THE PENNSYLVANIA STATE UNIVERSITY
SCHREYER HONORS COLLEGE

DEPARTMENT OF RISK MANAGEMENT

LOCATIONAL ATTRIBUTES IN REAL ESTATE POSITIVELY CORRELATED WITH DENTAL PRACTICE FINANCIAL SUCESS

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SPRING 2018

A thesis
submitted in partial fulfillment
of the requirements
for baccalaureate degrees
in Risk Management and Biology
with honors in Risk Management

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ABSTRACT

For my thesis idea, I would like to focus on the concept of what real estate attributes contribute to a successful dental clinic. These attributes include: demographics, location, parking, advertising, office culture, competitive advantage, financing, interest, insurance companies, space utilization. The thesis also analyzes topics including how real estate data to improves business, elements regarding commercial real estate construction, and the future of real estate and competition. With these attributes, I would like to assess what elements from those would produce the highest amount of monetary success. I would also like to investigate specific neighborhoods and investigate average median household income, older population and the ratio of dental clinics to people and see how these locational attributes impact success and revenue. The goal of this paper is to investigate these attributes and assess how much each of these factors provide an impact regarding revenue. Location and demographics are some of the greatest and most impactful aspects of choosing a dental clinic, as location will provide opportunities for growth, clientele base and will present level of competition in the form of the PDR. Parking and how close a practice is to major roads also greatly impact the attractiveness to clients, while large, yet simple advertising has also been proven to be effective. Sustainability of dental practices is also a major consideration when it comes to creating a high value, efficient and low expense business that will likely become the norm in the near future. All in all, there are a lot of factors that contribute toward the success of a dental practice and each little piece serves as more of an interconnected puzzle in which are each important in their own ways.

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ACKNOWLEDGEMENTS

I would like to take the time to thank my advisor Brent Ambrose for providing critiques and advice for my thesis. I would also like to thank Jiro Yoshida for taking valuable time out of his life to evaluate and read my thesis. Both professors have taught me in upper level real estate courses, and I am very thankful of the opportunities I have had to be pupils of them.

I also would like to thank the lot of my friends and family for encouraging me throughout my life to keep staying motivated and steering me in the right direction.

Chapter 1

Introduction

As with any other entrepreneurial endeavor, owning and operating a successful dental practice is a challenging task with high risk. Even in the face of exceptional oral health care, the manner in which a licensed practitioner manages their dental office creates a lasting impression on clientele and significantly influences rate of retention. Therefore, it is imperative that one consistently emphasizes and studies developments in best practices, remain organized, and exist in a financially viable location. This thesis is a compilation of evidence designed to connect the concept of real estate and organizational success.

Dentistry as an industry is commonly referred to in the world of business as "cottage" given the notion that its size is not sufficient enough to generate profit from investment of capital. Despite this, dental practice has been growing at a significant rate given the rise of corporate dentistry across the United States. Average figures of student debt at the point in which an undergraduate completes their 4-year institutional program span between $200,000 to $400,000 (Amos). Out of the vast majority of small business firms, the dental industry poses one of the greatest building costs per square feet. Dentists often possess no experience in large scale real estate transactions, which is why it is important for them to do their homework regarding the business acumen it takes to running a practice and choosing real estate to perform it in.

Chapter 2 talks about location; location is often one of the most imperative decisions in any real estate decision including locational attributes such as accessibility, security, competition, rates, regional skill base, and growth potential.

Chapter 3 examines financing, interest rates and insurance companies and discusses prudent choices regarding these topics that dentists typically know so little about.

Chapter 4 focuses on the concept of competitive advantage and how it is possible to offer something better than the rest of the competition and excel at it in order to succeed against local competition.

Chapter 5 discusses potential for Real Estate data and how it has the ability to improve business. Chapter 5 also goes into depth regarding sustainability practices that can help increase the value and cut expenses of a dental practice.

Chapter 6 assesses commercial real estate construction as a function of GDP. Chapter 6 also explains how space utilization regarding real estate construction is of the utmost importance. Chapter 6 also examines issues regarding former employers and their “non-competitive” clauses.

Chapter 7 evaluates parking, advertising and office culture as miscellaneous topics. Parking is an important topic that not many think about, yet is important in designing a practice in order to both comply with law and keeping the clientele satisfied. Advertising is one of the biggest tools in the arsenal for pioneering, new dentists that want to begin their own practices. Office culture is one final topic in which sets the tone for the type of office and efficiency the doctor-owner would like to take.

Chapter 8 talk about one of the most imperative topics: demographics as this topic is the literal makeup of the clientele and how important it is to consult the PDR (patient-to-dentist ratio) and how it may be misleading at times. Chapter 8 also discusses how age of the clientele is also an influential topic regarding dental practice success, since there are generational differences between how likely each cohort is to pay for procedures and how much they would be willing to pay.

Chapter 9 concludes the thesis with the future of the ever-changing field of real estate and how much fiercer the competition will be for generations to come.

Chapter 10 includes the usage of a regression analysis of a test to see if dental practice profitability is positively/negatively correlated with the cost of office space as indicated by capitalization rate.

Chapter 2 Location

When making the decision of where to operate a given business, the nature of the work must be taken into account in addition to a series of other considerations. These include whether or not high-quality service can be offered from one's own private clinic or home, the possibility that the business can gain much needed exposure via passing traffic, and competitive proximity. Consequently, the location of practice is more important than choosing to own or lease the workspace (DentistAdvisors). However, it is important to note real estate ownership strategy is useless when compared to improved customer demographics and a steady flow of new incoming patients. Before one considers potential investment opportunities, one must base all decisions around the location that will produce the highest economic output for the practice. From the perspective of the proprietor, it is essential to consider the commute distance over the balance between work and life. If it is economically beneficial to place the business in an area far away from home in which the travel time will be extensive for the owner yet more convenient for the clientele, it has been recommended by experts to make the sacrifice (DentistAdvisors).

Conversely, in the event the building is not in ideal location from both perspectives (practice and personal), then real estate proves to be a poor investment.

