study which applies a model of customer satisfaction from the field of Customer Loyalty to our field of Software User Experience. A Multivariate analysis finds that user experience variables such as ease-of-use, contribute between 32% and 40% to users' likelihood to recommend a software product.

Keywords

Quantitative Methods, Case Study, Survey Design, Usability, Net Promoter Score, User Experience Design

Introduction

Net Promoter is a measure of customer satisfaction that grew out of the Customer Loyalty research by Frederick Reichheld (Reichheld, 2003). Reichheld developed the Net Promoter* Score (NPS) to simplify the characteristically long and cumbersome surveys that typified customer satisfaction research at that time. His research found a correlation between a company's revenue growth and their customers' willingness to recommend them. The procedure to calculate the Net Promoter Score is decidedly simple and outlined below. In short, Reichheld argued that revenues grow as the percent of customers who are willing to actively recommend a product or company increases, relative to the percent that are likely to recommend against it.

At Autodesk we've been using the Net Promoter method to analyze user satisfaction with our products for two years (Bradner, 2010). We chose Net Promoter as model for user satisfaction because we wanted more than an average satisfaction score. We wanted to understand how the overall ease-of-use and feature set of an established product factor into our customers' total product experience (Sauro, J. & Kindlund 2005). Through multivariate analysis - frequently used in conjunction with Net Promoter - we identified the experience attributes that inspire customers to actively promote our product. These attributes include the user experience of the software (ease-of-use), the customer experience (phone calls to product support) and the purchase experience (value for the price).

This paper explains the specific steps we followed to build this model of user satisfaction and outlines how we used it to quantify the value of a good user experience.

Methods

In 2010, we launched a survey aimed at measuring user satisfaction with the discoverability, ease-of-use and relevance of a feature of our software we'll refer to here as the *L&T* feature. We used an 11-point scale and asked users satisfaction with the feature along with their likelihood to recommend the product. The recommend question is the question that is the defining feature of the Net Promoter model. To calculate the Net Promoter Score, we:

1. Asked customers if they'd recommend our product using a scale from 0 to 10 where 10 means *extremely likely* and 0 means *extremely unlikely*.
2. Segmented the responses into three buckets:
 - Promoters:** Responses from 9-10
 - Passives:** Responses from 7-8
 - Detractors:** Responses from 0 to 6
3. Calculate the percent of promoters and percent of detractors.
4. Subtracted the percent of detractors from the percent of promoter responses to get the Net Promoter Score.

This calculation gave us a Net Promoter Score. Knowing that we had 40% more customers promoting than detracting our product does mean something. But is also begged the question: is 40% a good score?

Industry benchmarks do exist for Net Promoter Scores. For example, the Consumer Software Industry (Sauro, 2011) has an average Net Promoter score of 21%--meaning a 20% is about average for products like Quicken, QuickBooks, Excel, Photoshop and iTunes. Although, common practice at Autodesk is to place less stock in benchmarks but rather focus carefully on the aspects of the user experience that drives up promoters while reducing the detractors.

To isolate the 'drivers' of a good user experience we also included rating questions in our survey that asked about the overall product quality, product value and product ease-of-use. We asked these questions on the same 11-point scale used for the recommendation question. We then calculated mean satisfaction scores for each experience variable. Satisfaction is plotted along the x-axis in the chart below.

* Net Promoter is a registered trademark of Satmetrix, Bain and Reichheld.

Next we ran a multiple regression analysis with Net Promoter as the dependent variable and the user experience attributes as independent variables. This analysis showed us which experience attributes were significant contributors to users' likelihood to recommend the product. The analysis, because it uses the beta coefficient, takes into account the correlation between each variable. Those correlations are plotted against the y-axis in the Figure 1 below. The y-axis represents the standardized beta coefficient. We call the y-axis 'Importance' because correlation to the question "would you recommend this product?" is what tells us how important each experience variable is to our users. Plotting satisfaction against importance gives us insight into which experience attributes (interface, quality or price) are most important to our users.



Figure 1. Anatomy of a Key Driver Analysis.

Prioritizing Investments in Interface Design

According to Reichheld (Reichheld 2003), no one is going to recommend a product without really liking it. When we recommend something, especially in a professional setting, we put our reputations on the line. Recommending a product is admitting we are more than satisfied with the product. It signifies we are willing to do a little marketing and promotion on behalf of this product.

This altruistic, highly credible and free promotion from enthusiastic customers is what makes the recommend question meaningful to measure. Promoters are going to actively encourage others to purchase our product and, according to Reichheld's research, are more likely to re-purchase.

