Aalto University
School of Business

FINDING MOTIVATION GROUPS WITHIN CUSTOMERS – CASE TALI TENNIS CENTER CLUSTER ANALYSIS

Master's Thesis
Emil Inberg
Aalto University School of Business
Information and Service Management
Spring 2024

Aalto University
School of Business

Aalto University, P.O. BOX 11000, 00076 AALTO
www.aalto.fi

Abstract of master's thesis

Author Emil Inberg

Title of thesis Finding Motivation Groups Within Customers – Case Tali Tennis Center Cluster Analysis

Degree Master of Science in Economics and Business Administration

Degree programme Information and Service Management

Thesis advisor(s) Esko Penttinen

Year of approval 2024 **Number of pages** 54 **Language** English

Abstract

The discussion of intrinsic and extrinsic motivation has been ongoing for many decades. This study focuses on how the form of motivation affects customer value creation by examining the customer questionnaire data from Tali Center, which is one of the biggest inside tennis centers in Europe, utilizing a theoretical background of Self Determination Theory.

The motivational variables were compressed into three components: Intrinsic Component, Extrinsic Component I and Extrinsic Component II. K-means cluster analysis was conducted based on these components and it resulted in two clusters: Intrinsically motivated Cluster and Extrinsically motivated Cluster. The characteristics of the clusters were extended by conducting a cross tabulation analysis which resulted in significant differences in demographic variables between the clusters. Finally, the differences in customer satisfaction, frequency of visits, and willingness to pay were examined in ANOVA analyses.

The main findings of this study are that intrinsically motivated customers have a higher level of customer satisfaction (1), the form of motivation is not significant when it comes to willingness to pay or frequency of visits (2), female customers demonstrate more intrinsic motivation than male customers (3), and that age is not a significant determinator in motivation (4).

The findings of this study provide support for Self Determination Theory. When it comes to managerial implications of this study, sport center managers can more easily recognize differences between their customer segments and target services more efficiently.

Keywords intrinsic motivation, ectrinsic motivation, customer satisfaction, service quality

Tekijä Emil Inberg

Työn nimi Finding motivation groups Within tennis center clients – case Talin tenniskeskus cluster analysis

Tutkinto Kauppatieteiden maisteri

Koulutusohjelma Tieto- ja palvelujohtaminen

Työn ohjaaja(t) Esko Penttinen

Hyväksymisvuosi 2024 **Sivumäärä** 54 **Kieli** Englanti

Tiivistelmä

Tämä tutkimus keskittyy siihen, miten sisäinen ja ulkoinen motivaatio vaikuttaa asiakasarvon luomiseen tutkimalla Talin tenniskeskuksen asiakaskyselydataa. Talin tenniskeskus on yksi suurimmista sisätenniskeskuksista Euroopassa, ja tutkimuksessa hyödynnetään itsemääräämisteorian taustoja.

Motivaatiotekijät koottiin kolmeen osaan: Sisäisen motivaation komponentti, Ulkoisen motivaation komponentti I ja Ulkoisen motivaation komponentti II. Näiden komponenttien perusteella tehtiin K-means-klusterianalyysi, jonka tuloksena oli kaksi klusteria: Sisäisen motivaation klusteri ja Ulkoisen motivaation klusteri. Klusterien ominaisuuksia laajennettiin ristitaulukkoanalyysilla, joka paljasti merkittäviä eroja demografisten muuttujien välillä klustereiden välillä. Lopuksi tutkittiin eroja asiakastyytyväisyydessä, käyntitiheydessä ja maksuhalukkuudessa hyödyntämällä ANOVA-analyysia.

Tutkimuksen pääasialliset löydökset ovat, että sisäisesti motivoituneilla asiakkailla on korkeampi taso asiakastyytyväisyyttä (1), motivaation muodolla ei ole merkitystä maksuhalukkuudessa tai käyntitiheydessä (2), naisasiakkaat osoittavat enemmän sisäistä motivaatiota kuin miesasiakkaat (3) ja että ikä ei ole merkittävä tekijä motivaatiossa (4).

Tämän tutkimuksen tulokset tukevat itsemääräämisteoriaa. Kun tarkastellaan tämän tutkimuksen johtopäätöksiä liikuntakeskuksien johtamisen kannalta, liikuntakeskuksien johtajat pystyvät tunnistamaan helpommin asiakassegmenttiensä erot ja kohdentamaan palveluita tehokkaammin.

Avainsanat sisäinen motivaatio, ulkoinen motivaatio, asiakastyytyväisyys, palvelutaso

Acknowledgements

I want to express my gratitude to my supervisor Esko Penttinen, my friends Jussi Tiihonen and Leo Norilo, as well as the curators of the Spotify playlist "The Frontier."

Table of Contents

List of Tables

List of Figures

1 Introduction

This chapter introduces the motivation of the thesis, the research question, and the sub questions as well as the structure of the thesis.

1.1 Motivation of the Study

The popularity of tennis is growing in many areas. According to ITF Global Tennis Report (2021) the total number of tennis players has increased to over 87 million meaning an increase of 423.5% for the 41 nations that participated in the report. At the same time the number of tennis clubs has almost doubled within the participated nations. The number of tennis coaches has increased 6.9%, which indicates an increase in motivated players as well. In total there are 115 000 tennis clubs, 578 000 tennis courts and 149 000 tennis coaches. The growing popularity of tennis, just like any global trend, evokes an interest and a need for an academical research.

The growing demand for tennis courts accumulates pressure on the supply side and to maximize their outcome, the management of a sport center needs to identify the factors and understand their influence in their own context of sport (Hill & Green, 2012). One of the biggest challenges for the supply side is to gratify all the different customer segments from the six-times-a-week practicing juniors to the weekend players: as the market share of the company increases, it may negatively affect customer satisfaction as the company must serve that diverse set of customers (Anderson et al., 1994). This thesis pursues to identify and examine the differences between various customer segments within a tennis center.

Firstly, there are several types of tennis players when it comes to their visit regularity, levels and goals which makes the sport interesting in terms of motivation. Motivation has been a popular area in social studies and there are many universal theories like social influence theory (Kelman, 1958) and self-determination theory (Deci & Ryan, 1988) that are still adaptable in sports research as well. Although sport motivation has been widely studied in sports context, more specific research in the field of tennis clients is yet to come.

Secondly, customer segments in a sport center differ in terms of how customers value different aspects of service quality (i.e., Kim & Kim, 1998; Afthinos et al., 2005; Hill & Green, 2012). Tennis centers like Tali can be huge in terms of facility and the number of different kinds of weekly customers. Thus, it’s important to recognize which elements of

service quality should be focused on to maintain the best overall level of customer satisfaction. The lack of first-rate market data is one of the problems companies face when pursuing to improve service quality (Anderson et al., 1994). It is crucially important for sport centers to know their customer base to maintain a high success level in executive decisions and investments. Additionally, there might be some whole segments whose potential is overlooked as sport centers tend to focus on the easier segments (Liu et al., 2013).

Tennis clubs as well as other sport centers around the world will benefit from this study considering the importance of understanding the customer base and the motivational diversity of it. This research will benefit future research in motivation studies in sport context and especially in the field of tennis clubs. Also, there is not much research on how different motivation profiles and service quality valuation of sport center customers differ considering willingness-to-pay, which is one of the key elements of this thesis alongside other measurements of customer satisfaction.

1.2 Research Goals and The Scope

The goal of this research is to provide knowledge of motivational aspects of customer segmentation in sport center customers and answers to questions like “What types of motivation profiles there are in sport center customer base?”, “Which motivation profile groups have the highest level of customer satisfaction?” and finally to the research question of the thesis “Which motivation profile groups have the highest loyalty and willingness-to-pay within tennis center clients?”. When a new or existing tennis center is seeking to improve their service by adapting a customer-oriented approach to service development, this thesis will provide background information, a methodology and discussion of impacts of the customers’ motivation profiles. One of the research goals is also to identify the motivation profile determinators that indicate a high level of customer loyalty.

The scope of this thesis is determined to tennis clubs and customers. However, in the literature review part there is a broader manner of an approach to review research in a sports context of motivation. The results of the thesis will also be discussed in a broader view to assure that the thesis will benefit a wider range of operators.

1.3 Case Company Tali Tennis Center

The case company Tali Tennis Center is the biggest tennis club in Finland and probably the biggest tennis club in Europe in terms of number of inside tennis courts. Established in 1976, Tali Tennis Center has become the heart of Finnish tennis society by providing facilities for private players, tennis clubs, coaches, competitions and by organizing national and international tournaments. The center is a home for HVS (Helsingin Verkkopalloseura), a traditional Helsinki based tennis club established in 1920. Like in most of the biggest tennis centers in Finland, the organization is partly shared with the operating tennis club. Thousands of daily, weekly, and monthly customers form a diverse customer base which is big enough to study from an academic point of view. A revenue of nearly three million euros and a half a million euros EBIT makes it relevant for research in financial terms also.

The research is organized and planned in co-operation with the company to help them organize the supply in the best way possible considering their customers' different motivation profiles. The results will be discussed with the management team and presented to the whole organization.

1.4 Structure of the Thesis

Presenting a case study of clustering Tali Tennis Center's clients, this thesis starts with comprehensive literature review of motivation in the light of intrinsic (internal) and extrinsic (external) motivation. This is followed by literature review of the following sequence: service quality → customer satisfaction → loyalty. The final stage of the literature review consists of customer segmentation, which is a key element of this research paper.

In the next chapter, cluster analysis, the method of the study is introduced. This consists of presenting, justifying, and evaluating the method. This part also reveals the process of data collection and analysis of the empirical data. This is followed by a chapter that presents the findings of the study by formation of the clusters and examining their qualities.

The thesis ends in the discussion part where the findings are reviewed in contrast with the relevant literature. This part is divided into theoretical implications and managerial implications, and also includes conclusions and limitations of the study. Appendixes are included in the end.

2 Literature Review

This chapter reviews and discusses the relevant literature about the subject area. As noted previously, one of the research goals of this study is to provide knowledge about different motivation groups for the case company to improve their service quality for different segments. The structure of this chapter follows the same principles.