The top priorities when assessing a location for a potential business venture include accessibility, security, competition, rates, regional skill base, and growth potential (Fox). Due to the fact that modern dental practice does not require frequent deliveries, considerations of local transport links are not as important on the side of the business. However, proximity to motorways and main roads significantly influence the amount of incoming clientele. Despite this, purchase prices and property rental expenditures steepen in more commercialized areas of higher density. Therefore, the only benefit to selecting an out of town location is economical savings; yet an increased real estate expense could be covered by greater numbers of patients utilizing main roads and more popular areas. Similarly, if one relies of heavy footfall, the building must guarantee that the location is accessible by not only car, but by train and bus (Fox). This concept is demonstrative of the bid-rent curve in that prices of rent will decrease the further distance from the central business district (CBD) and may decrease demand, while the opposite is true for properties closer to the CBD. While the existence of mass transit provides more opportunity for more clients to be accessible, it is not a huge deterrent if not available as it is only of secondary importance. The availability of mass transit can be loosely correlated with homeowner stability (Amos). Employees are an additional factor as the daily commute will be a primary consideration when applying for an array of jobs in the community. Location can also greatly affect the probability of criminal activity which in turn results in larger liability insurance premiums as well as other expenses necessary to keep the general premises safe. As such, a deep understanding of the crime probability in areas in which an owner is considering to house their business is crucial (Fox).

Proximity to competitors can either hinder or accelerate the success of a dental practice depending on the level of brand recognition and business influence. If an organization is established well beyond the area's existing brand, they serve to benefit from being located near the competitor (Amos). However, if too much competition exists in the area, it is prudent to consider alternatives even when the region is financially strong. Although numerous exceptions exist such as car dealerships whose salesmen attempt to negotiate the best deal for customers; yet this does not apply to dental practice. Of course, if the business offers a particular service or plan that is unique or innovative enough to steal clients, selecting an area with a ripe market is ideal to establish presence regardless of competition. In the case of the dental industry, competitive proximity is commonly referred to as saturation. Dramatically low numbers often seduce business owners with opportunity yet pose red flags in a similar way. Through an example presented in a literature review published by financial expert Jayme Amos, a dentist discovered a low saturation area in their local town in which only two individual competitors existed. Upon attempting to start their practice, the dentist discovered that the regional government was stuck in a legal entanglement with the Environmental Protection Agency (EPA) over copious water use of the local sewage system. Subsequently, the town was forced to collectively deal with the problem or face millions of dollars in penalties for forcibly required federal upgrades. In order to avoid the steep cost, local officials attempted to remove and keep out the businesses that were known to use greater amounts of water. As a result, the dentist who impulsively began their practice was left with a signed lease yet no authorization to construct their property (Amos). However, through various court proceedings in which proof demonstrated minimal water consumption through the use of pre-purchasing operatory equipment which used less water, the officials permitted the construction of the clinic. While the dentist in the example was fortunate, this strategy often never works as local governments hold significant authority over the economic activities of businesses (Amos).

Cash flow ultimately dictates the viability of a business to meet bills and survive. As such, business rates must be compared directly with the financial potential of the area's clients including local taxes, rent, and utility costs (Amadeo). A number of hidden costs including parking and deposits often present themselves at inopportune times and therefore it is best to discover them as early as possible before committing to a particular area. Finally, a location's living cost for both the employees and managers will prevent commitment that exists outside of the business's means (Amadeo).

Moving premises, or relocating, is extremely consuming for both time and finances. In this case, the time takes a toll on finances due to the fact that customers are not able to receive the services they require on their schedule. Given the natural impatience of everyday consumers, the probability that clients will opt for a competitor increases rapidly with each passing day that their primary brand of choice is closed (Amos). Therefore, a location must be considered with the concept of sustainability and growth in mind. If the premises can meet the requirements of a small percentage of consumers in addition to a large percentage, the flexibility allows for long-term growth (Amos).

Invoking a sense of emotional connection to the building can prove incredibly beneficial for a variety of reasons. For one, placing the establishment within the vicinity of an acclaimed landmark allows for ease of direction when customers attempt to find the business. Furthermore, this allows patient perception to believe that the business is deeply integrated into the local community as a landmark is often indicative of familiarity and prestige (Amos). In addition to landmarks, proximity to intersections and local traffic lights allows time for potential customers to notice the presence of the practice and safely enter. Also, proximity to local hospital campuses serve to benefit a dental practice with respect to economies of scale as the health center would allow ease of advertising and recommendations (Amos).

States with best statistical location

When it comes to location, there are often states that have better statistical evidence for where it may be more desirable to start a practice. Dentagraphics provides a map for states that are friendlier for new dental practices, and as seen by the map, it's generally spread out everywhere across the United States. The map balances population/general practitioner ratio with median income. States that are most desirable include: Delaware, Georgia, Oregon, Alabama and Rhode Island. States that are least desirable include: Washington D.C, California, New York, Michigan, and Illinois.