We wanted to determine how a customer's likelihood to recommend a given product was driven by specific features and by the overall ease-of-use of that product. A new feature, we'll call L&T, was included in the product we were studying. When we plotted users' satisfaction with the L&T feature against their willingness to recommend the product containing the L&T feature we found that the L&T feature was lower on the y-axis relative to the other aspects of the interface (as shown in Figure 1). Using the L&T feature (L&T Ease of Use) and locating it (L&T Discoverability) scored lower in satisfaction than Product Quality, Product Value and Product Ease-of-Use but they also score lower in Importance. Users place less importance on this new feature relative to overall quality, value and ease-of-use. The data shows users' satisfaction

with the L&T feature is not as strongly correlated as quality and ease-of-use to their likelihood to recommend the product and is therefore not as important to driving growth of product sales.

The labels on the quadrants in Figure 1 tell us exactly which aspects of the user experience to improve next. Features that plot in the upper left quadrant, labeled FIX, are the highest priority because they have the highest importance and lowest satisfaction.

The data in Figure 1 indicates that if we were to redesign the L&T feature, we should invest in L&T Relevance since it plotted higher on the Importance axis than L&T Discoverability and Ease-of-Use.

Contribution of UX to Likelihood to Recommend (n=2170)

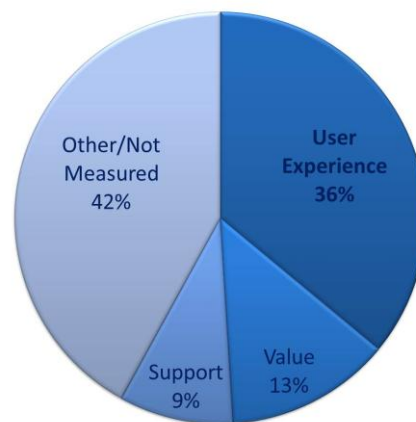


Figure 2. Analysis of Aspects of the Customer Experience Contributing to Customers' Likelihood to Recommend a Product (n=2170)

Prioritizing Investments in Interface Design

So how much does the user interface of a software product contribute to users' willingness to recommend the product? We had been told by our peers in the business intelligence department that the strongest predictors to a user's willingness to recommend a product are:

1. Helpful and responsive customer support (Support) and...
2. Useful functionality at a good price (Value).

We ran a multiple-regression on our survey dataset (Figure 2) and found that the variables for software user experience contribute 36% to the likelihood to recommend (n=2170). Product Value accounted for 13% and Support accounted for another 9%. To verify the contribution of software user experience to willingness to recommend we ran another multiple regression on a data from a second, similar survey (n=1061) and found the contribution of user experience variables to be 40%. We concluded that for the products we studied, which are design applications used by professional engineers, architects, animators, etc, the user experience contributes between 32% and 40% to the likelihood to recommend.

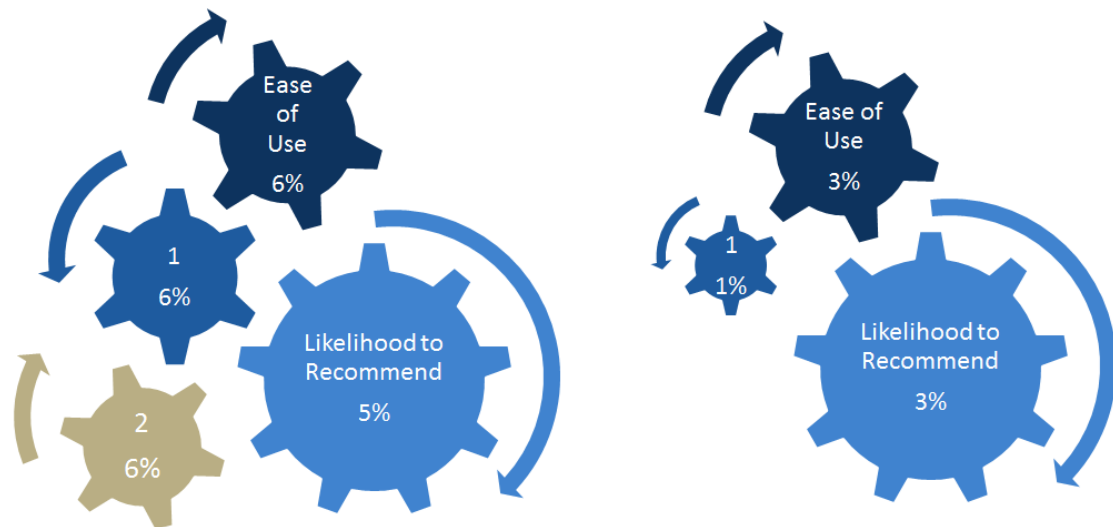


Figure 3. Target Increase in Likelihood to Recommend (left) vs. Actual Increase (Right)

We then ran a third survey one year later. The regression formulas from the first and the third survey are shown below, where **LTR** stands for Likelihood to Recommend. In Year 1 we calculated the improvement targets shown in Figure 3 (left). We set a target of 5% increase in users' *likelihood to recommend* our product and we knew how to achieve that increase from the regression formula: assuming the other contributing factors remain constant, if we could increase the satisfaction scores for the overall product ease-of-use, for the usability of Feature 1 and for the usability of Feature 2, then we would see an increase in users' Likelihood to Recommend of 5%.