Firstly, this literature review discusses the different stages of the progress of how high level of customer satisfaction leads to higher profits. This part contains reviews on the important and relevant literature about the following elements of progress: motivation, customer service quality, customer satisfaction and loyalty.

The second part considers the relevant research about customer and market segmentation in sport center context to review and explain the differences in segments to provide foundation on how different segments value different areas of service quality and by that, how they differ in reaching the desirable level of customer satisfaction. The results of the papers in this chapter will be profoundly compared to the findings of this thesis in the discussion part. Majority of the studies are based on surveys from fitness center clients, but the main principles can be applied to other sport centers like tennis centers as well.

2.1 Intrinsic and Extrinsic Motivation

2.1.1 Brief history of Motivation Research in Social Studies

As mentioned, when it comes to big and high standard sport center like Tali Tennis Center, the customer base consists of several significantly different customer segments, and one of their key differences lies in motivation as amateurs, juniors and the best competitive players in Finland all use the courts, facilities, and services. Motivation profile influences a customer's expectations which are an important factor in customer satisfaction. Motivation has been widely researched and there is more than one theory to describe and categorize different aspects of an individual's motivation but potentially the most acknowledged approach is to categorize motivation into intrinsic and extrinsic motivation. Ryan & Deci (2000) describe the difference between intrinsic and extrinsic motivation as follows: "The most basic distinction is between intrinsic motivation, which refers to doing something because it is inherently interesting or enjoyable, and extrinsic motivation, which refers to

doing something because it leads to a separable outcome.”. However, as years have passed the research has reached beyond the unambiguous dualistic theory.

Kelman (1958) divides motivation influence into three groups in his research of attitude changes (Social Influence Theory): Compliance, Identification, and Internalization. Compliance means an influence from rewards or punishments, Identification from identifying with a group, and Internalization from values and attitudes. The Social Influence Theory is interested in the light of tennis center customer segmentation as these can be used to examine motivations of different types of customers.

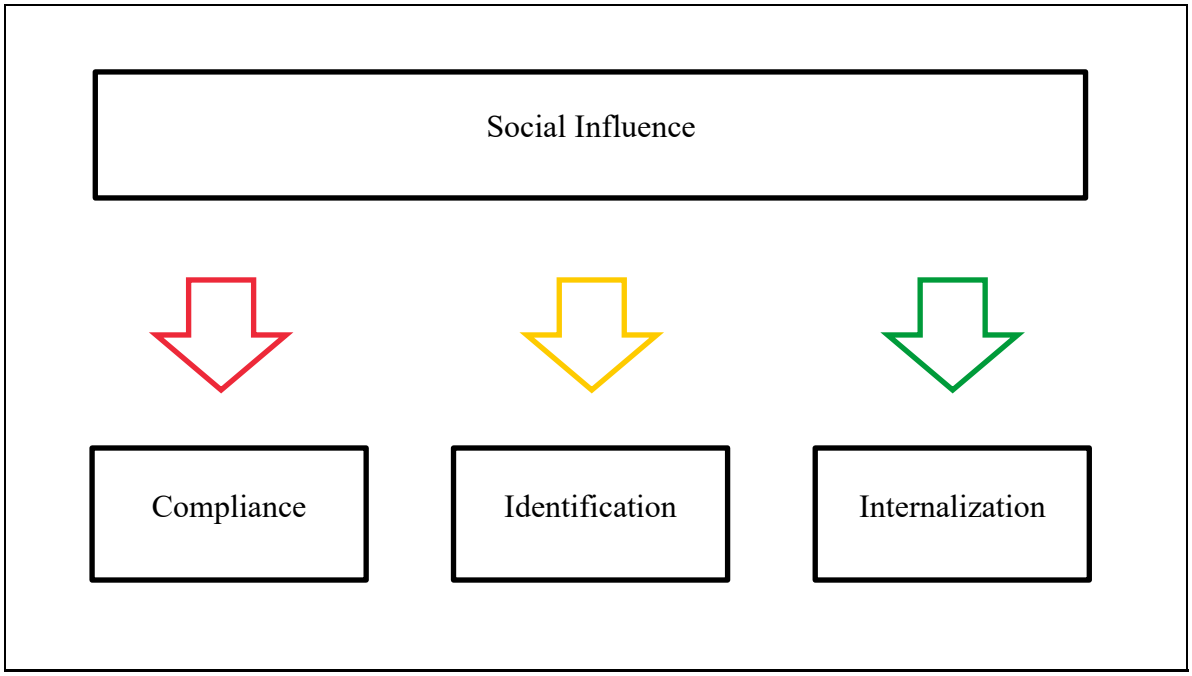

Figure 1. Social Influence Theory by Kelman (1958)

Self Determination Theory (SDT) (Ryan & Deci, 1985, 2000) is a somewhat more extensive model for explaining the types of motivations. SDT divides motivation into three categories: amotivation, extrinsic motivation and intrinsic motivation, placed in nonself-determined – self-determined axis respectively. Amotivation is non-regulated and intrinsic motivation is intrinsic regulated. Extrinsic motivation is distributed into four regulatory styles. External regulation consists of behaviors related to external demand or reward. Introjected regulation is a form of regulation which includes behavior that is internally driven but still heavily influenced by external causalities e.g., avoiding guilt. Behavior in identified regulation is conscious about reflecting the regulation and goals to match the

personal values and importance. Integrated regulation is the most autonomous when it comes to extrinsic motivation meaning that the regulations are fully accepted and integrated in behavior. To conclude, SDT argues that the more intrinsic the motivation, the more effective it tends to be.

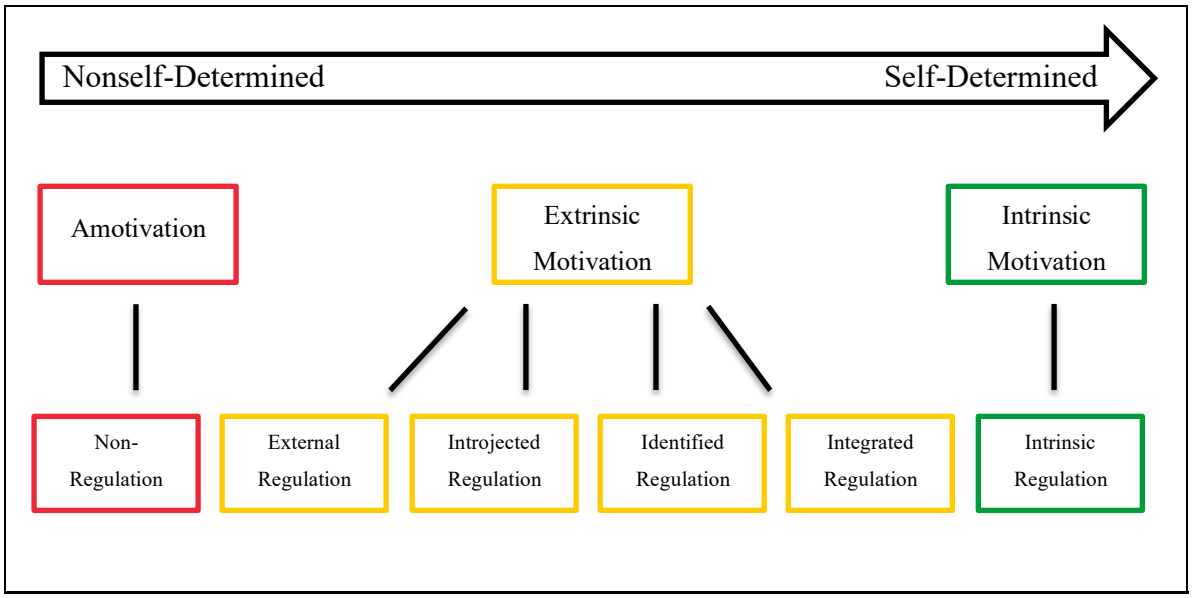

Figure 2. Self Determination Theory by Ryan & Deci (1985, 2000)

After Self Determination Theory, research tends to be more critical towards the black-and-white division of intrinsic and extrinsic motivation and is moving beyond the dualistic way of thinking (Reiss, 2012). Convington & Müeller (2001) argue in their research of students' motivation that both types of motivation can coexist simultaneously stating that avoiding failure is the factor that harms the intrinsic motivation, not extrinsic motivation itself. Learning concept is also used as a subject area in another research about expanding intrinsic and extrinsic mindset in motivation as Rigby et al. (1992) argue that taking the relative autonomy into account in motivated actions is more useful than traditional intrinsic-extrinsic division. This is in line with the research of Ryan & Deci (1985) and Self Determination Theory. In their later research, Ryan & Deci (2000) complement their theory by stating that extrinsic motivation can also reflect true self-regulation depending on its relatively autonomy.

Reiss (2012), for his part, claims that intrinsic-extrinsic motivation fails in construction as motives are generally multifaceted and that the measures and experiments often fail with this theory. The author argues that researchers have acknowledged 16 universal aspects of motivations, like the desire for food, concluded in the Reiss Motivation Profile (RMP) (Reiss & Havercamp, 1998). It seems that even to this day, the researchers have not found a consensus in this dilemma, but on the other hand, it provides a versatile collection of frameworks to examine. This bifurcation of dualistic and multifaceted motivation theories prevails in the scientific discussion within the social and psychological research but when it comes to sports and sport center context, the studies tend to lean towards dualistic approaches.

2.1.2 Intrinsic and Extrinsic Motivation within Sport Center Clients

By this point, this thesis has introduced relevant literature and models about intrinsic and extrinsic motivation. In this subchapter the scope is narrowed to sports context to build background and foundation for the specific subject area of this thesis.

When it comes to pleasure and participation in a long-term, intrinsic motivation seems to be crucially important (Vallerand et al., 1997). The self-determination continuum (Ryan & Deci, 1985) has been utilized and reformed into sports context in several studies.

Pelletier et al. (1995) extend the measurement of motivation to sports context by suggesting the Sport Motivation Scale (SMS). They divide motivation into seven different subscales (see figure 4.). SMS is heavily influenced by SDT (Ryan & Deci, 1985), and thus it can be seen as modification of SDT for sport aspect.