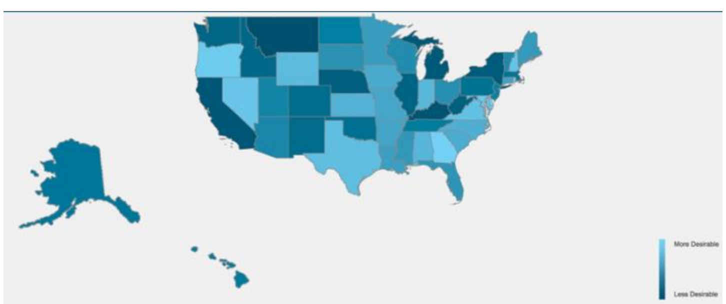

Figure 1: Map of the U.S.A with desirability to begin prctice in

Table 1: Data of Dental Saturation and Income- Aggregated Rankings

State	Population/General Practitioner Ratio	Saturation Rank	Median Income	Income-Adjusted Rank	Average Combined Ranking (score)	Combined Rank
Delaware	2792	4	$ 68,646	1	2.5	1
Georgia	2740	5	$ 58,275	2	3.5	2
Oregon	2706	6	$ 56,630	4	5	3
Alabama	2833	3	$ 49,771	12	7.5	4
Rhode Island	2474	13	$ 64,206	3	8	5
Arkansas	2898	1	$ 46,560	18	9.5	6
Indiana	2588	9	$ 55,252	11	10	7
North Carolina	2593	8	$ 53,937	14	11	9
South Carolina	2650	7	$ 52,004	15	11	9
Texas	2444	14	$ 59,315	9	11.5	10
Nevada	2400	19	$ 61,190	6	12.5	12
Mississippi	2877	2	$ 45,700	23	12.5	12
Missouri	2486	11	$ 54,417	17	14	13
Louisiana	2587	10	$ 51,885	20	15	14
Kansas	2390	21	$ 58,547	13	17	15
Wyoming	2243	27	$ 64,198	10	18.5	16
Maine	2423	16	$ 54,464	22	19	17
Iowa	2347	23	$ 58,150	16	19.5	18
New Hampshire	2011	33	$ 72,856	7	20	19
Nebraska	1879	39	$ 58,633	4	21.5	20
Virginia	1990	36	$ 73,477	8	22	22
Florida	2395	20	$ 54,499	24	22	22
Tennessee	2484	12	$ 50,729	33	22.5	24
South Dakota	2351	22	$ 55,015	25	23.5	24
Maryland	1739	43	$ 84,609	5	24	25
Ohio	2327	24	$ 55,360	26	25	26
Arizona	2264	25	$ 56,733	29	27	27
Minnesota	1997	35	$ 67,009	21	28	30
Wisconsin	2149	29	$ 59,852	27	28	30
Oklahoma	2402	18	$ 49,747	38	28	30
New Mexico	2416	17	$ 49,142	40	28.5	31
Vermont	2102	31	$ 61,097	28	29.5	32
West Virgina	2429	15	$ 45,502	44	29.5	33
North Dakota	2169	28	$ 58,254	32	30	34
Connecticut	1703	44	$ 78,966	19	31.5	35
Utah	1955	37	$ 65,362	30	33.5	37
Idaho	2245	26	$ 52,696	41	33.5	37
Pennsylvania	2009	34	$ 59,810	37	35.5	38
Hawaii	1649	45	$ 76,179	34	39.5	41
Colorado	1809	40	$ 65,991	39	39.5	41
Kentucky	2112	30	$ 48,471	49	39.5	41
New Jersey	1561	49	$ 81,599	31	40	42
Massachusetts	1635	46	$ 75,004	36	41	43
Alaska	1616	48	$ 76,422	35	41.5	45
Montana	2011	32	$ 50,819	51	41.5	45
Washington	1748	42	$ 67,076	42	42	47
Illinois	1779	41	$ 65,229	43	42	47
Michigan	1941	38	$ 55,747	47	42.5	48
New York	1630	47	$ 66,402	46	46.5	49
California	1502	50	$ 69,154	48	49	50
Washington DC	1323	51	$ 77,296	50	50.5	51

Chapter 3 Financing, Interest Rates and Insurance

Financing

Correct property financing is critical in justifying real estate investment; especially in circumstances where the owner is younger with less economic experience. In a multitude of cases, purchasing property inevitably leads to greater down payments, furniture and equipment expenses as well as significantly higher after-tax costs each month than if one were to simply lease the space. Despite the fact one would be accumulating valuable equity with the property, the entire payment of the building will not be deducted. This naturally ties up the budget and nearly ruins it during tax season. To solve this particular problem, economists have recommended funding of up to 100 percent of the real estate project with as little penalty to pre-payment as possible (Turner). Although traditional financing often fails to cover the full 100 percent, lenders often provide extra financing to contain the gap where conventional funding or traditional small business administration (SBA) loans come to a grinding halt (Turner). For those young professionals that fail to have a powerful understanding of cash flow, it is important to minimize any and all out-of-pocket expenses.

In addition to property financing, businesses must carefully consider variable interest rates. The ability to provide more than 2 decades of fixed-rate financing is seldom provided by lenders, yet preferred when compared to variable interest rates in the next 5 to 10 years (Turner). Significant cash flow swings pose too much risk and are generally impossible to handle by new businesses. This becomes increasingly apparent once write-offs and depreciation begin to decline and taxes become more expensive. Therefore, research has suggested attempting to obtain fixed-rate, long-term financing with extremely limited out-of-pocket cash necessary to start the plan. Once the employees and managers begin to transition into the space with plentiful cash flow, it is recommended to seek advice for proactive debt reduction afterwards.

Aggressive attempts to reduce debt on existing real estate holdings instead of the gradual fixed-rate payments in the aforementioned paragraph often impair the ability of a business owner to retire on time. While such an ambitious plan saves substantial interest, it is in fact illiquid and can increase financial security risk (Turner). Moreover, reducing debt too rapidly eliminates time's compound effect on additional qualified tax deductions from contributing to retirement plans and investments. A staggering number of dental practitioners spend most of their working years paying off costly real estate which often fails to be liquidated and converted into flexible income for retirement. For instance, if one is at the retirement stage and owns a large building, it becomes possible to live off the property lease income assuming it is owned in full. However, in the event that the income is fixed, there will be no extra monetary resources to take family vacations or purchase new automobiles (Ida). To maximize flexibility during the retirement stage, one must possess the maximum number of liquid investments possible (Turner). Despite the fact that property successfully provides a sufficient income, it is recommended to maintain valuable assets outside of the real estate such that one is not forced to sell property at inopportune times in the wake of cash emergency.

Purchasing real estate and paying off the entirety of the property in cash before one is independently wealthy is considered a poor investment decision. Conversely, a balanced approach of retirement savings and debt reduction are statistically proven to yield the best possible results for the majority of individuals (Turner). This also includes but is not limited to retirement portfolio contributions, some accelerated reduction of debt, and conservative investments. For the long term, it is recommended to engage simultaneously in both debt reduction and investment of funds (Turner).

Dentists often confuse real estate investments with the property that they currently occupy. Occupation of an existing space is always considered a cost which needs to be compared against the alternative expense that comes with leasing. If the decision is made to purchase commercial property, the expense must be compared against the lease's cost after-tax (Ida). Optimal return on property becomes realized through a combination of income from rent and appreciation as well as tax benefits. Constructing the building in an intelligent location allows for partial leasing to new tenants. Therefore, it is optimal to maintain hold of the property over an extensive period of time such that capital appreciation benefits are fully recognized. The longer an appreciating asset is held, the greater the return on investment. However, the only dentists that are able to accomplish such are task are those who possess accumulated assets well beyond their existing real estate holdings (Ida). As a result, they possess the financial flexibility necessary to live in investment income and can sell their property if additional liquidity is required.

Insurance

The vast majority of licensed dentists are driven via preferred provider organization (PPO) despite the fact it has not always been the case. Significant spreads and fluctuations in reimbursement rates exist even in neighboring locations. In the past, a large number of insurance corporations have lobbied in Congress against dentists relocating in order to remove their existing schedule by indirectly acquiring permission to decrease rates (Amos). Consequently, establishing and maintaining a wholesome relationship with insurance companies is essential. Often in regions in which insurance is not as tightly covered, certain organizations enjoy working with doctors and dental practitioners to provide protection to individuals in the area.

