

## A Value-Based Pricing Simulation Game for Entrepreneurship and Business Students

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### ABSTRACT

The author designs a simulation game to teach students how to use a value based pricing approach, to price a new product. The pricing simulation game was developed and tested in Marketing Applications class. The simulation game helps students to gain a practical experience in pricing, enables students to make effective use of information on the product value to set a price, train students to work better as a team while competing with others and improves students' time management skill. The effectiveness of the value-based pricing simulation game was supported with quantitative and qualitative data.

**Keywords:** value-based pricing; simulation game; delivery effectiveness; gamification

### INTRODUCTION

The proportion of US students who have entrepreneurial aspirations is steadily growing. Shows like "Shark Tank" featuring young entrepreneurs, and local media covering stories of success among young graduates, have changed the way students view work and career. According to a *Gallup poll*, 8 out of 10 students want to be their own boss, and 4 out of 10 want to start their own business (read *Why Today's Teens Are More*

*Entrepreneurial than Their Parents* in Harvard Business Review, by Johnson 2015). Universities have also promoted for sponsored entrepreneurship events, inspiring many students to start a business while at the university (read *These Kentucky students are competing to start their own companies* in Lexington Herald-Leader, by Eblen, 2017). This trend has several implications on how students should be prepared for future challenges. Accordingly, practitioners have urged universities to provide business students with empirically-grounded skills along with competencies that are flexible and adaptable to changing business situations (Jackson, 2009, Bell et al., 2008). In the same vein, Greiner et al., (2003) note that marketing graduates need "knowledge-in-action" (i.e. the ability to make spontaneous decisions based on the environment) and that developing these skills requires "a healthy dose of learning-by-doing", echoing the need to make business programs

more application oriented. In fact, simulations games have been to some extent successful in fulfilling these requirements and delivering an experiential content. Yet the lack of ecological validity (i.e. authenticity) remains a major limitation (Vos, 2015).

However, the development of simulation games that incorporate real data as input, would reduce the lack of authenticity and increases the simulation realism. Therefore, the innovation presented here is a simulation game that uses information derived from a real world context (i.e. Kickstarter platform). The simulation game is designed to be practice oriented and to apply to a real-world of startup companies. A particular emphasis will be put on pricing. Unlike other pricing simulations (e.g. Haytko, 2006), that are intuitive (i.e. guessing a price based on the price/quality relationship, or the brand name), this simulation uses a realistic approach (i.e. product values' framework) to determine a target price that matches the perceived value, called hereafter a value-based pricing simulation game.

### Marketing Problem

Young graduates starting their own business have to face several challenges ahead, among these is pricing. Setting a price for a new product is one of the toughest decisions young entrepreneurs have to make (read *Top 10 Product Pricing Models for Startups*, in Business Insider, by Zwilling, 2010). Pricing decisions could affect funding plans as well as

long-term business viability. Young entrepreneurs who are unable to properly assess the value of their products and price them accordingly would struggle or fizzle out.

Business reports have pointed to poor pricing-decisions to be behind the failure of most startup companies (read, *The Top 20 Reasons Startups Fail*, in Business Insights 2015). Many startups would set a price, stick to it and hope for the best. At worst, many startups set their price low to attract customers and never raising it, or keep a feature free long after its clear that people will pay, while the real challenge is to set the right price that matches the value perceived by the customer (read *Top 10 Product Pricing Models For Startups*, in Business Insider, by Zwilling 2010).

A good step, to address this gap would be to educate students for pricing with a practice oriented approach, while being mindful that realism and authenticity would play a key role to increase effectiveness. From this perspective, a value-based pricing simulation game derived from a real context, would be a good fit, especially with nowadays millennial students who want to be actively engaged, who prefer an authentic content (Holliday and Li, 2004) and for whom pricing is perceived as a boring topic (Haytko, 2006).

