The Case Study Analysis Technique and 110 Fitness: Giving It All for the Parkinson's Community

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Abstract

The case study analysis technique (CSAT) is an effective methodology that bridges academic theory with practical applications. Long-lasting student meta-skills are developed by using the CSAT. It is particularly beneficial when the case study is based on a real-world situation that recently occurred. The CSAT is flexible and adaptable to fit a wide variety of higher education courses that involve a main protagonist and a related organizational problem. The case on "110 Fitness: Giving It All for the Parkinson's Community" was used in this study to illustrate how the CSAT can be applied using a basic three-part approach of the case study, teaching note, and epilogue.

Introduction

The case study analysis technique (CSAT) in the classroom is an effective methodology that bridges academic theory with practical applications. When case teaching was introduced in 1921, it became apparent that the case method engages students by helping them develop powerful meta-skills like no other form of teaching (Nohria, 2021). Meta-skills, which are long-lasting abilities that allow students to learn new things more quickly, are developed using the case method since students often take on the role of the case protagonist (Nohria, 2021). It is particularly effective when the case study is based on a real-world situation. Popil (2011) asserts that using cases as a teaching method helps develop critical thinking skills and active learning, particularly in practical fields, such as health care. Many approaches can be used to present a case study, and the CSAT is flexible and can be adapted to fit a wide variety of course topics in higher education. From insight to influence, case studies have a plethora of benefits, since they are used in nearly every industry

and offer organizations the ability to transform observations into useful data (Aschenbrenner, 2023). The CSAT uses a three-part approach as follows:

Part I: The Case Study. The actual case study and business problem. Typically, this is written in past tense to mimic exactly what the protagonist(s) encountered. Students are provided with the case study and asked to place themselves in the situation. Students are tasked with finding solutions to the business problem. As students explore and analyze new ideas, other theories and methods can surface, which can provide further value to the case and the refinement of strategies (Aschenbrenner, 2023). Case studies have a long-term impact and provide some magical moments that students will never forget, and they may apply the lessons learned even 20 years later (Heskett et al., 2020).

Part II: The Teaching Note. The teaching note is written in present tense and is used to guide students through the case and to provide thought questions. Theoretical concepts related to the specific course are introduced and reinforced during this part of the case analysis. In addition, a synopsis, key words, suggested audience, learning objectives, and pedagogical strategy are all included in the teaching note. This will enable other instructors to utilize the CSAT to fit their respective course teaching and learning needs.

Part III: Epilogue and Lessons Learned. The epilogue explains what actually happened as the protagonist went about solving the business problem. This would include what went well and, perhaps, not so well. The epilogue section is also an important place to compare and contrast student recommendations to solve the business problem with the protagonist's actual decisions. When possible, inviting the protagonist to make a class visit to debrief the case with the students is a powerful technique to bring even more life to the case study. It is important to note that this will vary from case to case based on the level of anonymity that the protagonist requires. Ideally, the real names of the protagonist(s) and the organization, including weblinks, will be provided to the students. However, this is not always practical, so masking of any identifying information will need to be incorporated into the case.

The following case study on "110 Fitness: Giving it all for the Parkinson's Community" uses the CSAT and is geared towards undergraduate business students enrolled in a decisions analysis or information systems course.

Part I: The Case Study

Background Information and Case Problem

Untapped potential, that's what Brett Miller, founder and owner of 110 Fitness, thought of the first ever Parkinson's Wellness App (PWA). Brett wanted to help those with Parkinson's disease; however, Brett didn't know where to begin in the design, development, and deployment of the PWA. He also considered the financial viability of the PWA. Brett had a deep connection with those affected by Parkinson's disease, and this inspired him to establish 110 Fitness in 2014. Brett offered boxing as a therapeutic technique which helped his members with Parkinson's. Research had shown that, although there was no cure, fitness programs delayed further onset of Parkinson's symptoms (Mayo Clinic, 2022). Boxing was an effective fitness program which required 110 Fitness members to combine mental acuity with physical coordination. The American Parkinson

Disease Association (APDA) noted that there was anecdotal evidence that boxing promoted clinical benefits to people with Parkinson's and suggested that additional research was needed to fully understand the effects of boxing on Parkinson's disease (Franchina, 2022). Brett realized that his work was important and served a greater purpose. He now had to figure out his next steps for the PWA app that he imagined.