Chapter 4 Competitive Advantage

To improve and refine the experience between dental practitioners and patients, each operation must identify, protect, and market the business's unique competitive advantages. While one may emphasize a key specialization or an expansive array of oral hygienic services at reasonable cost, the distinct perspective has the ultimate power to retain and attract massive volumes of patients (DentistAdvisors). Making the most of such attributes requires consistent promotion throughout every patient interaction and advertising campaign. Instead of relying on traditional channels for public relations which is often alluded to as "one-size-fits-all", a number of proven methodologies exist that highlight unique aspects of a given dental practice. For instance, meticulously customized newsletters, social media content, brochures, and postcards allow for more personal engagement with high-quality patients, expand awareness of the practice and its offerings, and promote the overall business as the region's authoritative choice (DentistAdvisors). As the patient base grows, the business must always consider methods to expand services as a way of improving value, strengthening position in the competitive scene, and increase interest with prospective patients. For example, the potential of production could be limited by the size of the current office and inhibit clinical accessibility (DentistAdvisors).

Chapter 5 Potential for Real Estate Data to Improve Businessess

Real estate footprints must always support the objective of low-cost production. Once space utilization, location metrics, and site selection are properly integrated with data acquired from human resources (HR), information technology (IT), finance, marketing, and other departments, corporations can develop a deep one-to-one understanding of both employee and customer behavior. A recent study commissioned by JLL and undertaken by Forrester Research found that while 94 percent of organizations possess formal corporate analytics and data strategies, the sophisticated implementation of real estate data is lacking. In the modern economy, less than 50 percent of corporate real estate divisions back the majority of their research behind big data (Kollmorgen). Despite this, the figure is set to double in the next 3 years (Kollmorgen). Superior access to sophisticated data for locations allows executives painless capital investment in the correct places and projects. Modern platforms for data analytics enables teams to incorporate these factors as labor statistics, projected capital investments and lease expirations in order to validate disposition recommendations, strategic location, and acquisitions. Decisions focused around the improvement of productivity and work efficiency are more likely to emerge in the event that a company successfully integrates real estate data with information acquired from IT and HR. Alignment with data from HR in particular is especially useful when attempting to halt disruptive impacts of relocation. In the same study, a certain multinational pharmaceutical corporation implemented a business intelligence tool to analyze and aggregate well over 100,000 data points for business and real estate (Kollmorgen). When combined with market intelligence from the ground, a multi-phase strategy reduced costs from ongoing facilities by over $200 million (Kollmorgen).

A large number of companies including and especially those specializing in retail, professional services, and manufacturing focus their efforts on generating value from collaboration in the workplace. This is achieved by providing the best environments within facilities that allow for innovation and collaboration (Kollmorgen). New information acquired from both mapping technology and workplace sensors help to determine the best locations for employees and the optimal environments for teams. Growing numbers of studies have made a connection between environmentally friendly (green) offices and productivity improvements. In the modern world, new techniques for data and analytics are able to prove which specific programs achieve the most impactful and immediate gains for worker efficiency. Equipped with these tools, corporations can now make increasing returns on investment and data-driven choices with respect to green initiatives (Kollmorgen). Using an example found within the Forrester study, a multinational company sought to increase the environmental awareness of its corporate offices by implementing a cloud based software tool to track nearly 100 of the best practices related to waste, energy, carbon use, and water management (Kollmorgen). The team responsible for the project then measured this against the well-being of employees and markers of productivity including but not limited to thermal comfort, visual comfort, and indoor air quality. Benchmarking each of the facilities individually in a portfolio and adopting the best practices necessary to refine acoustics, flexible workspaces and ergonomics, the organization was able to increase gains in productivity by over $160,000 (Kollmorgen). In the event that such a figure is multiplied across a worldwide portfolio of thousands of locations, the power of analytics becomes quite clear.

One form of facility that has been proven to rapidly generate enormous volumes of data includes a smart building system. The use of smart control software and real-time building management in combination with expertise from analytics have been found to reduce energy cost and consumption, maximize performance and prevent failure of disruptive equipment. A new report issued by a collaboration between the Rocky Mountain Institute and CoreNet Global discover that smart buildings not only reduce expenditures by up to 15 percent, they also increase worker productivity (Kollmorgen). Moreover, the report indicates that rich streams of data from smart building technology provides further insight into the utilization of space. If a dental corporation implemented such a management platform to reduce energy expenses at an average rate between 8 to 10 percent across a diverse portfolio, a 100 percent return on investment could be achieved in less than 12 months (Kollmorgen).

Sustainability

As global climate change unfortunately continues to accelerate, businesses have seen the moral and economic opportunities to move towards sustainable and renewable energies. Green dentistry is advancing due to tax incentives, reducing expenses as well as environmental stewardship. When planning on using real estate as a tool toward success, an LEED certified building can improve many aspects of the value of the clinic. Usage of high efficiency lighting regarding lighting fixtures can reduce energy usage which will in turn reduce overall expenses. Water usage is another big topic when it comes to dentistry, and ways to reduce usage of water include using water-efficient toilets, reducing the number of sinks (while keeping efficiency compensated for) and installation of low flow faucets (federally required). Another way to improve the realty's sustainability would be to use sustainable and formaldehyde- free materials, as these materials hold up to wear and tear longer, and VOCs (Volatile organic compound) in the environment *(*Keep Your Dental Practice Fresh By Becoming "Green*)*.

When designing a new building, there are a few more things that one can do to improve the efficiency and sustainability of a building. Designing a building with energy efficiency and a passive solar design can reduce energy usage and costs. High efficiency insulated windows with low e-glass and large overhangs are the sort of designs an architect may come up with. The large overhang allows for reducing of heat in the summer yet allows for the warmth of the summer to be retained during the winter. Another task that the architect could work on would be to choose an efficient HVAC system as heating, ventilation and air are large contributors toward energy consumption. Heat pumps with geothermal heating provide an alternative source of energy with long term payback. Use of solar energy could also be a very viable option to reduce the practice's carbon footprint, as solar panels can heat water and provide electricity, a very popular option that may take off in the near future. Costs of the panels are decreasing annually, and may become a norm soon, yet nobody can deny the long-term savings the solar panels provide. Not only can an LEED and environmentally sustainable building provide long term savings in expenses, but it can also increase the value of the property when it is time to sell *(*Keep Your Dental Practice Fresh By Becoming "Green*)*.

Chapter 6 Commercial Real Estate Construction

Existing as a critical component of the gross domestic product (GDP), construction of commercial real estate directly contributes to 3 percent of the American national economic output (Amadeo). In the year 2017 alone, total expenses delegated to construction amassed to $472 billion; with the record high of over $586 billion peaking in the year 2008 and the low of the decade with just over $376 billion in 2010 (Amadeo). Such a price fluctuation represents a decline between 4.1 and 2.6 percent of the GDP (Amadeo). Commercial real estate construction peaked two years after the initial housing bubble that crashed the economy due to the fact that corporate offices take longer to research and develop than residential real estate. Not only are the builders required to ascertain whether or not enough shoppers and homes exist to support the new development, but upfront capital must be acquired through either investors or paid with compound interest.

