CASE STUDY | 3P Learning

Helping a Global Leader in Online Education Improve Customer Retention With Machine Learning

March 2018

The Project

3P Learning is a publicly listed ASX organisation and a global leader in online education. 3P's suite of learning resources is designed for schools and families, covering mathematics, spelling and literacy. 3P has tens of thousands of schools as subscribing customers and millions of students and teachers as users of its products across the world. In light of its strategic objectives and increased competitive environment, 3P's leadership team decided to allocate resources in data science to tackle a variety of business challenges. In a combined effort with Polynomial Solutions, 3P engaged with Felipe Rego to specifically develop and enhance a customer churn model using machine learning.

Objectives

Identify customers likely to leave before they do
3P's customer retention rates were already considerably high, but management wanted to make sure its market share position was sustained in the long-run. As part of a larger data and analytics strategy, 3P's customer retention analytics project focused on:
- **Identifying customers that were unlikely to renew their subscription before the due date;**
- **Providing an easy-to-understand solution for sales teams to adopt and embed in their retention strategies;**

Methodology

Aligning industry domain knowledge, cutting edge technology and a robust solution
The fact that 3P's customer churn was historically low meant that applying predictive customer churn models was a harder-than-usual task. Additionally, there were many different source systems in which data had to be used. For it to be successful, the approach had to consider:
- **Individual markets and geographies to cater for regional nuances and specific educational domain knowledge;**
- **A set of unknowns that could not realistically be captured in the dataset and model results;**
- **The class imbalance of historically low churn plus the possibility of a non-parametric nature of the dataset;**
- **The relative cost of misclassification;**
Over 30 different families of statistical models were tried and tested with hundreds of parameters optimised. The final solution incorporated an ensemble learning method with a multitude of decision trees yielding good model performance results.

Results

Improving customer retention with high ROI
Over a few weeks, Felipe Rego helped 3P Learning define, develop and deploy a robust customer retention solution using cutting-edge machine learning with an estimated ROI of c.250% in the first year alone.

---

*" Felipe was recommended to us by Anna Russell who is the Director of Polynomial Solutions. We needed someone who could come in and help define and build a cutting-edge analytics solution for customer retention as part of a larger analytics investment. We at 3P have been laser-focused on our customers and further utilising advanced analytics for that was an easy decision. I was impressed by Felipe's self-directed approach. Differently from other data science professionals we worked with, Felipe was really good at maintaining constant communication with the executive team and stakeholders. He also made sure that the results were easily interpretable for non-technical folks such as product, sales and design teams. But the most valuable thing for me was that he aligned technical solution to commercial benefits. At the end of the engagement, we had a clearer picture of the potential benefits of the solution he built which made it easier to adopt." - **Simon Perry, Chief Information Officer, 3P Learning**

1

YOUR STRATEGIC DATA SCIENCE PARTNER

Felipe is a leading advanced analytics and data science partner, working with teams in a range of different organisations and helping them build, manage and enhance their data science and visualisation solutions. Strategically aligned, commercially oriented and above all, customer centred, Felipe's unique methodologies will help your organisation stay competitive and create a solid pathway for your future growth.

INDUSTRY EXPERIENCE MEETS TECHNICAL KNOW-HOW

Felipe has a unique combination of in depth technical expertise (including developing code and programming in analytical tools) and a high level of business experience with over a decade working in marketing, research and business strategy. This allows him to identify and understand the issues that impact his clients' businesses and translate them into the complex language of analytics and data science to find the best solutions. Because of this, Felipe is highly in demand with marketing, sales, finance, technology and strategy teams. He excels at delivering robust analytical solutions that are easy to use, understand and implement. Felipe's unique methodology takes a holistic approach to using data and science to improve whole organisational performance and reduce costs.

ANALYTICS SERVICES WITH A COMMERCIALLY FOCUSED MINDSET

Many organisations struggle to develop a clear roadmap for their data science and analytics strategy. It's also common to experience challenges implementing analytical solutions that are both actionable and easy to use. Felipe helps organisations and teams with:

- Data Science and Analytics Strategy;
- Predictive Analytics and Machine Learning Solutions;
- Data Visualisation and Insights Automation;
- Analytical Training and Workshops;

PRACTICAL ANALYTICS TRAINING AND WORKSHOPS

Felipe is also an analytics instructor with experience disseminating practical, actionable analytics and data visualisation techniques in both classrooms and online settings. The organisations he works with find that partnering with Felipe results in a more engaged workforce. It's not just the organisation as a whole that benefits - individuals feel more prepared to step up to their next challenge and confidently make use of data and analytics in their day to day work.

ACADEMIC RESEARCHER

When Felipe is not partnering with clients or helping students, he's an **M.Phil. research candidate in Learning Analytics at the University of Sydney**. As part of his studies, Felipe makes sense of students' digital traces and looks at the role learning analytics dashboards play in influencing learning outcomes.

WRITER AND BLOGGER

Alongside all this, Felipe is also a blogger, writing regularly on a wide range of topics including predictive analytics, statistical learning and data visualisation. **Recognised internationally for his thought leadership, Felipe received over 62,000 visitors to his blog from over 180 countries last year and some of his articles have been ranked #1 in Google search.** Felipe is widely referenced by many sources and leading educational institutions including StackOverflow, Udacity, Western Michigan University, UC Santa Barbara and Edinburgh Napier University among others.

For more, visit: **feliperego.com.au**

Are you truly harnessing the power of data and analytics to stay ahead of the competition?
I would love to hear your story, share my experience and learn about your challenges.