110 Fitness

Since its inception in 2014, 110 Fitness expanded their programming by becoming the first of its kind inclusive wellness center for individuals with disease and/or a developmental or physical disability. The mission of 110 Fitness was to leave no person behind so that they reached their full potential physically, mentally, and spiritually, as well as inspiring them to give their 110% effort in order to find the greatest balance in their lives. Brett, a former US Army Medic and veteran, has dedicated his life to helping others in need. When he opened 110 Fitness, he emphasized the motto of giving 110% effort. Brett's deep connection to serving those in need, through all his life experiences, resonated with 110 Fitness. Brett, who had a background as a physical therapist, had always been interested in neurological disorders, such as Parkinson's disease.

Back in college, while he studied the anatomy and function of the human brain and body, Brett was fascinated with people's ability to overcome difficulties. Prior to the founding of 110 Fitness, Brett worked in professional boxing and treated people with Parkinson's disease using specific boxing techniques and training tools. Sadly, Brett lost his wife's aunt to Parkinson's disease. During this difficult time, Brett had an epiphany and knew his career calling where he provided services for those with Parkinson's disease. This was a perfect career fit for Brett. Thus, with the founding of 110 Fitness, he shared that "giving it your all" mindset with those stricken with Parkinson's disease and other developmental and physical disabilities (see Appendix 1 for different programs offered). The importance of 110 Fitness was spotlighted by the Boston news station WCVB Channel 5 (2018) and described how Brett leveraged his skills as a world-class boxing coach, an Army veteran, and as a licensed physical therapist into the 110 Fitness mission. Brett also had the honor of meeting with Michael J. Fox, a well-known celebrity who publicly shared his battle with Parkinson's disease (see Figure 1).

Figure 1

Photo of Audrey Miller, Michael J. Fox, and Brett Miller

Parkinson's Disease

Rao et al. (2006) note that Parkinson's disease is a neurodegenerative disorder that progressively reduces an individual's ability to control their movement and speech. The progressive symptoms also include muscle tremors (Rao et al., 2006). Symptom management of the disease includes different medications and regimented physical exercise.

COVID-19 Influence

Then the COVID-19 pandemic hit. This had a detrimental impact on 110 Fitness. Brett was faced with a big challenge as he stated: "When our center was forced to close in March 2020, we took swift action because Parkinson's was a daily mental warfare that can't be fought alone." Brett recognized the essential needs of keeping individuals with Parkinson's disease moving when they were unable to attend fitness and wellness classes at 110 Fitness. Brett's resolve to help the Parkinson's community was reinforced when he exclaimed, "Clearly our mission was to protect our members with Parkinson's to not experience a drastic progression in their disease process physically or mentally." To that end, Brett and the team at 110 Fitness created virtual workouts and posted them on their YouTube channel for free. By the end of the first year of the pandemic, Brett was excited to report that "we had over 150 videos uploaded for free for anyone to access."

In addition, 110 Fitness also hosted multiple live classes via Zoom each week between March 2020 and June 2020. Brett heard from individuals with Parkinson's disease around the country and the world who accessed the 110 Fitness "free" virtual workouts. They thanked Brett and his team for keeping them active during the pandemic closures. Brett reported that "we were reaching people with Parkinson's in over 11 countries and over 20 states." Even though 110 Fitness was the largest wellness center in the world for individuals with Parkinson's disease, Brett faced many important short- and long-term decisions. More specifically, Brett knew that in order to continue serving the Parkinson's community, 110 Fitness needed to develop the PWA to coordinate and expand their reach. The idea came to Brett during the height of the COVID-19 pandemic, which highlighted the need for a comprehensive virtual wellness program for individuals with Parkinson's disease that could be accessed anywhere.

Next Steps

Brett has committed his life to helping those in need, and he embraced technology as a technique to expand the reach of 110 Fitness. As the pandemic stretched on, Brett realized that the creation of an exercise app for those was needed sooner than later. The app he envisioned would include the videos already created and other functions. He wondered what the design should look like, how to deploy it, and how to make it financially viable. What help and resources does he need?