Space Optimization

An essential metric commonly implemented to maximize profitability in the retail industry includes the concept known as "sales per square foot" (DentistAdvisors). Unfortunately, space optimization is almost never considered by licensed specialists. In the majority of circumstances, more space is purchased than is actually needed; leading to an underutilization of both the facility and the equipment. Furthermore, additional real estate space diminishes the organization's total return on investment due to the heightened property taxes, maintenance, utilities, and cleaning expenses. On the other hand, there are a select few dental practitioners that purchase an unsatisfactory amount of space for fear of excessive spending. Yet, as their practice expands and grows with additional clientele, they face the dire consequence of changing locations and selling their existing space which has provided them with success in the first place. Regardless of the circumstance, quick turnover and the trading of property poses incredibly dangerous risk. If one does not consider the exact amount of space necessary, the real estate investment will backfire.

General dentists generally desire 400-450 square feet per operatory, and most practices contain 4-6 operatories, making practices on average between 1800 and 3000 square feet total. Pediatric dentistry can have often squeeze an extra chair or two in the same square footage, yet many opt to trade the extra space for more area in the reception room. Orthodontics also aims to have larger reception areas and 4 or more operatories. Other Specialists like Periodonitcs, Endodontics and Oral Surgeons need fewer operatories and thus can utilize smaller rental space. The figure below presents a layout floor plan of what a traditional office may look like. (1)

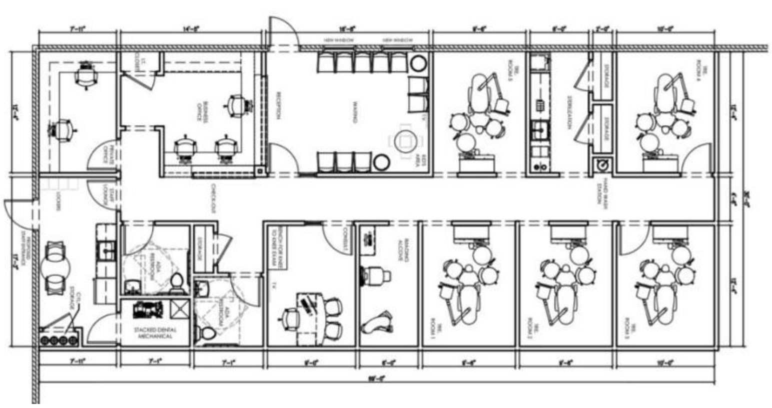

Figure 2 Floor Plan of a Typical Dental Clinic

Older vs Newer clinics

For legal and financial protection, a common legal clause found within the contracts of young associates includes the non-competitive clause. The owner of a local practice typically includes these stipulations in order to eliminate the possibility of an associate establishing a future clinic between a 5-10 mile radius of the existing premises (Amos). In the event that the owner holds practices in multiple locations, the contract between the associate will often include the competitive proximity clause. Furthermore, the majority of these contracts allow the employer the ability to terminate their subordinate from work at any time. Maintaining awareness of other local startups is critical when determining location as the growth of practices in a particular radius will inhibit future competition (Amos). Although expanded access to dental care presents favorable opportunity for consumers, future practice owners will struggle to compete for the limited number of unattended patients. To solve this dilemma, new owners often flood markets with more aggressive marketing and advertising while older practices view it to be an unnecessary expense given their established brand recognition. Similarly, existing businesses rely more on word of mouth and powerful reputations to naturally transmit their presence. Moreover, they often assist the community with philanthropic events via local charities and donations (Amos). Even in circumstances where saturation is low, too many new competitors bombarding potential clients with marketing results in a lack of opportunity to create a unique perspective. An alternative to advertising includes the establishment of a relationship with the local township building as they often provide exclusive information and insider secrets. These can come in the form of records detailing all future commercial real estate projects planned for construction, special tax information, or consumer statistics that allow a business to prepare for operation and successful dental practice (Amos).

Chapter 7 Advertising, Parking and Office Culture

Advertising

A common advertising technique includes the display of a billboard or sign which contains general information regarding the business (including and especially that of contact information such as website address and phone number). According to evidence discovered by Amos, signs that statistically sell exceptionally to high volumes of clientele contain either the term "dental" or "dentist" within the first of 3 maximum words on the first line of the sign. For clear legibility, signs are recommended to include a heavy contrast between the text and background (Amos). The general color scheme to achieve the best effect in this regard includes black letters against a white backdrop. Aside from the inclusion of contact information, the sign should always remind potential customers that the practice is accepting new patients (Amos).

Parking

Still, another vital aspect to successful real estate includes parking arrangements for both the employees and customers (Amos). Families are generally opposed to crossing the streets with their children to reach a practice and most customers find a practice suffering from parking scarcity as a result of popularity with other local stores extremely distasteful. Due to the high competition in town centers, many local governments issue quotes with respect to the number of spaces allocated per operatory (averaging between 3 and 4) (Amos). Therefore, additional budget resources are often necessary if the targeted location matches such attributes.

Office Culture

Creating an office culture is the next consideration when establishing a dental practice. While a sense of atmosphere often exists at inception, the leadership style, values, systems, behaviors, expectations, and communication between staff members and patients are important discoveries. When one finely tunes the physical environment and office decor, a unique sense of presentation has the capacity to boost productivity, and attract and retain quality staff. Furthermore, patients will subconsciously feel an emotional sense of homeliness and lack tension when visiting the office (DentistAdvisors). The clinic needs to remain as clean as possible and demonstrate the utmost professionalism as the physical environment provides patients with a perception on the level of care for sterile healthcare. Keeping carpets spotless and attractive plants in the reception area demonstrate professionalism and allow patients to feel more at ease. Curb appeal is also another quick part of the Real Estate that is actually highly sought after. Nobody obviously would like to go to a dental clinic that looks like run-down realty in a blighted area with dilapidated sidewalks. The exterior of a building is a key judgement people make in order to quickly assess quality. A practice with a clean and nice façade can win over people as cleanly cut grass demonstrates a proper representation of the healthcare business, as people want to feel they are in good hands with a professional who deeply cares about their health (Amos).