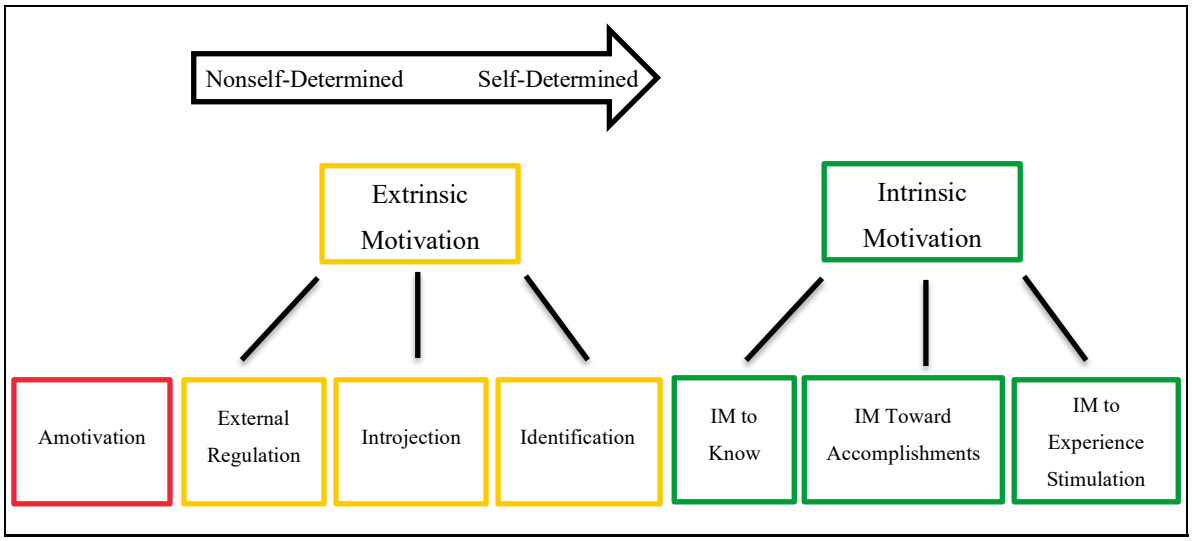

Figure 3. Social Motivation Scale by Pelletier et al. (1995)

Intrinsic motivation (IM) is divided into three subscales: IM to know which means doing something for the satisfaction of learning, IM toward accomplishments, motivation for creating or mastering something new, and IM to experience stimulation which occurs when individual is involved because of experiences like feelings of fun and excitement. Based on a self-determination continuum level, extrinsic motivation also consists of three subscales. External regulated motivation means participating in sports because of pure external reasons like opportunity to receive praises or demanding parents. Introjection is a step towards self-determination meaning that individual has internalized the motivation like athletes who exercise for the pressure to get physically fit. Identification on its side is the nearest to self-determination and it occurs when an individual is identified with the sport as it becomes part of their nature and growth. Amotivated individuals demonstrate neither intrinsic or extrinsic motivation and are in a risk of dropping out of the sport as it gets harder to find good reasons to practice. This is in line with Vallerand et al. (1997) who note that certain extrinsic motivation types like pressure from the parents (also an example of external regulated motivation in SMS) can lead to young people losing their interest in the sport.

SMS was utilized to examine Canadian university athletes (Pelletier et al., 1995) and the results were in line with self-determination continuum as the most positive influence was found with the identification and intrinsic motivation sub-scales whereas the most negative influence was derived from amotivation.

Alexandris et al. (2002) for their part utilized SMS in their research of effects of different constraints on amotivation, intrinsic motivation and extrinsic motivation within sport and physical activity. The authors suggest a model where certain types of constraints affect each type of motivation. The findings indicated that intrapersonal constraints (i.e., lack of knowledge and lack of interest) contributed 38% of the variance in amotivation and 15% of the variance in intrinsic motivation. However, they did not find any constrain dimension to have significant influence on extrinsic motivation.

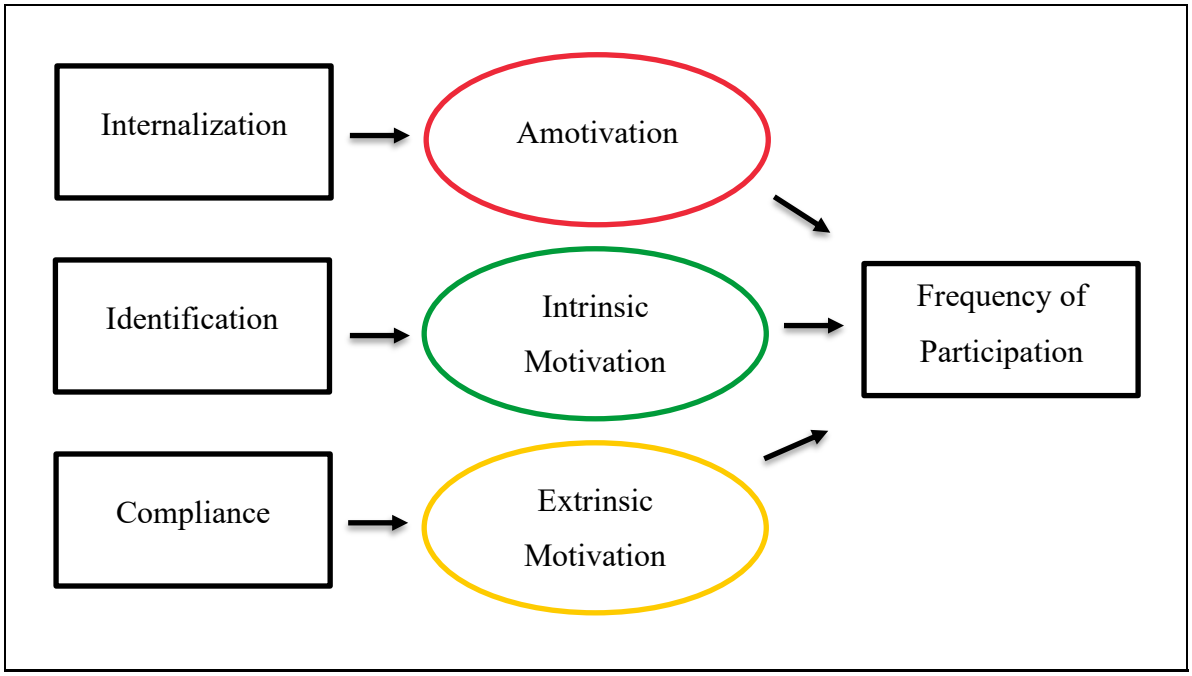

Figure 4. Social Influence Theory by Kelman (1958)

In their research of competitive and recreational sport structures, Fortier et al. (1995) examined motivational differences between competitive and recreational athletes using SMS. The authors found out that competitive athletes tend to have less intrinsic motivation when it comes to stimulation and accomplishment compared to recreational athletes, as focusing on winning at all costs decreases their self-determination and thus their intrinsic motivation. However, they specify that in the case of identification type of extrinsic motivation, competitive athletes might override recreational athletes as they choose to invest in challenging activities. They also note that competitive athletes are more likely to demonstrate amotivation than recreational athletes. This could be avoided by focusing on

the basic psychological needs of the competitive athletes to examine the sources of amotivation and alienation (Ryan & Deci, 2000).

Vallendar & Losier (1999) suggests a use of a motivational sequence model (Vallendar, 1997) for understanding how different social factors can lead to different consequences and outcomes through intrinsic and extrinsic motivation in the context of sport. The model represents the following sequence: "Social Factors → Psychological Mediators → Types of Motivation → Consequences" and as can be seen in the figure 3, this model is also influenced by SDT. Ryan & Deci (1985, 2000) argue that humans have three innate needs according to their Self Determination Theory - competence, autonomy, and relatedness – which all need to be satisfied to achieve thriving state of mind. These needs, through their influence on athletes, are shown to relate with the motivational impact on social factors in sports (Vallerand & Losier, 1999).

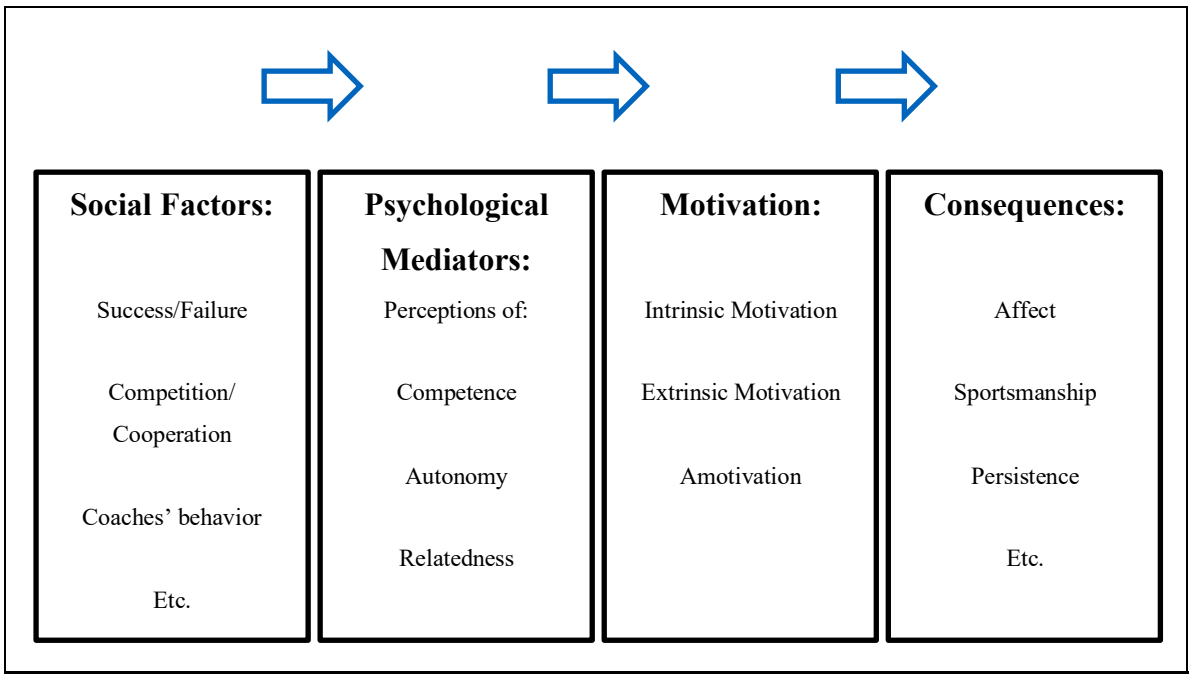

Figure 5. The Motivational Sequense Model in Sports by Vallendar & Losier (1999)

Locke & Schattke (2019) take a simplified and somewhat provocative approach towards motivational aspects by arguing that intrinsic motivation should only be defined as the pleasure of doing something and that extrinsic motivation should be defined as doing something solely to gain future value. To reason their pursuit to separate competence from

the intrinsic motivation into a new category of motivation – achievement motivation, they use an argument from the first authors' real life experience where he plays tennis with others in his age group and none of them takes coaching to improve their weaknesses in the game but play solely for fun and exercise. However, Ryan & Deci (2019) question the preceding approach big time by stating that the theory of Locke & Schattke (2019) goes wrong by declaring the competence would mean same as attempting to achieve greatness. There is an obvious disagreement between these authors as the article by Ryan & Deci (2019) is made entirely to prove Locke & Schattke (2019) wrong and SDT to be still relevant. Nevertheless, this friction and exchange of words shows that motivation is still a relevant area of subject in the research world.