### The Objectives of the Innovation

Often, professors perceive the topic of pricing boring and difficult to teach, therefore it doesn't receive enough attention in marketing courses (Winsted and Graham, 2013). In this vein, Maxwell (1998) argues that many marketing educators see pricing as the "most serious curriculum gap" (p. 338). To address this gap, Ferrell and Gonzalez (2004) called marketing educators to develop classroom assignments that would make pricing interesting and relevant to students. Likewise, Marshall and Pearson (2007) state that since pricing requires constant adjustments to changing market conditions, in order to properly learn pricing, students should have a "hands-on" experience making pricing decisions. Interestingly, Curland and Fawcett (2001) advocate that using a business game in class to teach pricing substantially reduced students' apprehension in dealing with accounting information and had a positive effect on students' interest in pricing topics.

Thus, the current innovation aims to enable students to fully comprehend the value-based pricing process, while engaging in a pricing

simulation game, designed to be a playful learning experience (Low, 1980; Malik and Howard, 1996; Jennings, 2002). Through this simulation game, students would develop practical skills to identify a full set of product values (i.e. hedonic and utilitarian values), to monetize these values (i.e. capturing the value), and ultimately to set a target-price (i.e. a seller price). Besides, students would develop persuasion skills, when attempting to reduce the gap between the seller price and the buyer price. In addition, through this simulation, students would gain invaluable experience in teamwork and time management.

### Background Information

There is strong evidence that gamified learning increases student engagement and enhance learning (Buckley and Doyle, 2016). Simulation games have been discussed in the literature as reliable tools providing participants with a "valid representation of real world issues facing managers" (Wolfe and Roberts, 1993, p22). In contrast with other learning activities (e.g. case studies, projects), simulation games yield a higher level of engagement, better performance and an enjoyable learning experience for students (Faria, 2001; Malik and Howard, 1996; Jennings, 2002).

Pricing simulations games, for instance, provide students with the opportunity not only to make decisions, but also to evaluate the results of those decisions and react with new decisions. Typically, teams are required to make repeated decisions under time constraints, in conditions of uncertainty, and in competition with other teams (Wolfe and Luethge, 2003). Students participating in business games learn to consider the interactive effects of variables and the impact of change over time (Anderson, 2005; Cook and Swift, 2006). "The entire dynamic of a classroom changes when the student is given immediate feedback" (Seaton and Boyd, 2008, p. 113). In fact, few learning activities have incorporated crowd funding resources to provide a more realistic context of learning within an entrepreneurial environment (Dow and Wong, 2013), and few business games have used data and information on new products as input, though crowd funding platforms such as Kick starter and Indiegogo provide students an easier access to new product information, that otherwise would be harder to obtain or at the best hypothetical.

**THE TEACHING INNOVATION**

**Description of the Innovation and How it Works**

The current simulation game was developed and used in *Marketing Applications* course that is required to complete a major in marketing. This course is designed to enable students applying marketing concepts and tools they learned in their first marketing course (i.e. Principles of Marketing). Pricing is covered during the 9<sup>th</sup> week of class (a 75 minute class period). Before coming to the class, students are expected to read the following HBR articles A Quick Guide

to Value-Based Pricing” by Dholakia (2016), and “The Elements of Value” by Almquist et al., (2016). The first 20 minutes class is dedicated to discuss challenges with pricing new products, and to review pricing approaches with a discussion on the advantages (and limitations) of value-based pricing over cost-based and competition-based approaches. The next 7 minutes are used to introduce the game along with specifications of rules and expectations; all students are provided with a booklet of instructions (for full instructions see table 2). Thereafter, the game runs for 10 rounds to finally end with a debrief session.