App Creation and Pricing Model

Brett found that there were several stages in the creation of an app (see Appendix 2). The stages consisted of design, implementation, testing, and publishing (Seymour & Zakir, 2014). During the design phase, a decision needed to be made as to the 110 Fitness PWA design features and layout, known as a wireframe. Next was the development method, which included the technical specifications. Implementation consisted of creating a working app on the platform selected. The implementation and testing stages was iterative as new issues were found. The publishing (i.e.,

"go live") stage, which concluded the process, was when the app was released to the public. Finally, Brett needed to determine the pricing model of the PWA, which enabled Brett to financially support the venture. The pricing of the PWA App was two-fold, where it signaled the quality of the app and provided Brett with an income stream.

Part Two: The Teaching Note

Synopsis

Brett Miller, founder and owner of 110 Fitness, wants to design, develop, and launch the first ever Parkinson's Wellness App (PWA). Even though 110 Fitness is the largest wellness center in the world for individuals with Parkinson's disease, Brett faced many important short- and long-term decisions during the height of the COVID-19 pandemic. Brett knew that in order to continue serving the Parkinson's community, 110 Fitness needed to develop the PWA.

Keywords

app design & development; Parkinson's disease; physical fitness; wellness centers; app revenue model

Suggested Audience

Undergraduate students in courses that include technology, mobile app (application) design, marketing, and/or decision analysis. Students should have requisite skills with app design, usage, and basic analytical and decision-making skills.

Learning Objectives

Students will demonstrate their ability to:

- Create a prototype on what an app model should resemble, including appropriate app development platforms.
- Identify the steps included in the app development process.
- Analyze the critical functions that should be included in a fitness and wellness app.
- Determine an appropriate app revenue model and pricing structure on different pricing plans (e.g., monthly, annual, or one-time subscription).

Thought Questions

1. What are the different app development platforms? Briefly define each platform and at least one platform example.
2. What are the critical functions that should be included in the PWA? List as many functions as possible.
3. What revenue models would be best suited for the PWA? List as many revenue models as possible.

Theory

The instructor will illustrate the benefits of technology in different environments. The fundamentals of app design and development will be reinforced. Project management skills will be introduced as students roll out the new web app through storyboarding and beta testing. The fundamentals of decision-making and revenue model management will also be covered. Student learning follows the Inquiry-Based Learning theory. The Inquiry-Based Learning model is a pedagogical perspective, where it uses a complex scientific process that is divided into smaller logical segments (Pedaste et al., 2015). These smaller segments guide students through the learning phases and enable logical connections to the tasks, thereby giving students a better understanding of the material learned.

Steps in the Process

1. Orientation: The phase where students learn the challenge by given a problem or problem statement.
2. Conceptualization: This phase involves questioning the issue to generating untested solutions.
3. Investigation: This phase involves exploration, experimentation, and data interpretation to create new knowledge.
4. Conclusion: This phase requires the student to compare the findings/outcomes to the original untested solutions.
5. Discussion: This phase of the process requires reflection as to the outcomes and gaining knowledge as to what worked or what did not work. In addition, students will communicate the results and the limitations of the findings.

Pedagogy

- **5 Minute Self-Test** is attached as Exhibit TN_1
- **Methodology #1:** Videos
  Show the following videos in class and ask students their initial thoughts about the purpose of the PWA and how to market the PWA to a larger market.

  https://www.facebook.com/110fitnessma/videos/788657115071452

  https://vimeo.com/251842639

- **Methodology #2:** Thought Questions
  1. What are the different app development platforms? Briefly define each platform and at least one platform example. There are several different types of platforms which would be appropriate, such as:
     a) Native mobile app: This platform can be accessed via the different app stores associated with phone manufacturers (i.e., Apple store). They allow for fast build time. Although each OS (Operating System) will have a different development and interface tools. Therefore, it will only work on the platform that it was developed for.
     b) Web application: Is a client-server software application in terms of its performance with the web browser. The application is stored on a remote server allowing for

       delivery through a web browser interface. Web application is a website that is highly responsive and that works on any electronic device. Development of the app includes using software such as HTML, CSS, JavaScript, or JQuery.

    c) Hybrid app development: Works across multiple platforms as the web application with the elements of the native app. This is designed for multiple platforms and is also built with HTML, CSS, or JavaScript.

2. What are the critical functions that should be included in the PWA? List as many functions as possible.
   a) Ease of use
   b) Health assessments
   c) Track program participation and activity
   d) Retention of data
   e) Educational information links
   f) Motivational tools (i.e., leaderboards)
   g) Encourage social support

3. What revenue models would be best suited for the PWA? List as many revenue models as possible.
   a) In-app Advertising
   b) In-app Purchases
   c) Data Monetization
   d) Donations
   e) Paid Apps
   f) Sponsorships

- **Methodology #3:** Compare and Contrast
  What other wellness apps exist and how do they compare and contrast to the PWA? Using the Subjective Expectancy Utility (SEU) Model, list critical success factors for wellness apps in general. Next, compare the PWA to at least one other wellness app. Instructions for the SEU Model and a worksheet are included in Exhibit TN_3.