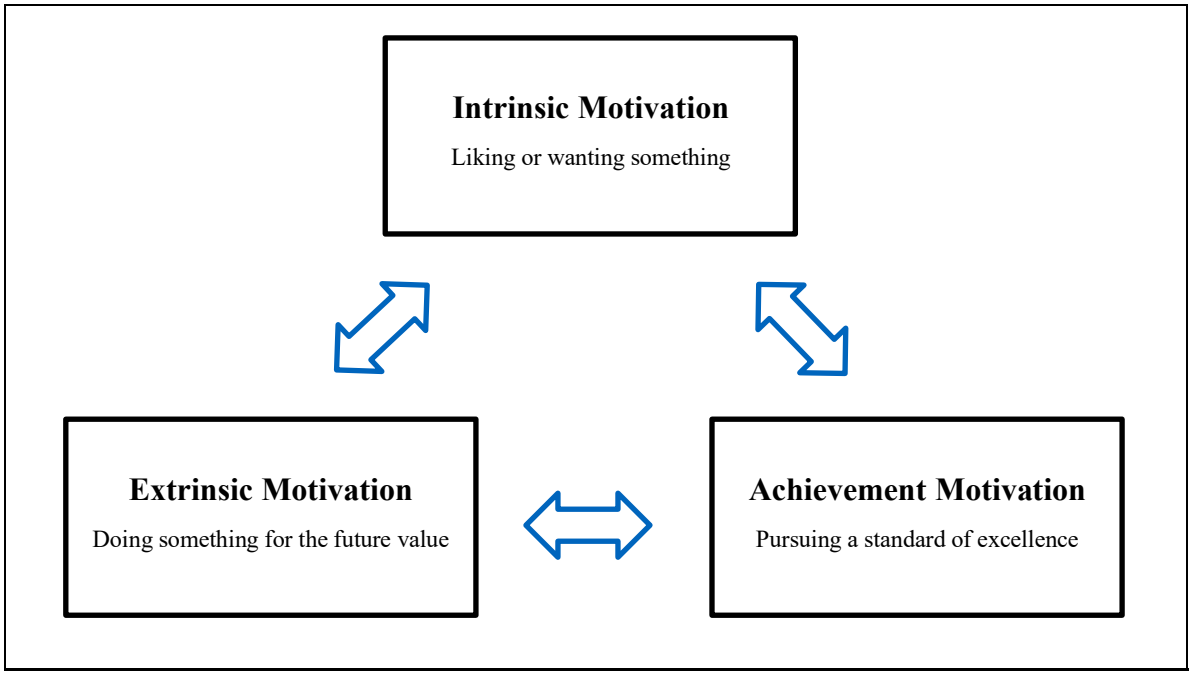

Figure 6. Extended Motivation Types by Locke & Schattke (2019)

As can be seen in this chapter, there are various models and theories developed to understand and examine sport motivation. However, sport motivation is not an unambiguous area as sport center customer's motivations depend on hierarchy of needs and thus, it can be challenging for the management to recognize and utilize different kind of motives, existing and potential, of their customers to influence their participation (Luna-Arocas & Tang, 2005).

2.2 Customer Satisfaction, Loyalty, and Service Quality

2.2.1 Background

One of the main purposes of this thesis is to study customer satisfaction within different customer segments, and to underlay it, the background and characteristics of customer satisfaction, customer loyalty and service quality are examined by reviewing the important literature in this sub-chapter. When a company's service quality meets the standards of their customer's expectations, customer satisfaction and customer loyalty of the company increase which leads to higher profits (e.g., Lee, 2017; Javadein et al, 2008; Fornell et al., 1996; Anderson et al., 1994; Anderson & Sullivan, 1993; Churchill & Surprenant. 1982). Anderson et al. (1994) notes that improving customer satisfaction is a long-term game and thus it should be considered as an investment rather than an expense. This long-term profitability is a result of the long-term buyer-seller relationship which is based on customer loyalty (Fornell et al., 1996; Anderson & Sullivan, 1993). These studies underline the importance of thorough planning of marketing strategies.

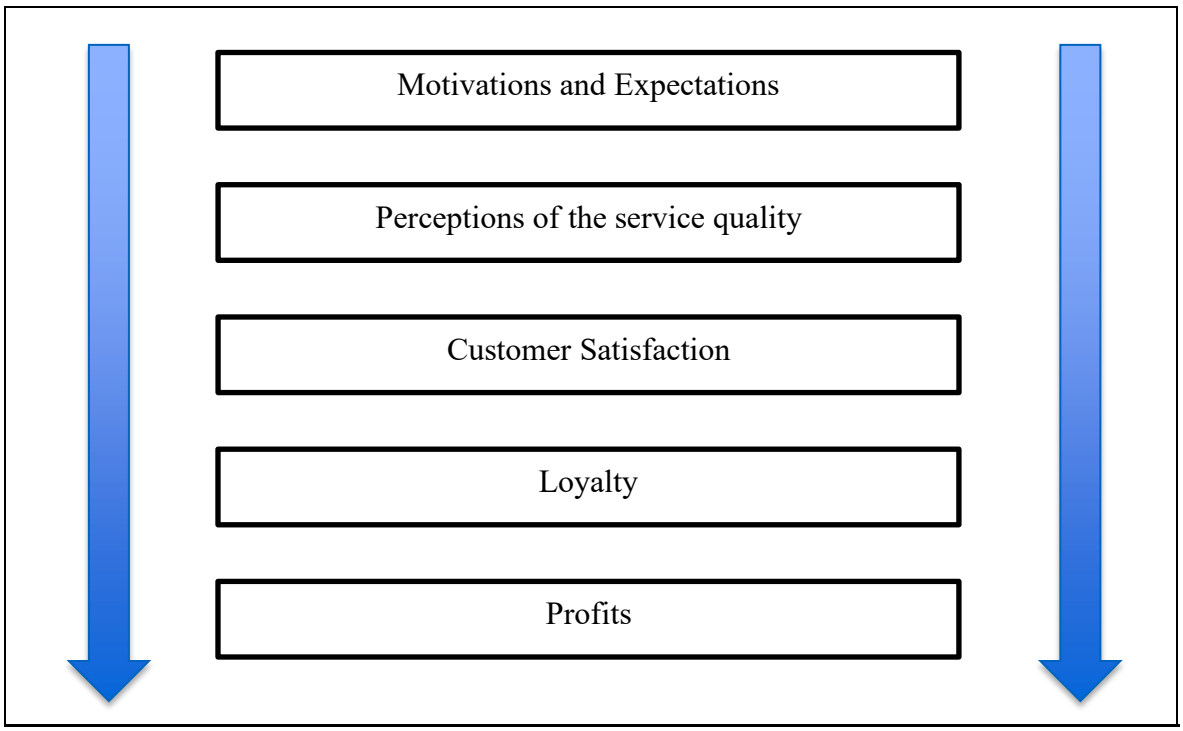

Figure 7. Progress of Creating Customer Value Based on the Literature Review

Fornell et al. (1996) found three universal characteristics of customer satisfaction in their research with The American Customer Satisfaction Index (ACSI) that can be adapted to evaluate customer satisfaction in tennis center context as well. Firstly, customization precedes reliability. This finding underlines the importance of customer segmentation which is a crucial part of this thesis too. Secondly, customer expectations have more influence when variance in production and consumption is lower and for a tennis center, this assumption fits as the service is relatively standardized – the core of the service is to provide a flawless tennis court. This supports the finding of Anderson & Sullivan (1993) that the probability of disconfirmation increases when quality is easy to evaluate. Finally, quality precedes value and price in customer satisfaction.

Motivational differences also affect customer satisfaction as intrinsic motivation does not only influence positive emotions but also attenuates negative emotions (White, 2015). Thus, it can be argued that intrinsically motivated customers are more likely to be happy customers than extrinsically motivated customers.

When it comes to predicting participation for fitness centers and single purpose facilities like tennis centers, loyalty has been found to be a significant predictor (Hill & Green, 2012). In their research of customer satisfaction within a leading German tennis club, Kölbl et al. (2022) observed and verified positive correlation between customer satisfaction and customer's willingness-to-stay, which measures behavioral loyalty. Lee (2017) states that service quality influences customer loyalty in sport centers which leads to increased intention to exercise and participation and decreased drop-out rate.

Javadein et al. (2008) for their part underline that loyalty is not affected directly by customer satisfaction or service quality but trust and commitment which can be seen as a consequence of the former two. Thus, the authors suggest that the management of a sport center needs to look beyond customer satisfaction and service quality and not just aim to satisfy a customer but to achieve a favorable relative attitude compared to other service providers as all these dimensions combined increase the word of mouth and the likelihood of recommendation. They note that the sport industry faces a unique challenge where customers support not one but multiple service providers simultaneously. However, positive word of mouth can be achieved through success in customer satisfaction as it has a significant influence on spreading word of mouth (Alexandris et al., 2004).