**Table1.** Snapshot of the value-based pricing simulation game

<b>Participants:</b>	Students work in small groups of 3 participants
<b>Learning Environment:</b>	Classroom, ONE Laptop per group, Tabletop Easel Pad, Flip Chart Markers,
<b>Instruction material:</b>	Reading material “A Quick Guide to Value-Based Pricing” by Dholakia 2016, and “The Elements of Value” by Almquist et al., (2016), and instructions booklet,
<b>Instructions:</b>	See Table 2.
<b>Challenge:</b>	Setting a target price that matches customer perceived value
<b>Key learning areas :</b>	Product (utilitarian and hedonic) values, perceived value, value based pricing, over-pricing, underpricing, persuasion.

The simulation game is aligned across many learning objectives such as: gaining a practical experience in pricing in a context similar to real-life situations, enabling students to make effective use of information on the product value to set a price, working better as a team while competing with others (which is consistent with the highly competitive nature of the business environment), and improving time management skills (needed for the simulation, and also in business).

This innovation could potentially be adapted to other marketing courses, such as personal selling and negotiation, For instance, the simulation pricing game could be integrated to simulate many stages in the personal selling process. In particular, rounds 2 and 3 could be tightened to the presentation stage, while round

6 could be refined to illustrate the stages of handling objectives (option 1) and closing the sales (option 2). Likewise, this innovation could be extended to the negotiation course (in particular price negotiation). Besides scenarios and scripts that are heavily used in teaching negotiation course, this innovation affords a flexible and adaptable teaching tool; as the simulation proceeds, the students respond to the changes by comprehending the consequences of their own decisions and determine future steps of negotiation based on their subsequent choice of options.

**Supporting Material**

Supporting material includes the simulation game instructions (see table 1), a sample of slides from my lesson (see appendices 1) and a sample of students’ work (appendices 2).

**Table2.** Simulation game instructions

Time slot	Round	Role/material	Instructions
Up to 10 min	Brief	Professor/Instructions Booklet& PowerPoints	Explain the rules of the simulation game and expectations
Up to 7 min	Round#1	Team/ Kick starter,	Go to Kick starter, browse through most recent funded projects (watch the Ad campaigns to get a quick idea about the product), and pick ONE new (6 months and less) funded product.
Up to 5 min	Round#2	Team/ Kick starter,	Scrutinize available information about the product, gather data as related to key features, unique benefits, and the market segment(s).

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Up to 6 min	Round#3	Team/ "The Elements of Value" by Almquist et al., (2016)	Perform a thorough appraisal of the value using "the value pyramid template" (hedonic vs. utilitarian value) as a framework, write the value proposition of the product.
Up to 5 min	Round#4	Team/ A Quick Guide to "Value-Based Pricing" by Dholakia (2016)	"Monetize" the product value (a) Find the next best alternative: "what would the segment buy if your product wasn't available?" at what price? This will be a reference price; a point of comparison for calculating the value-based price. (b) Identify the differentiated worth. Figure out which product features are unique, that is, differentiated, from the alternative offering and place a dollar amount on the differentiation (e.g. if the product saves you time, how much it is worth?). (c) Add (a) and (b) to calculate come with a price interval.
Up to 4 min	Round#5	Team/ Tabletop Easel Pad, Flip Chart Markers	(a) Make a final (bet) seller price: "minimum price" and "maximum price", "customize your price"; think about incentivizing customers to buy the product. (b) Write down your price on a card (i.e. price tag). DON'T share your price with any team.
Up to 5 min	Round#6	Team/Tabletop Easel Pad, Flip Chart Markers	(a) Present your product to the class, and emphasize the product UNIQUE benefits, emphasize how your product is different from best alternatives (e.g. competitors' products or substitutes). (b) Ask how many students would be interested in your product, and why? (c) Ask how much money, are they willing to pay?
Up to 4 min	Round#7	Team/Tabletop Easel Pad, Flip Chart Markers	Outcome 1: if your product is overpriced, again, emphasize the uniqueness of benefits/features and see if students who showed interest in the product are willing to pay more. Outcome 2: if your product seems to be underpriced, review the appraisal of the value of your product, and ask why students are willing to pay such (high) price. Determine a buyer pricing Interval.
Up to 2 min	Round#8	Team/Tabletop Easel Pad, Flip Chart Markers	TELL the class how much money you are asking for: SHOW your price tag!
Up to 2 min	Round#9	Professor	Declare a winner: the winning group would be the one that comes with the closest gap between the buyer price and the seller price
Up to 5 min	Round#10	Team & Professor	Ask the class again who will be willing to buy your product for your price. Discuss how you can narrow the gap between the seller price and the buyer price
Up to 5 Min	Debrief	Professor/Power Points	Link the game playing process and outcomes to course learning objectives and pricing strategies employed by startups.