Part III: Epilogue and Lessons Learned

In March 2020, Brett began working with an app developer and created the 110 Fitness App (known as PWA – Parkinson's Wellness App). The PWA was the first ever wellness app for individuals with Parkinson's disease. The developer was a company called Oxit; they built the PWA App on the Amazon Web Services (AWS), and it is on the platforms Apple and Google Play. The PWA was beta tested with all of the people in the 110 Fitness facility with Parkinson's disease, which included them testing the app for a month and then providing feedback on the pros and cons or anything else that would allow the app to be more user-friendly.

After the beta testing, the PWA was launched and offers 18 categories ranging from boxing, yoga, meditation, cycling, vocal work, strength and conditioning, to name a few, as well as over 200 workouts. Brett and his team worked with their members to test the accessibility of the app (beta testing) for individuals with Parkinson's disease to ensure it was user-friendly, especially with all the Parkinson's symptoms that may interfere when using the 110 Fitness app (specifically tremor and cognitive processing ease of use).

Brett and the team at 110 Fitness are happy to share that today the PWA only costs $19.99/month, which is by far the least expensive wellness app available given the amount of research-based content available to users. The PWA still continues to be the only Parkinson's focused wellness app available globally. Exhibit _TN 2 provides the user interface for the PWA. Today, 110 Fitness continues the "giving it your all" mentality, and Brett is now the co-chair for the Massachusetts Parkinson's Registry. In fact, the Massachusetts Parkinson's Registry enlisted Brett for the creation and part of the implementation for the PWA. Brett proudly stated that "another group of people have been trying for over 15 years and we were able to do it within three months during COVID-19."

References

Aschenbrenner, J. (2023). *The importance of case studies.* https://thebaguide.com/blog/the-importance-of-case-studies/

Franchina, P. (2022). *Boxing for Parkinson's disease.* American Parkinson Disease Association. https://www.apdaparkinson.org/article/boxing-for-parkinsons-disease/

Heskett, J., Knoop, C., & Shapiro, B. (2020). *How to write a great business case.* https://hbsp.harvard.edu/inspiring-minds/how-to-write-a-great-business-case

Mayo Clinic. (2022). *Parkinson's disease.* https://www.mayoclinic.org/diseases-conditions/parkinsons-disease/symptoms-causes/syc-20376055

Nohria, N. (2021). What the case study method really teaches. *Harvard Business Review.* https://hbr.org/2021/12/what-the-case-study-method-really-teaches

Pedaste, M., Mäeots, M., Siiman, L. A., de Jong, T., van Riesen, S. A. N., Kamp, E. T., Manoli, C. C., Zacharia, Z. C., & Tsourlidaki, E. (2015). Phases of inquiry-based learning: Definitions and the inquiry cycle. *Educational Research Review, 14,* 47–61.

Popil, I. (2011). Promotion of critical thinking by using case studies as teaching method. *Nurse Education Today, 31*(2), 204–207.

Rao, S., Hofmann, S., & Shakil, A. (2006). Parkinson's disease: Diagnosis and treatment. *American Family Physician*, *74*(12), 2046–2054.

Seymour, T., & Zakir, J. (2014). How to create an app. *International Journal of Management & Information Systems*, *18*(2), 123–138.

WCVB Channel 5. (2018). *5 for Good: Rockland's 110 Fitness offers Rock Steady Boxing for Parkinson's patients.* https://www.wcvb.com/article/5-for-good-rocklands-110-fitness-offers-rock-steady-boxing-for-parkinsons-patients/16575762

Appendix 1: Course descriptions for Parkinson's at 110 Fitness

1) Rock Steady Boxing

Rock Steady Boxing South Shore is a physical therapy based non-contact, intense boxing fitness program designed to improve function, quality of life, strength, flexibility, and balance for people with Parkinson's disease. Rock Steady Boxing is the only medically and clinically proven exercise program to reduce, reverse, and delay the symptoms of Parkinson's disease. Come find out what it means to Fight Back against PD!