2.2.2 A Brief Review on The Service Quality Models

As previously mentioned, customer loyalty correlates with service quality and customer satisfaction through customers' expectations and perceptions so the higher the customer satisfaction, the higher the loyalty. Service quality of the service provider is examined in various research and the discussion strengthens its role as a key factor of customer loyalty and there is more than one theoretical model developed to measure service quality.

There is not one metric that best predicts customer loyalty, meaning that businesses must take different aspects into account simultaneously (Javadein et al., 2008). The multidimensional element of service quality is acknowledged by Brady & Cronin (2001) in their research of conceptualizing perceived service quality. One of the most acknowledged service quality models, the SERVQUAL model (Parasuraman et al, 1988) assesses five dimensions (tangibles, reliability, responsiveness, assurance, and empathy). This model is referenced and refined in various studies after its release. In return for SERVQUAL, Kim & Kim (1995) suggest QUESC, a tailored model to overcome the weaknesses of SERVQUAL by assessing 12, more specific service dimensions for customer's importance-weighted evaluations: ambiance, employee attitude, reliability, social opportunity, information, programming, personal consideration, privileges, price, ease of mind, stimulation, convenience. Also, they note that their model is more adjustable for industry-specified needs than SERVQUAL is.

The recent research after mid 2000s is pursuing to broaden the conversation from only-company emphasized dimensions (facilities, personnel etc.) to more customer-oriented approach. Brady & Cronin Jr. (2001) propose a hierarchical third-order factor model with three dimensions and their sub dimensions: outcome, interaction, and environmental quality. Although this model has been recommended and utilized in various studies (i.e., Alexandris et al., 2004), it has its contradictions when it comes to different levels of service quality (like different industries) (Polyakova & Mirza, 2016). Alexandris et al. (2004) for their part underline the outcome quality, a dimension related to outcome for the customer after using the service, as an important factor in service quality evaluation and criticize SERVQUAL model for not having it. Polyakova & Mirza (2016) support this research by noting that eliminating outcome from a service quality leaves the model to only consider the dimensions that are controlled by the organization which do not take relevant uncontrollable dimensions into account. They also suggest a new scope for the future fitness industry service quality

models by underlining the importance of recognizing customers' motivations recourses and capabilities to enable service co-creation with the customer. However, this research also forewarns of over-emphasizing the uncontrollable dimensions.

2.2.3 Evaluating The Effectiveness of The Dimensions on Service Quality

In their research of service quality in Korean sport centers, Kim & Kim (1995) found stronger positive correlation between customer satisfaction and the following service quality dimensions: cleanliness, security, programming, and convenient access. In the same research, the employee-related dimensions were found less desirable among the customers. It is worth noticing that a study based on QUESC by Afthinos et al. (2005) for their part highlights the role of personnel aspects among tangibles, costs, and programming in increasing loyalty of the customers of the Greek fitness centers. Both of the studies note that social opportunity related dimensions are less desirable when evaluating service quality.

Hill & Green (2012) note that crowdedness and parking have a direct effect on participation when it comes to single-purpose facilities. However, the authors witnessed an interesting observation: a crowded sport faculty has a positive effect on participation. To consider, this could be explained by the same effect that long night club queues have on people as they can be an indicator of a fascinating atmosphere. This is somewhat opposite of what Kim & Kim (1995) note of programming and convenience as mentioned earlier.

Based on research by Hill & Green (2012) the social opportunities dimension does not significantly affect the participation frequency. Yet, the characteristics of the dimension might not be that unambiguous. Kim & Kim (1995) argue that the effects of social opportunities can vary depending on the country and culture of the sport center as they found it undesirable in their research of Korean sport faculties but opposite to Hill & Green (2012), noted its influence in the West.

Some of the research into customer satisfaction and service quality also covers a tennis club or center context. For example, Kölbl et al. (2022) showed that there is a positive correlation between the atmosphere and facilities of the club and member satisfaction. However, they also make an interesting observation about the quality of the courts as the improvement beyond the expected levels does not affect overall customer satisfaction. This is in line with Anderson & Sulivan (1993) who state that the impact of failing expectations is greater than exceeding expectations.

Within some sports centers, like Tali Tennis Center, there are cafeterias located inside the faculties. As a cafeteria can be an expensive investment for a company whose core business is in sports services, it evokes an interesting question of its effects on service quality and customer satisfaction. Hill & Green (2012) argue that serving food and beverages influences participation frequency indirectly through increased program attractiveness.

2.2.4 Overview of Actions to Improve Service Quality

When it comes to improving service quality to achieve higher loyalty, the management of a tennis center needs to recognize different customer types in the light of how familiar a customer is with the sport. Psychological Continuum Model (PCM) (Funk & James, 2001) suggests four stages that describe the progress of how individuals adapt a sport or a team. In the first stage, Awareness, a person forms a connection between the sport and themselves by recognizing its existence. This appears for example by a suggestion from an acquaintance. Attraction is the second stage where a person indicates an interest in a sport, or a team and it is based on social situation and hedonic motives like a child choosing a football club based on what club their parents support. In the third stage, Attachment, the attraction has evolved into a firm psychological connection. The authors also argue that the attachment is derived from intrinsic motivation rather than extrinsic motivation, which is a sign of a more self-determined relationship according to the SDT (Ryan & Deci, 1985, 2000). The final stage is called Allegiance in which a person is fully adapted to a sport, or a team and it influences a person’s behavior.

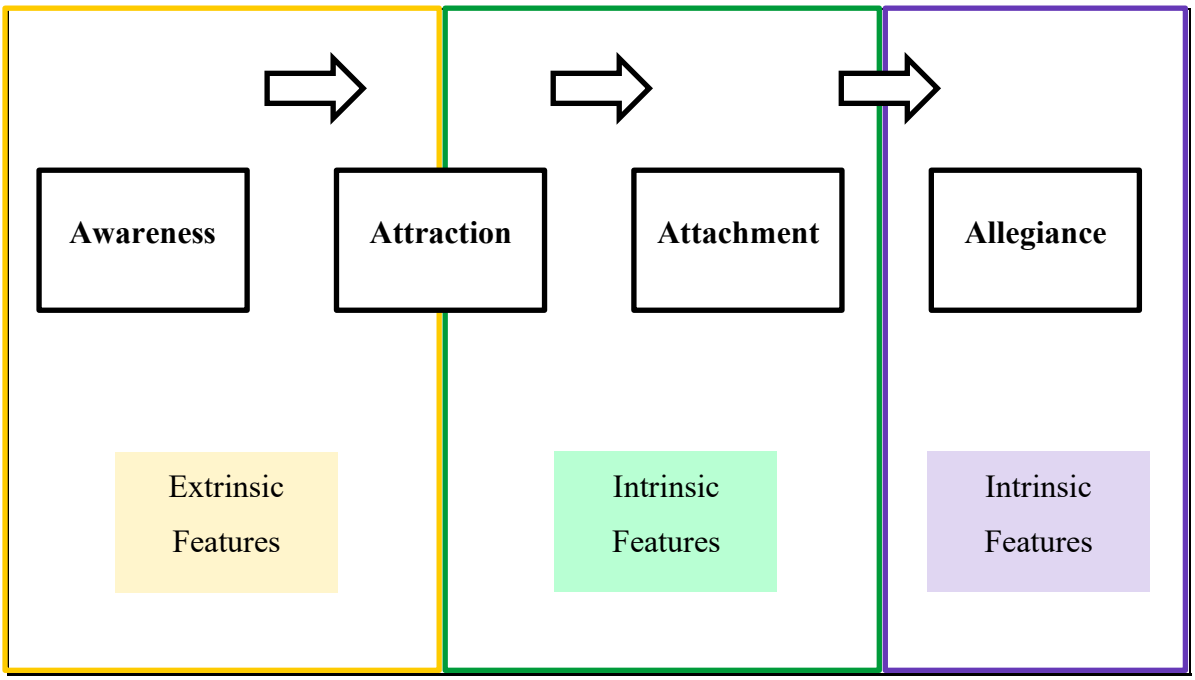

Figure 8. The Psychological Continuum Model (PCM) by Funk & James (2001)

Harazin et al. (2022) used utilized PCM in their research of sport involvement within Hungarian tennis players and tennis clubs and found out that although tennis centers are managing marketing operations for awareness stage, they lack tools for attraction stage. The authors argue that this leads to missed opportunities in acquiring more established players stating that improving the Attraction stage marketing, a tennis center can achieve a higher level of involvement and a proficient pass to next stages in PCM. This is an interesting observation considering findings by Hill & Green (2012) who noted that some factors that influence participation frequency like social opportunities, loyalty and sportscape factors occur only after the decision of attending the activity. Thus, these factors are the ones to consider in the attraction stage in the PCM model.

2.3 Customer Segmentation

To increase the sport consumer experience, it is crucial for a sport center to maintain its absorptive capacity for external knowledge (Cepeda-Carrión & Cepeda-Carrión, 2017). When it comes to successful marketing activities, the companies need to utilize both product differentiation and market segmentation in their marketing strategy (Smith, 1956). Customer

segmentation has been a popular area of research from the mid-20th century and there are several relevant sources for sport center customer segmentation as well.

The customer base of a sport center is not homogeneous when it comes to motives of a customer (i.e., Luna-Arocas & Tang, 2005; Kim & Kim, 1998). Kim & Kim (1998) note that customer satisfaction of a sport center can be maximized by developing tailored products or services by taking differences of the member groups into account and an important step to accomplish that is to identify different customer segments. This is supported by Luna-Arocas & Tang (2005) who argue that a company should develop different kinds of programs for different motivation profiles rather than pursuing one program for all and constantly monitor that customers' changing needs are met.

There are differences in results within sport center customer segmentation studies and understandably researchers may have different approaches on market segmentation in validation of survey patterns and dimensions. Some customer segmentation research is done specifying service quality aspects.