### EFFECTIVENESS OF THE INNOVATION

The effectiveness of the value-based pricing simulation game is demonstrated in quantitative and qualitative data. The data was collected in spring 2018 and fall 2018, from 30 students who are enrolled in marketing application class.

#### Empirical Data

I have measured students' perception of the simulation game using four items adapted from Haytko (2006) study. These items are "I enjoyed the pricing simulation game", "the simulation

*helped me learn the value-based pricing approach*", "the discussion on Kickstarter product features along with value-based pricing approach, helped me to learn more about pricing", and "after running the simulation, I feel I could apply correctly value-based pricing". All measures are 5 Likert scales.

Descriptive statistics are reported in table 3. Overall, results show that students have overwhelmingly reported liking the simulation game, with a mean of 4.44 and a small standard deviation. The students also felt that the pricing



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game and subsequent discussion helped them to appreciate the usefulness of value-based pricing game, with a mean of 4.26 and a small standard deviation. In the same vein, students felt

confident that they could successfully apply the value-based pricing in the future, with a mean of 4.2.

**Table 3.** Descriptive statistics of the simulation game effectiveness

	N	Mean	SD
I enjoyed the pricing simulation game	30	4.44	0.50
The simulation helped me learn the value-based pricing approach	30	4.26	0.59
The discussion on Kick starter product features along with value based pricing approach, helped me to learn more about pricing	30	4.33	0.48
After running the simulation, I feel I could apply correctly value based pricing	30	4.2	.56

### Feedback from Students

It is not surprising to hear students expressing interest in the pricing simulation game. This is consistent with Haytko (2006) findings suggesting that in-class games help to motivate students to participate and engage in active learning.

Students participating in the current pricing simulation game find this activity instructive and enjoyable at the same time. Some comments pulled from students' feedback support this view. Here is a sample of students' narrative:

*"I enjoyed the pricing game, these kind of activities stick with me".*

*"The instructions were extremely helpful, pricing was made much clearer than in the textbook".*

*"I think playing the simulations is fun and a great way to learn concepts and to get to know your peers".*

*"My favorite part of this class was the pricing simulation".*

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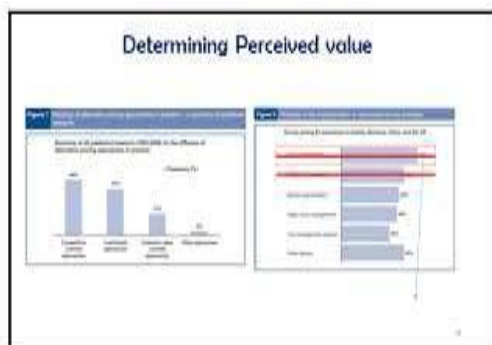
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### APPENDICES 1: Sample of PowerPoint's slides

	Learning objectives
<p style="text-align: center;"><b>Pricing</b></p> <p style="text-align: center;">Understanding and Capturing Customer Value</p>	<ol style="list-style-type: none"> <li>1. Review the three major pricing strategies; discuss major advantages and limitations of each.</li> <li>2. Discuss the importance of understanding customer-value perceptions.</li> <li>3. Explain how companies find a set of prices that capture customer value.</li> <li>4. Discuss how companies adjust their prices to take into account different types of customers and situations.</li> <li>5. Discuss key challenges many startups face with regard to initiating and responding to price changes.</li> </ol>