2) Pedaling for Parkinson's

Cycling on stationary bikes may provide symptomatic relief for people with Parkinson's disease, especially if they cycle using what's described as Forced Exercise, i.e., pedaling at a rate faster than their voluntary cadence. This was the finding of a study at a scientific meeting in the US in 2012. Researchers found cycling, especially at rates above what patients would choose for themselves, appeared to make regions of the brain that deal with movement connect to each other more effectively.
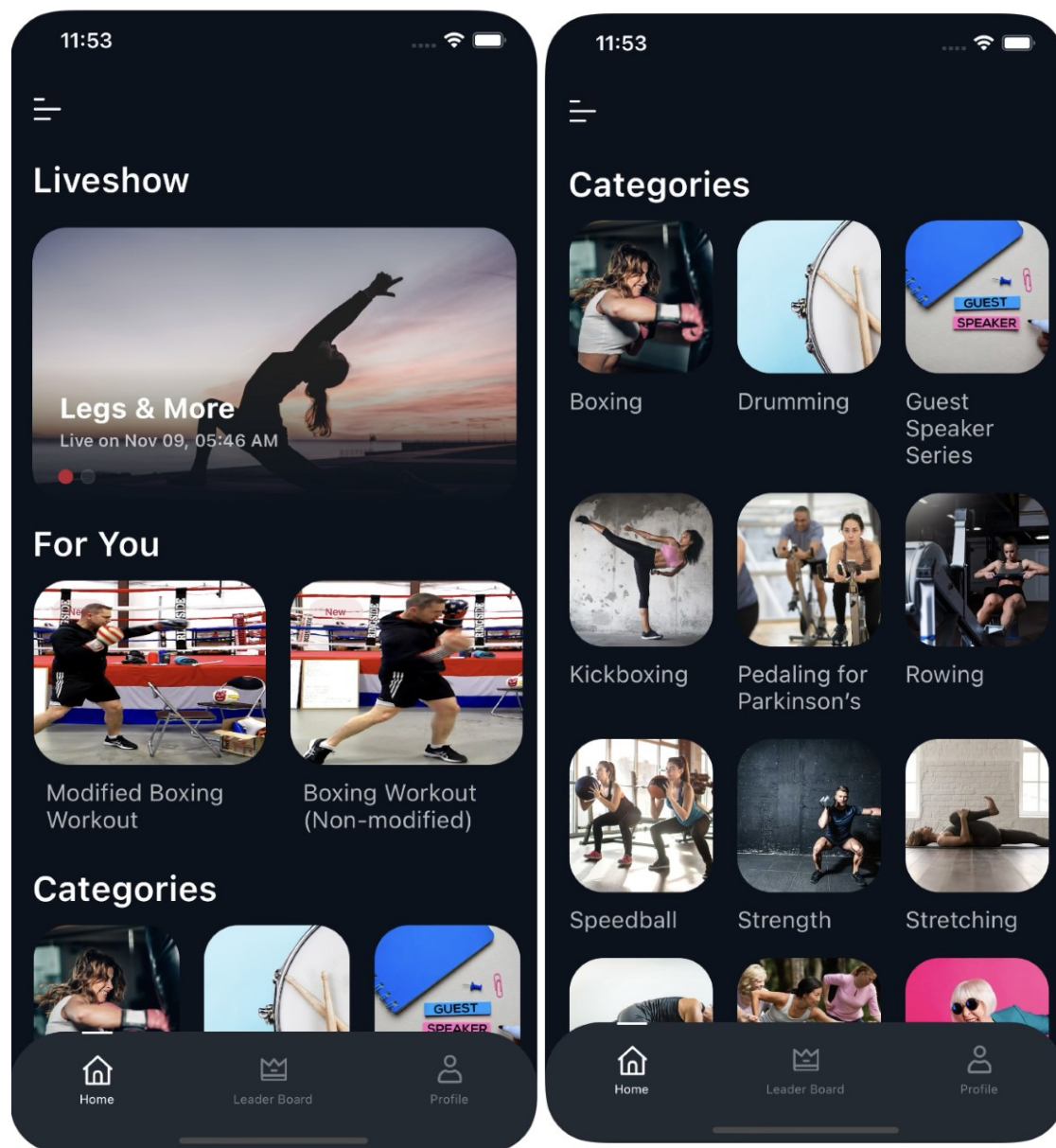
3) BOXH20

Take your boxing skills out of the ring and into the pool! BOXH2O takes all the benefits of Rock Steady Boxing South Shore and amplifies them by exercising in water. Boxing training in water helps decrease joint stiffness, increase mobility, and increases balance—essential skills needed to box and fight back against Parkinson's!