Kim & Kim (1998) examined sport center segmentation based on attitudes toward service quality and found out five segments that differ in terms of service quality aspects. Facility-Conscious segment members are influenced by the facility, for example in terms of its modernity, size, lighting, and cleanness. Goal-Oriented customers are motivated by their goals and are less social-oriented. Convenience-Seeking pictures a customer who is influenced by convenience aspects. Personal Gratification-Seeking segment is motivated by personal services like personal fitness counselling and privilege to bring guests but are not pedantic on personnel and the facility. Employee Behavior -Conscious cluster are expecting high quality customer service from the personnel without worrying about the price.

Texeira & Correia (2009) on their side identify three somewhat customer satisfaction influenced segments in their study on fitness centers in Portugal denominated as the "happy consumer", the "unhappy consumer", and the segment of unmarried and unattached consumers.

In their research of segmenting sport center clients in Spain, Luna-Arocas & Tang (2005) identifies five motivation profile segments. Non-Competitive Leisure-Oriented segment consists of customers who are willing to do their own things and do not want to be bothered. The customers in the Practical Social Entertainers segment are interested in social events like happy hours etc. and the main reason for their exercise is escaping from everyday

life. Affective Users are significantly motivated by the positive effect of the sport which is an intrinsic motive and exercise for the entertainment and feeling good. Enthusiastic Sportspersons are motivated by both intrinsic and extrinsic motives and have the highest enthusiasm. Passive Participants are simply motivated by none of the assessed motives (intrinsic nor extrinsic) and can be categorized as amotivated participants.

Table 1: Sport Center Customer Clusters by Luna-Arocas & Tang (2005)

Cluster	*Intrinsic motives*	*Extrinsic motives*	*Amotivation*
-Competitive Leisure -Oriented Exercisers	X		
Practical Social Entertainers	X	X	
Affective Users	X		
Enthusiastic Sportspersons	X	X	
Passive Participants			X

Also, one way to approach customer segmentation is to pursue segmenting clients who have or have a tendency to drop out from the sport to understand the qualities of these segments to prevent future leaks in the customer base. Teva-Villén et al. (2014) found two clusters of clients who had dropped out from a sport center in Spain stating that higher educated female customers have a higher drop-out level.

When looking at the findings of the most loyal customer groups, Luna-Arocas & Tang (2005) note that their cluster Enthusiastic Sportspersons have the strongest motivation. This cluster consists mostly of single men, under age 30, who visit the sport center four times a week. Angosto et al. (2020) also conclude that male have the highest degree of motivation adding that their university education also influences the participation. These findings are similar to ones by Bollók et al. (2011) who argue in their research of sport motivation of young adults that the most active young adults are characterized by emphasizing achievements and approval from peers and acquaintances rather than believing in the pleasure from sport itself like inactive young adults.

In tennis context, Harazin et al. (2022), note a link between playing level and playing frequency which is also confirmed by Crespo & Reid (2007) in their research of tennis motivation. This could be explained by SDT which suggests that competence – when an individual feels to have a proficiency to do something well – is one of the innate needs to be satisfied (Ryan & Deci, 1985, 2000). In addition to improving performance, Crespo & Reid (2007) for their part find the following motives meaningful for individuals' involvement in tennis: keeping physically fit and socializing. They also acknowledge the importance of atmosphere and level of coaching in participation, and state extrinsic motives as rewards and feeling popular and important less significant factors. This is in line with Kölbl et al. (2022) who, as mentioned before, found a positive relation between facilities and atmosphere of the club and customer satisfaction.

These previous findings about the characteristics of the loyal customer segments are in line with the SDT theory-based research that suggest that intrinsic motivation is a stronger form of motivation than extrinsic motivation (Ryan & Deci, 1985, 2000). This observation is also in line with Vallerand (2007) who argues that although researchers have ended up in different numbers of motivation clusters in their conclusions of sport motivation, the findings on the positive outcomes of high self-determination are present throughout the studies. However, digging deeper into sub-segments reveals differences in motivation too.

Differences between genders as sports center clients have been noted often in the research of sports center customer segmentation. Afthinos et al. (2005) argue that among all the variables affecting the expectations of a customer, gender is the most important by identifying several significant differences in their research. Their research shows that female customers expect more from the service quality and are more critical towards personnel. However, like Afthinos et al. (2005) also note, the findings of earlier research by Kim & Kim (1998) are vise-versa arguing that male tend to be more easily affected by the personnel as they encapsulate that from their five identified clusters, the facility-conscious, goal-oriented, and the convenience-seeking segments tend to be female customers while personal gratification-seeking and employee behavior conscious segments tend to be male.

When it comes to differences in sport motivation aspects between genders, it is widely argued that female athletes demonstrate more intrinsic motivation than male athletes (i.e., Fortiet et al., 1995; Pelletier et al., 1995) which is in line with motivation differences generally between genders (i.e. Vallerand & Bissonnette, 1992; McGeown et al., 2012;

Vecchione et al., 2014). Fortier et al (1995) note that female athletes are more self-determined than male athletes as they demonstrate motivation regulated by identification. Arguably, this can be supported by Pelletier et al. (1995) who found that female athletes scored higher than male athletes on the intrinsic motivation subscales in the SMS.

In the light of these findings, it raises questions of why male tend to be the most active participants in sports centers as previously mentioned (i.e., Luna-Arocas & Tang, 2005; Angosto et al., 2020) as self-determined motivation is widely argued as the strongest form of motivation. However, Angosto et al. (2020) note that this might be due to structural barriers that women still face like housework or childcare. This aspect is also examined by Kim & Kim (1998) who argue that majority of mid-age married women have to exercise in the morning hours. However, as the authors note, this might be due to cultural differences between Koreans and the west.

Bollók et al. (2011) note in their research about sport motivation of students, that while masculine factors like competition, contest, victory and exceeding oneself were important for male students, female students were influenced more by external adequacy and others' opinions. These conclusions interestingly mirror Social Influence Theory as it seems that according to this research male students tend to be affected by compliance influence whereas female students are influenced by identification.

Based on the literature review, the age of a customer is not an unambiguous explanator in customer segmentation. Some researchers note that the fitness center clients share the same desires in spite of the age group they belong to (e.g., Afthinos et al., 2005; Kim & Kim, 1995 & 1998). This may be partly attributed to the importance of physical exercise for all the age groups like Texeira & Correira (2009) argue in their research.

Luna-Arocas & Tang (2005) on their side state that older fitness center clients visit the center for intrinsic, and only intrinsic reasons as they face growing need for physical exercise and speculate that exercising becomes less satisfying when growing older. The authors also note that sport center clients may change from one motivational cluster to another while ageing. The age differences in motivation are also discussed in the research by Bollók et al. (2011) who argue extrinsic and intrinsic motivations are not identical between different age groups within young adults and teenagers as the puberty age may affect the motivation.

There is only so much research on customer segmentation within tennis center clients. However, Konstantions (2013) examined segmentation of recreational tennis players according to their involvement level through cluster analysis which makes the study an important benchmark and a comparable instance for this thesis.

Table 2: Sport Center Customer Segments Identified by Different Authors

	Segment 1	*Segment 2*	*Segment 3*	*Segment 4*	*Segment 5*
Kim & Kim (1998)	Facility-Conscious	Goal-Oriented	Convenience-Seeking	Personal Gratification-Seeking	Employee Behavior Conscious
Texeira & Correia (2009)	Happy Consumer	Un-happy Consumer	Unmarried and Unattached		
Luna-Arocas & Tang (2005)	Non-Competitive Leisure-Oriented	Practical Social Entertainers	Affective Users	Enthusiastic Sportspersons	Passive Participants

3 Methodology

This chapter covers the methodology of the thesis by introducing the background for choosing the method and the basic features and qualities of it. The chapter is divided into three parts consisting of literature review methods, collection of the empirical data and analysis of the empirical data. The selected method for the collection of the empirical data is a direct survey. For analysis of the data, Principal Component Analysis (PCA), K-means cluster analysis, and ANOVA were selected as methods. This study utilizes SPSS program in all of the calculations. Besides introducing the methods, the purpose of this chapter is also to provide an explanation for the utilization of the methods.

3.1 Literature Review Data

Because of the wide variety of available sources, the literature is gathered mainly from acknowledged academic journals. The minority of literature consists of books and online articles. The main sources and search engines for the literature are Google Scholar and Web of Science enabled by Aalto University. The journal evaluation scoring system by Finnish Julkaisufoorumi is used to evaluate the journals to maintain a good academic level for the literature review.

3.2 Collection of Empirical Data

The empirical data was collected in the spring of 2022 solely via direct survey by Tali Tennis Center and Taivallahti Tennis Center, which is practically a subsidiary hall for Tali, and it was delivered to the author in its entirety without any manipulation. Because of the large and versatile customer base, the management of the company was able to organize a comprehensive direct survey online.

The survey consisted of 33 questions covering areas of demographics, preferences, satisfaction, and future wishes of the customer. The questions were chosen by the company and the author was not involved in designing the questionary. Categorial questions were used for all except satisfaction questions which were scaled from one to five (1 = very bad, 5 = very good), willingness to pay which was an unlimited numeric question, and written feedback.

There were not any restrictions on who could answer the survey and the final number of participants was 1026 customers. The selected method of direct survey has its advantages and disadvantages for measurements of different factors. For example, when it comes to measuring willingness-to-pay, direct survey can be seen as cost and time-effective method and enables individual level estimations, but among the benefits there are disadvantages when asking a customer to state a price for a service like overstating or understating (Breidert et al., 2006). However, the individual level estimation is beneficial for cluster analysis, making direct survey an optimal choice for this thesis.

3.3 Analysis of Empirical Data

3.3.1 Data Manipulation

As mentioned, the data for this thesis was not collected by the author but Tali Tennis Center and Taivallahti Tennis Center. Thus, the analysis of data began with essential data manipulation. Because this study focuses on the customer base of Tali Tennis Center, all questions related to Taivallahti Tennis Center were removed from the data. The categorial questions were transformed into binary data to enable numerical analysis. SPSS is utilized for transforming data in string format to numeric format.

Table 3: The Definiton of the Variable Groups After Data Manipulation

Variable Group	*Variable Types*
Demographics	Continuous/Nominal
Preferences	Continuous/Nominal
Satisfaction	Scale
Motivation	Nominal

The data contained missing values in some of the variables and an item mean replacement method was chosen and used for satisfaction variables as some of the variables had a higher missing value rate as the other option of person mean substitution would have been less reliable in that case (Downey & King, 1998).