In Year 2, we re-ran the analysis. We found that the actual increase in Likelihood to Recommend was 3%. This 3% increase was driven by a 3% increase in ease-of-use, a 1% increase in Feature 1's usability and 0% perceived increase in Feature 2's usability, as summarized by Figure 3 (right). The regression formulas for the product we studied are below.

$$\text{Year 1 - Product X LTR} = 2.8 + .39 (\text{Ease-of-Use}) + .13 (\text{Feature 1}) + .19 (\text{Feature 2}) \quad (R^2 = 37\%)$$

$$\text{Year 2 - Product X LTR} = 2.8 + .39 (\text{Ease-of-Use}) + .11 (\text{Feature 1}) + .24 (\text{Feature 2}) \quad (R^2 = 36\%)$$

Discussion

The multivariate analysis showed that user experience contributed between 36% and 40% to increasing product recommendations. At Year 2, we hadn't met our target of increasing Likelihood to Recommend our product by 5%, but by investing in ease-of-use and in a few key features we were able to improve the Likelihood to Recommend by 3%. The Net Promoter model had provided us with a way to define and prioritize investment in user experience design and had given us a way to track the return of that investment year-over-year.

We wanted to test the Net Promoter model further. Could the model be used as a predictor of sales growth, as it was originally intended (Reichheld, 2003)? If we knew how many promoters actively refer the product, we could estimate the revenue gains associated with improved user experience of our software.

What we did next is determine if there is a link between 'promoters' and an increase in customer referrals. In our survey, we asked if the respondent – all were existing customers – had referred the product to a friend in the last year (Owen & Brooks 2008). From this data we derived the proportion of customers that are obtained through referrals and who likely refer others. This allowed us to approximate the number of referrals necessary to acquire one new customer. The data used to derive this number is proprietary. For the purpose of this report, we will use the number eight: we need 8 referrals to acquire one new customer. In the NPS model,

it is *promoters* who actively refer a product. But we didn't want to assume that every respondent who answered 9 or 10 to the *likelihood to recommend* question, i.e. every promoter, had actively referred our product. The actual percent of promoters who actively referred our product within the last year was 63%. From this, we derived that the total number of promoters needed to acquire one new customer was 13.

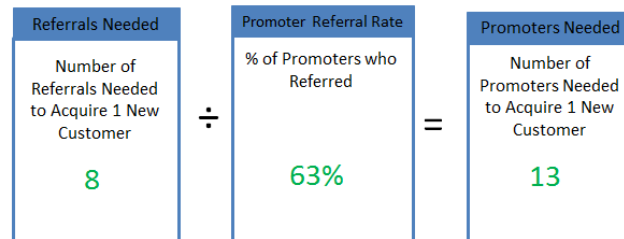


Figure 4. How many Promoters are Necessary to Acquire One New Customer?

Conclusion

By calculating the number of promoters required to acquire a new customer, we were able to connect the proverbial dots in the software business: good user experience design drives our users to recommend our products, product recommendations increase customer acquisition, which increases revenue growth. Through multivariate analysis, we have shown that experience design contributes 36% to 40% to motivating users to recommend our product. Since we knew the average sales price of our product, we were able to estimate the revenue gains associated with improving the user experience of our software. *We quantified the value of a good user experience.* By tying user experience to customer acquisition, we are able to prioritize design investment in ease-of-use and in research to improve the user experience of our products.

In summary, this case study shows:

- Multivariate analysis of user experience attributes can be used to prioritize investment in user experience design and research.
- User experience attributes, such as ease-of-use, contribute significantly to customer loyalty.
- Knowing the average sales price of our products and the number of promoters needed to acquire one new customer, we can quantify the return on investment of good user experience.

At Autodesk, we've found that calculating a net promoter score isn't as useful as graphing and using the key driver charts. The key driver charts target the aspects of the user experience that are most urgently in need of design improvements. By calculating drivers from year to year, we see how our investments in key areas pay out by increasing our users' likelihood to recommend our products. We watch a features move from the FIX quadrant safely into the LEVERAGE quadrant. Inspiring more customers to promote our product through designing excellent user experiences is what motivates us. It's not about a *score* or solely about acquiring new customers; it's about designing software experiences that are so good our users will actively promote them.

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