Chapter 8 Demographics

Primary demographics to target when selecting a business location include population and the rate of change therein over the course of 10 years, income per capita, annual household income, mass transit, average age, owner occupied housing, rates of employment, and saturation (Amos). While the population needs to be at a reasonable figure such that the business is arranged to industries that complement its services such as restaurants, banks, and retailers, disposable income is a critical consideration given the desire of patients to implement cosmetic care. Furthermore, a greater percentage of citizens living in owner occupied housing often results in superior life priorities and stability. Conversely, a higher population of individuals renting their property results in a lower rate of customer loyalty due to the increased mobility and probability of relocation (Amos). Therefore, home owners imply a sense of long term commitment to the local area and its community which allows a single dental practice to thrive financially. Aside from state funded dental care and insurance through Medicaid removing the possibility of private business, another important demographic includes the rate of employment. Moreover, unemployment rates vary dramatically between various regions. If both the population and unemployment rates are high, a business can easily create jobs and attract a steady flow customers (Amos).

Population to Dentist Ratio (PDR)

Another essential yet often misunderstood metric with respect to demographics includes the population to doctor ratio (PDR). The common misconception follows the understanding that a higher ratio would lead to superior profitability as patients could be acquired at lower cost. However, in the event a high PDR exists with patients of low income or lack of teeth, the metric ceases to be valuable when considering the real estate investment. Consequently, PDR is only useful when combined with patients of reasonable socio-economic status and class. Geriatric patients possess noticeably different financial behavior and mentality than families and members of the youth (Amos). On the other hand, a select number of occasions exist in which a low PDR fares better than the former. Generally speaking, this occurs when prioritization of a region over incoming patients is the most important consideration or in the event that a business possesses extensive marketing plans to retain clientele. To combat low rates of PDR, strong allocation of the budget towards marketing is recommended; especially in situations where dental saturation is high (Amos).

Older Clientele

The baby boomer generation is now entering the mass stage of retirement and is set to embody the largest portion of the dental patient population (20 percent by the year 2035) (Amos). A significant issue for the elderly includes the ability to provide payment for dental services as the majority do not possess insurance and visit practices less than any other bracket. In the past 25 years, inflation has resulted in moderately increased service prices despite the flat per capita spending since the year 1982 (Amos). While most of the senior citizen health coverage is paid in full by their employer, they tend to only cover the basic packages, that may or may not even include dental care. Dental care for seniors is far more economically sensitive than younger generations. For instance, in 2006, nearly 70 percent of expenditures were paid out of pocket by senior unlike the 45 percent for patients between the ages of 41 and 60 (Amos). Other fields of healthcare operate differently, with seniors paying less than 20 percent of procedures out of pocket as the majority of packages are covered by Medicare or private insurance. Higher costs are the result of limited federal allocation to the industry and this increase the difficulty of affording dental protection. Private insurance corporations accounted for nearly 50 percent of total expenditures in 2007 (Amos). Unfortunately, retirement benefits are far less likely to account for these growing costs resulting in individuals having to determine whether or not it is worth sacrificing their personal finances. However, the baby boomer generation is critical to the future of dental practice as they account for 30 percent of the general client base or nearly 28 percent of the population (Amos).

Table 2 Expenditures for General Dentistry Services by Age Group, 2006 (Population, Visits, and Expenditures in Millions)

Table 1: Expenditures for General Dentistry Services by Age Group, 2006 (Population, Visits, and Expenditures in Millions)

Age Group	Population	Share (%)	General Practitioner Visits	Share (%)	Visit Rate (%)	Expenditures for General Dentistry ($)	Share (%)	Average Expenditure ($)
0-4	20.2	6.8	3.7	3.2	18.5	630	1.2	169
5-17	53.9	18.0	27.3	23.1	50.7	8,013	15.0	293
18-30	53.2	17.8	16.0	13.5	30.0	6,505	12.2	407
31-40	40.1	13.4	15.1	12.7	37.6	6,434	12.0	427
41-50	44.4	14.9	18.1	15.3	40.8	9,144	17.1	504
51-60	38.2	12.8	17.7	15.0	46.3	10,542	19.7	595
61-64	11.3	3.8	5.2	4.4	46.0	3,036	5.7	586
65-74	19.1	6.4	8.4	7.1	43.8	5,346	10.0	637
75+	18.8	6.3	6.8	5.7	36.1	3,807	7.1	560
All ages	299.3	100.0	118.3	100.0	39.5	53,456	100.0	452

Data include visits to general dentists only. Visits to orthodontists are excluded. Average expenditures are calculated as the mean expense of those with a general dentist visit. Source: Medical Expenditure Panel Survey, Agency for Healthcare Research and Quality.

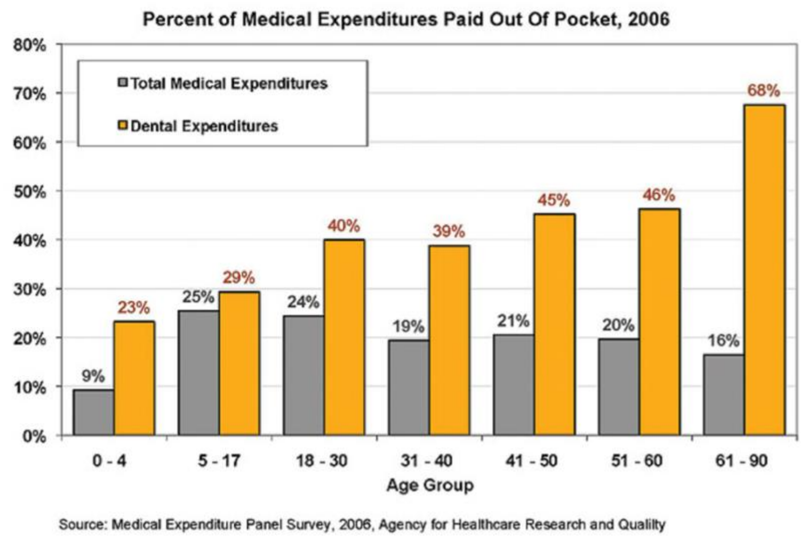

Figure 3 Percent of Medical Expenditure Paid Out Of Pocket, 2006

Table 1 (see above) demonstrates the financial behavior the younger boomers in which they spent approximately $20 billion on general dental services in 2006; accounting for approximately $540 per patient/year (2). The study found that children between the ages of 5 and 17 in addition to adults between 40 and 50 were most likely to visit a local practitioner. The aforementioned individual annual figure is more than 20 percent higher than the overall population average at $452 per patient/year (2). In recent years, boomers are now projected to account for nearly 40 percent of all expenditures and represent the most profitable client base. The importance of restorative dentistry naturally increases with age, yet table 1 demonstrates that visit rates begin to decline after retirement even though they are more likely to pay for the service. In 2006, seniors accounted for less than 20 percent of the population despite the fact they accounted for nearly a quarter of total dental spending (2). Senior citizens are projected to increase their monetary contribution to dental practice in the next 20 years substantially by a ratio of 23 percent in 2006 to as high as 34 percent by 2030 (2). Furthermore, the share of expenditures from individuals aged between 41 and 60 is projected to decrease by nearly 3 percent during the same stretch of time (2). Therefore, licensed practitioners must consistently review the literature to ascertain whether or not their most important client base will follow the projected trend.