3.3.2 Principal Component Analysis

Again, because the questionnaire was not designed specifically for this thesis and its research questions, a set of actions were required to make the data set as utilized as possible. The method after the basic data manipulation that was utilized is Principal Component Analysis, which is a popular and widely used multivariate analysis method (Jolliffe, 2021). PCA is a method that is used to reduce the dimensionality and to increase interpretability without a fear of significant information loss (Jolliffe & Cadima, 2016). Abdi & Williams (2010), state four goals of PCA:

1. Extraction of the relevant data
2. Compression the data
3. Simplification of the data description
4. Analysis of the data structure

The final goal of the analysis is to form motivational clusters from the responders and analyze them in terms of customer satisfaction, demographics, and preferences. Instead of using the original motivation variables, the principal components are used as variables for cluster analysis, which is an effective technique for K-means clustering (Ding & He, 2004). When it comes to succeeding in cluster analysis, it's important to use relevant variables. Using even a small number of irrelevant variables can damage the outcome so that the clusters become invalid (Punj & Stewart, 1983). As the motivation variables are not determined by the author, it's crucial to know the relevancy of the variance of the specific variables. The motivation variables are binary variables, but because of their ordinal type (1 = motivated by this element, 0 = not motivated by this element), they can be used as inputs to PCA (Kolenikov et al, 2004).

3.3.3 K-Means Cluster Analysis

The goal of the study is to find customer segments based on intrinsic and extrinsic motivations of the customers. This study utilizes K-Means cluster analysis. The first action is to find out the number of the clusters via looking into the iteration history and characteristics of the clusters when trying out different K-values. The results showed that

the k-means is most efficient with two or three clusters. There are no big differences in iterations between two or three clusters, but however the clusters are more describable (intrinsic cluster and extrinsic cluster) when using two clusters.

Cluster analysis is an exploratory method that is used to group objects based on their similarities, and it is an effective technique for market segmentation (Saunders, 1980). The main difference between cluster analysis and other classification methods like discriminant analysis and automatic interaction detection is that there are no assumptions about the data before the actual analysis.

There are several different clustering techniques and K-means clustering was selected for the principal clustering technique. The use of K-means cluster analysis is reviewed based on four factors by Fränti & Sieranoja (2018) in their study about K-means clustering. They state that K-means clustering works better when:

1. Clusters overlap (the most important factor)
2. The number of clusters is small
3. The clusters are well separated
4. The size of the clusters not strongly unbalanced

Firstly, the principal component analysis indicates that there is overlap between the principal components and thus, K-means is a justifiable technique. Also, the number of clusters is two, which rationalize the use of K-means. The clusters are also well separated (see table 6). Finally, as can be seen in table 8, the size of the clusters is not *strongly* unbalanced, although the other one is bigger than the other.

Hartigan & Wong (1979) describe K-means clustering as follows: “The aim of the K-means algorithm is to divide M points in N dimensions into K clusters so that the within-cluster sum of squares is minimized.”. Thus, In K-means technique, it’s essential to define the number of K’s (clusters) to achieve the optimal outcome. This can be done in several ways starting from manually trying out different clusters for the analysis.

3.3.4 ANOVA

After the clusters are formed and pictured based on their characteristics, the final part of the empirical study is to analyze and compare the clusters to other variables to seek answers to

research questions. For this, analysis of variance (ANOVA) is selected for a method. ANOVA is a popular statistical method, which is developed to analyze group means and variances using the statistic F (ratio between and within group variances) (Kim, 2017). ANOVA is utilized to analyze the differences between clusters on the following aspects: demographic variables (to extend the characteristic of the clusters), customer satisfaction, and willingness to pay. Within this method, the significance of variables is also tested with p-levels.

3.3.5 Summary of The Methodology

The purpose of this chapter was to introduce and justify the research methods of the study. The purpose of the selected methodology is to contribute to the theory introduced in the literature review part. Firstly, PCA & cluster analysis forms the first key element of the research goal of this study by revealing the motivational clusters from the data and analyzing these clusters. The other key element of our research goal is to answer the research questions of how these motivational clusters differ when it comes to customer satisfaction and willingness to pay, which is executed with ANOVA.

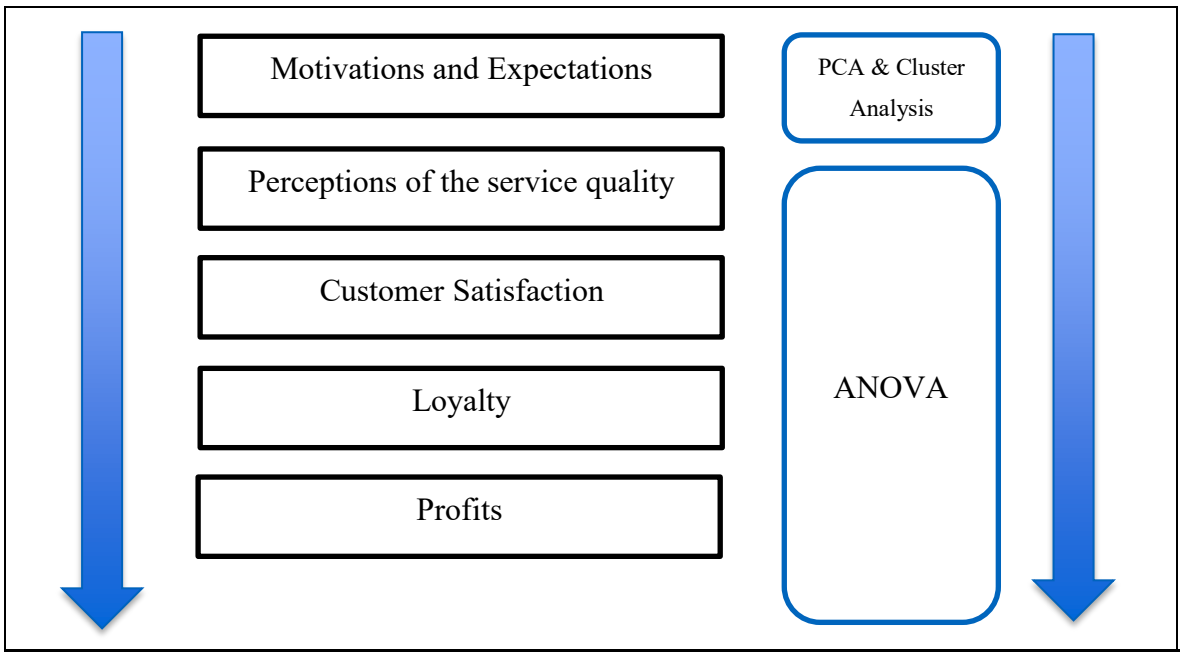

Figure 9.Analyzing the Progress of Creating Customer Loyalty in the Empirical Part of The Study

4 Findings

In this chapter, the findings of the study are revealed and reviewed. Based on the earlier literature and author's observations, the hypotheses of the study are:

1. Age is not significant factor when it comes to motivation
2. Female customers demonstrate more intrinsic motivation than male customers
3. Customer satisfaction is stronger within intrinsically motivated customers
4. Intrinsically motivated customers have higher willingness to pay and frequency of visits

4.1 The Formation of The Motivation Clusters

As mentioned earlier, the questionnaire was not designed or gathered by the author. Thus, principal component analysis (PCA) was conducted to examine the important components for the cluster analysis. The analysis resulted in three principal components with initial eigenvalues over 1. Although the cumulative variance settled in just over 50%, the components are clearly separable and characterized, and thus, can be utilized in cluster analysis.

Table 4: Principal Component Analysis: Total Variance Explained

	Initial Eigenvalues			*Extraction Sums of Squared Loadings*			*Rotation Sums of Squared Loadings*		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.817	28.169	28.169	2.817	28.169	28.169	1.861	18.606	18.606
2	1.173	11.725	39.894	1.173	11.725	39.894	1.752	17.518	36.125
3	1.058	10.581	50.475	1.058	10.581	50.475	1.435	14.351	50.475
4	.916	9.164	59.640						
5	.780	7.797	67.437						
6	.762	7.617	75.053						
7	.665	6.645	81.698						
8	.652	6.516	88.215						
9	.632	6.321	94.536						
10	.546	5.464	100.000						
$p < .001$, KMO = .790									

Rotated component matrix with kaiser normalization was used to picture the components by the factor loading values. *Intrinsic Component* received highest factory loadings from three intrinsic motivation variables. *Extrinsic Component 1* consists of variables that can be connected with the communality and traditional nature of the sport. *Extrinsic Component 2* is a mixture of communality and competition variables.

Table 5: Rotated Component Matrix with Kaiser Normalization

*Threshold level .420	Component		
Binary Motivation Variable	*Intrinsic Component*	*Extrinsic Component 1*	*Extrinsic Component 2*
Tennis is a good way to develop physical condition and maintain health	.738		
Tennis is a year-round sport	.689		
Tennis engenders experiences, joy, and wellbeing	.605		
Challenge of the sport and skill development			
A way to network		.678	
Possibility to play tennis anywhere in the world		.664	
The history and traditions of the sport fascinates		.616	
Tennis can be played together with people with different ages and sexes (i.e. family)		.531	
Competing and self-challenge			.746
I meet new friends/people within tennis			.673

The K-means cluster analysis resulted in two clusters *Intrinsically motivated Cluster* and *Extrinsically motivated* cluster with sizes of 662 and 364 customers respectively. The final cluster centers (see Table 6) show the differences in principal component loadings between the clusters and especially *Intrinsic Component* and *Extrinsic Component 1* differ significantly. On the other hand, as can be seen, *Extrinsic Component 2* does not separate the clusters as much as the other components.

Table 6: Final Cluster Centers

	Intrinsically motivated Cluster	*Extrinsically motivated Cluster*
Intrinsic Component	.593	-1.078
Extrinsic Component 1	-.222	.403
Extrinsic Component 2	-.054	.098

ANOVA analysis shows that all of the principal components are significant and thus, arguably included in the cluster analysis. However, *Extrinsic Component 2* differs from the others in terms of significance and mean squares. The analysis also indicates that *Intrinsic Component* is the most significant component in the cluster analysis with an F value of 1818.771.