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### APPENDICES 2: A sample of students' work

[https://www.kickstarter.com/projects/1351910088/3doodler-the-worlds-first-3d-printing-pen?ref=category\\_most\\_funded](https://www.kickstarter.com/projects/1351910088/3doodler-the-worlds-first-3d-printing-pen?ref=category_most_funded)

#### About the product

- WORLD'S FIRST AND NO. 1 BEST SELLING 3D PEN:** 3Doodler is the newest model of maker~the world's first 3D printing pen. The slimmest, lightest, strongest 3Doodler yet. Enhanced design, easy to manage, and improved drive system for quieter and smoother operation, and endless creation. Latest features also include simplified and intuitive controls, and a new ambient light bar.
- DOODLE IN 3D:** Draw vertically. Draw horizontally. Lift your imagination off the page! The 3Doodler Create extrudes heated plastic, which instantly hardens, allowing you to literally draw in 3D, freehand or on paper. Change colors quickly and easily. The possibilities are endless.
- 3D ART MADE EASY FOR ALL ADULTS:** From hobbyists to crafters, artists and professionals, 3D creation has never been easier. It's the perfect gift for all men and women. Precision crafting and art are easier than ever with the ultimate 3D craft pen.
- MOST VERSATILE 3D PEN:** 3Doodler offers the widest range of plastics, no mess, safe and non-toxic. It's the only 3D Art tool with changeable nozzles and unique accessories. Plus, you'll find hundreds of FREE 3Doodler stencils available online for family-friendly inspiration. Draw in 3D for hours!
- NO RISK PURCHASE, COMPLETE 3D SET:** 360 days FREE replacement policy and unrivaled 24-hour global customer service. **THE BOX INCLUDES:** 3Doodler Create 3D Pen, 50 FREE Plastic Strands in a selection of multiple colors and materials, Power Adapter, Quick Start Guide, Tools & a ton of creative potential!
- We believe that professionals (e.g. Designers, Artists, Engineers, Architects, etc.) could be the primarily segment, because they could make their projects come to life with ONE TOOL Potential benefits:
- Convenience (flexibility and control, ease of use compared to a 3 D printer), could also save you money and time (Change colors quickly and easily, reduce waste of material)

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### Hedonic Values:

- Design and aesthetics: design is durable, multiple colors and materials
- Attractiveness: the pen is practical, nice looking and attractive Utilitarian Values:
- Avoids hassle: no need for multiple tools; it has changeable nozzles
- Saves time: produce art/creation quickly (instantly)
- Integrates: integrates multiple tools into one
- Reduces costs: no need for multiple tools
- Simplifies: ease of use

**Value proposition:** The 3D printing pen is designed for you, with its attractive design, it offers you convenience, and it is easy to use and control, save you time, and save you material cost. With the 3D printing pen, the only limit to your creation and imagination is the sky! Potential Market Segment: The 3D PEN would appeal to multiple segments including “Just for me” (a unique product, is not typically seen in the market), “flexibility is important”. “Convenience driven consumers”, "budget-conscious shoppers" (those who cannot afford a 3D printer).

We believe that professionals (e.g. Designers, Artists, Engineers, Architects, etc.) could be the primary segment, because they could make their projects come to life with ONE TOOL Cost of the next best alternative:

Competitors' product: MYNT3D Pen, however, it is an older version Cost= \$69.99

Value of performance differentiated

Convenience, ease of use, save time would be worth of an additional \$30

We would charge \$99 dollars for this product. We would charge this because it is slimmer, quieter, easier to use, stronger, smoother.

Max price- \$90-\$125, **Seller price = \$99**

We think customers would perceive this price as reasonable compared to 3D printers.

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