Appendix 2: Stages of Creating an App

1. Design Stage
   - Define the goals for the app
   - Conduct market research
   - Decide the app features
   - Create a wireframe (a model of the way the app will look)
2. Implementation
   - Choose the development method [i.e., IOS (Apple) or Android]
   - Define the technical specification needed
3. Testing
   - Use a test model to see if the app works
   - Define measurable milestones
4. Publishing (i.e., Go live with the app)
   - Deploy
   - Monitor KPIs (Key Performance Indicators)
   - Maintain
   - Update

Exhibit TN_1

5 Minute Self-Test

110 Fitness: Giving it all for the Parkinson's Community

1. What is Brett wanting to create an app for?
2. Why does Brett want to create the app?
3. How can Brett create a community that helps and supports those afflicted with Parkinson 's disease? Do you feel the app is needed for this community?
4. Is there a timeline to achieve these goals? If not, what do you think is a reasonable timeline for these goals?
5. Do you think Brett can do this on his own or should he hire outside help?

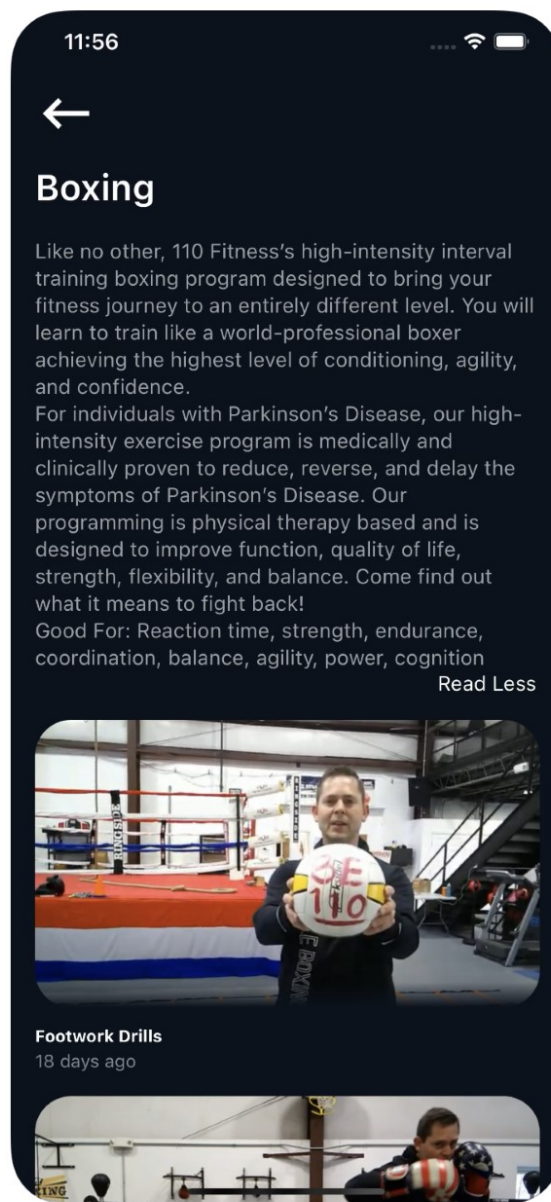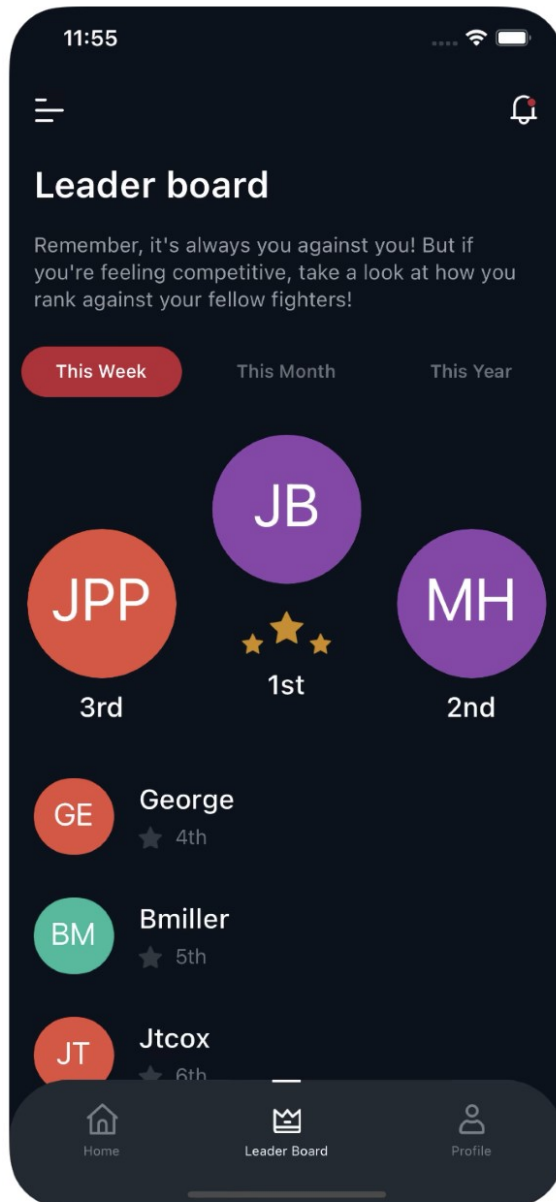## Exhibit TN_2 110 Fitness Parkinson Wellness App (PWA)