Chapter 9 The Future of Real Estate and Competition

Real estate is set to evolve substantially within the coming decades. In 2017, venture capitalists invested over $5 billion into innovative new technologies; a figure that represents of 150 times the deployment of 2010 (less than $50 million) (Snider, Harris). Once a sector is considered unattended by the industry, real estate tech has appeared front and center to solve the problem. This has been especially apparent in two of the three most valuable new startup corporations in the United States which include Airbnb and WeWork. Driving such an economic boom includes the evolution of real estate technology from its initial phase of complementary marketplaces and software to a new era in which the major players use their tools to compete against the largest incumbents in the sector; represented by brokerage firms, hotels, and commercial landlords (Snider, Harris). As these challengers grow their business and mature in industry leaders themselves, commercial real estate is set to enter the third stage of evolution. Businesses that define this emerging phase are likely to appear similar to the earliest technology corporation such that they are more complementary and derive the proposition of their value by implementing new capabilities. This phase will likely include corporations that leverage innovative software including virtual reality and sensors to create, manage, and outfit spaces as well as machine learning to acquire insightful industry data to handle transaction services with greater efficiency. These technologies will reshape the manner in which owners decide how they will build and outfit their space as well as location.

Due to the fact that the real estate market within the United States is considered an asset class worth $35 trillion and is representative of a multi-faceted industry which generates more than $1 trillion in revenue on an annual basis, it is unsurprising that so many companies hold a strong interest in competing with incumbents (Snider, Harris). Despite this, only a handful of significant success stories appeared up until the past 5 years. Even with the immense size of the industry, a number of challenges with respect to structural issues were present (Snider, Harris). Traditionally speaking, incumbents have proven poor customers as both key intermediaries including real estate brokerages and agents have failed to make large historical investments into IT and were often opposed to widespread adoption out of the concern that transparency would result in their diminished relevance (Snider, Harris). Furthermore, developers and landlords perceive their primary focus on asset management or acquisition and have therefore remained reticent to make substantial investments. Secondly, data and analytics regarding this concept have proven faulty. For a long time, real-time statistics depended on self-service information entry utilizing technical platforms that were non-standardized (Snider, Harris). Closing data often became out of synchronization with property listing data due to a lack of widespread updates. Many agents believe that maintaining information regarding proprietary listings was advantageous. Creating competitive barriers and meaningful value to clients through technology in an industry defined by physical experience proved difficult. Lastly, the market demand remained unstable throughout most of its life as many markets enter cycles in which businesses serving the industry are heavily impacted (Snider, Harris).

Leveraging recent developments in the accessibility of big data allows efficient decision making with respect to real estate investment and development, regardless of industry (Snider, Harris). Entrants can now take advantage of machine learning to secure data aggregation and provide more sophisticated and standardized methodologies to analyze real estate data. For example, a company known as HouseCanary has constructed a database that not only includes information at the property level but also interior characteristics and home financing (Snider, Harris). Despite the massive increase in activity, real estate technology representing a percent of the total value of the sector remains a small fraction when compared to travel, financial services, and healthcare. Over the next 10 years, the positive externalities of these tech companies investing in visualization, big data, and infrastructure will lay the groundwork for continued development (Snider, Harris). The success of the aforementioned challengers has dramatically improved the awareness of service providers and real estate owners to the importance of IT at the expense of the incumbents. Combining this increase awareness with venture capitalist eagerness to fund the space will result in many successful new companies who are able to scale far faster than their predecessors.

Chapter 10 Regression Analysis

Table 3 City Data with Cap Rate, Dental Practices, Population and Mean Salary

City	Cap Rate	Number of Dental Practices by License	Population of City	Mean Annual Salary of Dentists
New York	0.0725	2,690	8,622,698	$179,002
Los Angeles	0.055	8,492	3,976,322	$167,377
Chicago	0.07	2,510	2,704,958	$157,987
Houston	0.0675	2,000	2,303,482	$150,833
Phoenix	0.07	1,940	1,615,017	$147,703
Philadelphia	0.075	2,200	1,567,872	$160,372
San Antonio	0.08	2,087	1,492,510	$145,616
San Diego	0.065	8,837	1,406,630	$159,328
Dallas	0.075	2,080	1,317,929	$148,001
San Jose	0.065	460	1,015,785	$178,406
Austin	0.06	2,087	947,890	$146,809
Jacksonville	0.0575	5,590	907,529	$143,083
San Francisco	0.055	460	884,363	$184,815
Columbus	0.075	2,913	860,090	$146,958
Indianapolis	0.06	3,000	855,164	$145,616
Fort Worth	0.05	217	854,113	$145,169
Charlotte	0.0625	1,230	731,424	$134,587
Seattle	0.0525	2,033	713,700	$163,054
Denver	0.06	2,319	704,621	$150,684
El Paso	0.0525	2,087	649,133	$130,414
Washington D.C.	0.05	617	639,972	$164,396
Boston	0.0425	2,095	627,584	$169,612
Detroit	0.085	2,937	612,795	$153,516
Nashville	0.0675	2,005	604,410	$138,164
Memphis	0.0675	1,005	605,889	$140,847
Portland	0.065	2,594	583,776	$156,496
Oklahoma City	0.0625	1,867	579,999	$141,592
Las Vegas	0.08	1,355	573,756	$155,304
Louisville	0.075	2,417	560,026	$141,294
Baltimore	0.075	4,022	520,961	$152,919

To develop a theoretical model that provides insight into the financial observation of location and successful dental practice, empirical data is collected from multiple sources. This information includes the capitalization rate, number of dental practices by license, population, and mean annual salary of dentists in the 30 largest cities in the United States. By definition, capitalization rate determines the return on investment of a real estate property based directly on the expected income that the property will generate. Standard tabulation of capitalization rate is the quotient of the net operating income (NOI) by either the acquisition cost or current market value of a property. Implementing linear regression, the study is designed such that profitability is ascertained. In this particular instance, the mean annual salary of dentists is a horizontal function of the capitalization rate, number of dental practices, and city population. Specifically, the calculation is determined by the equation:

$$\text{profitability} = a + b*\text{cap rate} + c*\text{number of dentists} + d*\text{population}.$$