Leader board

Remember, it's always you against you! But if you're feeling competitive, take a look at how you rank against your fellow fighters!

This Week   This Month   This Year

JB

JPP   MH

⭐⭐⭐

3rd   1st   2nd

GE   **George**
      ⭐ 4th

BM   **Bmiller**
      ⭐ 5th

JT   **Jtcox**
      ⭐ 6th

Home   Leader Board   Profile

Boxing

Like no other, 110 Fitness's high-intensity interval training boxing program designed to bring your fitness journey to an entirely different level. You will learn to train like a world-professional boxer achieving the highest level of conditioning, agility, and confidence.
For individuals with Parkinson's Disease, our high-intensity exercise program is medically and clinically proven to reduce, reverse, and delay the symptoms of Parkinson's Disease. Our programming is physical therapy based and is designed to improve function, quality of life, strength, flexibility, and balance. Come find out what it means to fight back!
Good For: Reaction time, strength, endurance, coordination, balance, agility, power, cognition

Read Less

Footwork Drills
18 days ago

Exhibit TN_3 Subjective Expectancy Utility (SEU) Model

Subjective Expectancy Utility Model (SEU Model)

Overview:

- The SEU Model is similar to the Competitive Profile Matrix (CPM).

- The SEU Model is a useful planning, decision making, and strategy formulation tool.

- The SEU Model can be used to evaluate the organization's competitive environment.

- The SEU Model can be performed at various organizational levels, such as

    o the organization as a whole,

    o functional areas within the organization (e.g., product lines, business divisions/departments/units, etc.),

    o specific products (such as an App)

- The SEU Model can also be used to make decisions, including (but not limited to):

    o outsourcing decisions (including supplier analysis and 3rd party services).

    o location decisions

5 Step Process:

1) List the critical success factors (CSF) as identified within the organization's competitive environment, (a list of approximately 4-8 critical success factors).

2) Assign a weight that ranges from **0.0 (not important) to 1.0 (all important).** These should reflect the relative importance of being successful within the organization's industry. **Important: the sum of all weights must equal 1.0.** Note: This step is industry based.

3) Assign a 1-to-4 rating to each factor to indicate how the organization is CURRENTLY responding to each critical success factor. Note: This step is organization based.

> 1 = response is poor
>
> 2 = response is average
>
> 3 = response is above average
>
> 4 = response is superior

4) Multiply each factor's weight by its rating to determine **weighted score** (Step #2 x Step #3)

5) Sum the weighted scores for each success factor to determine the total weighted score for the organization.

■ The total weighted score will range from a low of 1.0 to a high of 4.0, with the average score being a 2.5.

■ Organizations scoring well below 2.5 are at a competitive disadvantage, whereas organizations scoring well above 2.5 are at a competitive advantage.

	Subjective Expectancy Utility Model					
	Parkinson's Wellness App			Competitor's App		
CSF	Weight	Rating	Weighted Score	Weight	Rating	Weighted Score
1.						
2.						
3.						
4.						
Total	1.00		Total Score =	1.00		Total Score =