Table 4 Regression Data

Regression Statistics	
Multiple R	0.49
R Square	0.24
Adjusted R Square	0.15
Standard Error	12205.00902
Observations	30

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	1198915475	4E+08	2.68	0.068
Residual	26	3873018376	1.49E+08		
Total	29	5071933851			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	166881.83	14688.92	11.36	1.4E-11	136688.33	197075.34	136688.33	197075.34
Cap Rate	-274044.54	221582.20	-1.24	0.23	-729513.28	181424.20	-729513.28	181424.20
Number of Dental Practices by License	-0.43	1.18	-0.37	0.72	-2.87	2.00	-2.87	2.0
Population of City	0.0040	0.0015	2.68	0.013	0.00093	0.00710665	0.00093	0.0071

Table 5 Regression Data Salary vs Cap Rate

Regression Statistics	
Multiple R	0.15263111
R Square	0.02329626
Adjusted R Sq	-0.011586
Standard Erro	13301.1503
Observations	30

ANOVA

	df	SS	MS	F	Significance F
Regression	1	118157072	118157072	0.66785367	0.42070051
Residual	28	4953776779	176920599		
Total	29	5071933851			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	166047.484	15747.9912	10.5440422	2.9509E-11	133789.187	198305.782	133789.187	198305.782
X Variable 1	-195625.91	239378.818	-0.8172231	0.42070051	-685971.19	294719.369	-685971.19	294719.369

The linear regression found that the capitalization rate value is less than zero. As a result of the analysis, there is no particular correlation to higher profitability in regions with lower real estate values. Ironically, the most financially viable areas are those in which the living expenses are costly. This would indicate low competition due to the steep upfront capital necessary to begin a practice and is particularly visible in Northern California regions such as San Francisco and San Jose (Salary.com). It is similarly observed in more concentrated populations including New York, Los Angeles, and Washington D.C. These same cities are noted for containing the highest mean annual salaries which are sufficient to meet the excessive living expenses. According to the raw data found on the chart, there is no noticeable connection between the capitalization rate and the number of dental practices by license in a particular city (City Mayor Statistics).

Chapter 11 Conclusions

To conclude, managing real estate as a dentist-owner is an incredibly arduous task in which requires a great amount of knowledge regarding how to both run a business's finances and how to select the location of a practice properly, as an incorrect judgement could cost one his or her financial life. Dental care, and health care as a whole is a difficult niche in business, due to the moral balance required to keep patients as healthy as possible while also managing being able to monetize off of an extremely expensive profession. This thesis has come to several conclusions regarding what regarding real estate attributes may contribute toward the success of a dental clinic.

Location is often known as the most principal attributes of any sort of business decision as it will influence what demographic of clientele you may receive, potential for growth opportunities, and whether a practice will sink or swim based on the level and amount of competition present in the area, otherwise known as PDR. While issues such as parking, advertising and work culture may seem minute, they may actually be some of the most notable parts of a practice visible to a client. Upkeep and professionalism is always expected from the clientele in order to trust the dentist with their oral health. Sustainability is also generally attractive to both the owner since it cuts costs as well as increases the value of realty. Real estate is an ever-growing industry in which more money is being allocated into, thus a dentist must thoroughly understand important real estate attributes that will affect the success of the practice. According to the regression performed above in chapter 10, the null hypothesis was there is no correlation between a city's capitalization rate and average dental practice financial success.

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EDUCATION

The Pennsylvania State University — **University Park, PA**
Smeal College of Business
Bachelor of Science in Enterprise Risk Management: *Concentration*: Real Estate; — *Class of May 2018*
Eberly College of Science
Bachelor of Science in Biology: *Concentration:* General Biology
Penn State Schreyer Honors College Scholar

EMPLOYMENT/WORK HISTORY

EPSAR — **Southeastern Pennsylvania**
- *Soccer Referee* — *March 2013-Present*
  - Officiated soccer games under the pressure of both parents and coaches
  - My omnipotence (on the field) increased my confidence
  - Helped coordinate a platform for students to gain advice and learn about alumni job experiences

Finish Line — **King of Prussia, PA**
- *Sales Associate* — *June-August 2014*
  - Effectively persuaded customers into buying new shoes, apparel and accessories
  - Gained great personal experience in customer-employee interactions

Café Esperanto — **Miami, FL**
- *Cashier* — *November 2012–February 2013*
  - Interacted with countless customers to comprehend and process order correctly
  - Productively communicated with staff regarding customers' orders

LEADERSHIP EXPERIENCE

Pennsylvania State University
- *Pre-Dental Society Executive Board- President Sr, Treasurer Jr* — *April 2016-April 2018*
  - Assisting members interested in dentistry by educating on the process of applying
  - Performed and led student volunteers in community service events
  - Elected club President Senior year and Treasurer Junior year
- *Nittany FC-Recruitment Chair* — *Jan 2015- Jan 2016*
  - Contributed to recruitment of members to a club in its infant stage
  - Helped recruit 50+ dues paying members during its first semester

EXTRA-CURRICULARS

- **Pre-Dental Society** – Professional School Society
  - THON Committee Member, Designated Dancer Morale Committee, Pledge Committee, Alumni Liaison
- **Thon Rules and Regulations Member** – Pediatric Cancer Dance-a-thon
  - Enforced rules and safety by being a member of a committee during 46 consecutive hours
- **Nittany F.C-** Soccer Club
  - Club for soccer lovers that ran pick up games and community service tournaments raising money for Thon
- **Penn State Football Athletic Recruitment**
  - Spoke to recruits and parents explaining to them both the academic and athletic benefits of attending PSU
- **Homecoming committee member**
  - Participated and organized homecoming themed events as a committee member
- **Lion Scouts Tour guide**
  - Official undergraduate admissions tour guide persuading high school juniors and seniors to apply to PSU
  - Elucidated many statistics and facts to prospective students regarding the university and all the colleges

Shadow Experience

- *Dr. Marks Family Dentistry* — **State College, PA**
  - Shadowed 40 hours under Dr. Donald M. Marks DMD and John A. Martin DDS — *Spring 2017*
- *Upper Merion Area Dental Associates* — **King of Prussia, Pa**
  - Shadowed 30 hours under Dr. Jay Goldsleger DDS, experienced Perio, Ortho and Pedo — *Spring 2015*
  - Experienced doctors that were in ortho, pedo, perio and general dentists