Table 7: ANOVA for Cluster Components

	Cluster Mean Square	*Error Mean Square*	*F*	*Sig.*
Intrinsic Component	655.783	.361	1818.771	<.001
Extrinsic Component 1	91.784	.911	100.713	<.001
Extrinsic Component 2	5.374	.996	5.397	.020

To add more demographic and other types of characteristics to the clusters, cross tabulation is utilized (see table 8). Of seven selected variables, four turned out to be statistically significant. The variables that were left out because of the low significance are age, mean of visits and participation in tournaments. In terms of these results and to answer one of the research questions *"What types of motivation profile groups in sport center customer base?"*, the final cluster descriptions are the following:

Intrinsically motivated Cluster

This cluster consists of intrinsically motivated customers. Female customers are overrepresented (40.8% > 37.1%) and male customers in turn are underrepresented (58.9% < 62.7%). The cluster members represent more likely lower income classes (yearly income 0 - 30 000 €, 10.6% > 8.2% or 30 001 – 60 000 €, 31.1% > 27.9%) than extrinsically motivated customers. The members are also more likely to answer the question of yearly income. Intrinsically motivated customers seem to divide quite evenly between different spending categories. However, compared to extrinsically motivated customers, they are underrepresented in the highest spending categories. Just like in yearly income question, the customers in this cluster are more likely to answer the question of yearly spending. Intrinsically motivated customers participate in coaching more likely (38.2% > 35.5%).

Extrinsically motivated Cluster

This cluster consists of extrinsically motivated customers. In this cluster, male customers are overrepresented (69.5% > 62.7%) and female underrepresented (30.5% < 37.1%). When it

comes to yearly income, extrinsic cluster members are clearly underrepresented in the lowest income class (yearly income 0 – 30 000 €, 3.8% < 8.2 %). Extrinsically motivated customers are also more likely to be included in the highest spending categories (yearly spending for tennis 5001 – 10 000 €, 9.1% > 4.7% or 90 000 - €, 1.6% > 1.2€) However, the missing value rate for both of the variables is relatively high within this cluster (36.8% > 25.3% and 22.3% > 10.9% respectively). Extrinsically motivated customers do not participate in coaching as much as intrinsically motivated.

Table 8: Cross Tabulation Results

		Cluster 1 *Intrinsically motivated n = 662*	Cluster 2 *Extrinsically motivated n = 364*	*Total*
Gender (P=.002)				
Female	Count	270 (40,8%)	111 (30.5%)	381 (37.1%)
	Expected	245.8	135.2	
Male	Count	390 (58.9%)	253 (69.5%)	643 (62.7%)
	Expected	414.9	228.1	
Yearly Income Before Taxes (p < .001)				
Not answered	Count	126 (19%)	134 (36.8%)	260 (25.3%)
	Expected	167.8	92.2	
0 – 30 000 €	Count	70 (10.6%)	14 (3.8%)	84 (8.2%)
	Expected	54.2	29.8	
30 001 – 60 000 €	Count	206 (31.1%)	80 (22.0%)	286 (27.9%)
	Expected	184.5	101.5	
60 001 – 90 000 €	Count	139 (21.0%)	68 (18.7%)	207 (20.2%)
	Expected	133.6	73.4	
90 000 – €	Count	121 (18.3%)	68 (18.7%)	189 (18.4%)
	Expected	121.9	67.1	189.0
Yearly Spending for Tennis (p < .001)				
Not answered	Count	31 (4.7%)	81 (22.3%)	112 (10.9%)
	Expected	72.3	39.7	
0 – 500 €	Count	133 (20.1%)	54 (14.8%)	187 (18.2%)
	Expected	120.7	66.3	
501 – 1000 €	Count	176 (26.6%)	74 (20.3%)	250 (24.4%)
	Expected	161.3	88.7	
1001 – 2500 €	Count	219 (33.1%)	77 (21.2%)	296 (28.8%)
	Expected	191.0	105.0	
2501 – 5000 €	Count	82 (12.4%)	39 (10.7%)	121 (11.8%)
	Expected	78.1	42.9	
5001 – 10 000 €	Count	15 (2.3%)	33 (9.1%)	48 (4.7%)

	Expected	31.0	17.0	
10 000 – €	Count	6 (0.9%)	6 (1.6%)	12 (1.2%)
	Expected	7.7	4.3	
Participation in Coaching (p = .013)				
No	Count	409 (61.8%)	253 (69.5%)	662 (64.5%)
	Expected	427.1	234.9	
Yes	Count	253 (38.2%)	111 (30.5%)	364 (35.5%)
	Expected	234.9	129.1	
** For Yearly Income Before Taxes and Yearly Spending for Tennis variables the missing value rates are 25.3% and 10.9% respectively* **Age** (p = .487), **Participation in Tournaments** (p = .209)				

4.2 ANOVA Findings

ANOVA analyses (see table 9) was conducted to compare the two clusters in terms of customer satisfaction and willingness to pay to answer the research questions *"Which motivation profile groups have the highest level of customer satisfaction?"* and *"Which motivation profile groups have the highest loyalty and willingness-to-pay within tennis center clients?"*.

Of the satisfaction variables, four out of thirteen variables were statistically significant with p values under .05. The results argue that *Intrinsically motivated Cluster* has higher levels of customer satisfaction in all of the significant areas that are *Stars Given Overall*, *Finding a Parking Lot*, *Product Range at The Café,* and *Service at The Café*. As can be seen in the table, the satisfaction levels are higher within the intrinsic motivation group also in non-significant variables. The difference in satisfaction between the clusters is not that great but, however, the fact that it's constantly higher in another group makes it significant. Thus, it can be argued that customer satisfaction is higher with intrinsically motivated customers than extrinsically motivated customers.

The mean of visits, which indicates customer loyalty is not significant factor between motivation groups with p level of .906. When it comes to willingness to pay, the p level was over .05 and thus, the results were not statistically significant. Thus, at least this study can't prove that there are any differences between intrinsic and extrinsic customers in loyalty nor willingness to pay.

Table 9: ANOVA Results of Satisfaction and Willingness to Pay

		Mean	*Std. Deviation*	*Std. Error*
Satisfaction Variables				
Stars Given Overall	**Cluster 1 (Intrinsic)**	**3.931**	**.6607**	**.0257**
p = .016	**Cluster 2 (Extrinsic)**	**3.834**	**.6028**	**.0316**
Booking a court	Cluster 1 (Intrinsic)	4.199	.8555	.0333
p = .133	Cluster 2 (Extrinsic)	4.115	.8415	.0441
Finding a Parking Lot	**Cluster 1 (Intrinsic)**	**4.088**	**.7778**	**.0302**
p < .001	**Cluster 2 (Extrinsic)**	**3.903**	**.7726**	**.0405**
Service at The Reception	Cluster 1 (Intrinsic)	4.500	.6424	.0250
p = .787	Cluster 2 (Extrinsic)	4.489	.5707	.0299
Atmosphere at The Center	Cluster 1 (Intrinsic)	4.043	.7620	.0296
p = .310	Cluster 2 (Extrinsic)	3.993	.7516	.0394
Atmosphere at The Café	Cluster 1 (Intrinsic)	3.633	.7390	.0287
p = .175	Cluster 2 (Extrinsic)	3.567	.7517	.0394
Product Range at The Café	**Cluster 1 (Intrinsic)**	**3.519**	**.6457**	**.0251**
p = .049	**Cluster 2 (Extrinsic)**	**3.435**	**.6659**	**.0349**
Service at The Café	**Cluster 1 (Intrinsic)**	**4.138**	**.6260**	**.0243**
p = .009	**Cluster 2 (Extrinsic)**	**4.028**	**.6767**	**.0355**
Service at The Pro Shop	Cluster 1 (Intrinsic)	4.280	.6480	.0252
p = .480	Cluster 2 (Extrinsic)	4.250	.6320	.0331
Product Range at The Pro Shop	Cluster 1 (Intrinsic)	4.044	.6330	.0246
p = .164	Cluster 2 (Extrinsic)	3.987	.5985	.0314
Communications	Cluster 1 (Intrinsic)	4.011	.6588	.0256
p = .176	Cluster 2 (Extrinsic)	3.955	.5804	.0304
Office Services	Cluster 1 (Intrinsic)	4.072	.5427	.0211
p = .134	Cluster 2 (Extrinsic)	4.018	.5641	.0296
Charging Points for E-cars	Cluster 1 (Intrinsic)	3.51	.507	.020
p = .079	Cluster 2 (Extrinsic)	3.45	.503	.026
Willingness to Pay				
WTP	Cluster 1 (Intrinsic)	28.26	9.562	.372
p = .144	Cluster 2 (Extrinsic)	29.15	8.791	.461
Mean of Visits				
Mean of Visits	Cluster 1 (Intrinsic)	3.26	.921	.036
p = .906	Cluster 2 (Extrinsic)	3.25	.923	.054

5 Discussion

In this chapter, the results of this study are discussed in light of the previous literature as well as managerial implications. This chapter is divided into sub chapters based on the topic.

5.1 Theoretical Implications

This sub chapter discusses the results of cluster analysis and compares them with results from earlier literature.

This study argues that customers can be divided into intrinsic and extrinsic clusters and thus offers support for self-determination theory (Ryan & Deci, 1985, 2000). However, the hypothesis of intrinsic motivation furthering frequency of visits was not observed and thus this study is not able to support the findings of previous literature (i.e., Luna-Arocas & Tang, 2005, Ryan & Deci, 2000). It could be argued that the popularity of the sport and limited availability of tennis courts might cause biased results in this study as customers are not able to book a court every time they would want to. Also, the hypothesis of higher willingness to pay among intrinsically motivated customers is not accepted as there was no significant correlation between the motivation group and WTP.

The results of this study are in line with the studies that argue that age is not an unambiguous explanator (e.g., Afthinos et al., 2005; Kim & Kim, 1995 & 1998) as this study did not find statistical significance between age and motivation type. Then again, Luna-Arocas & Tang (2005) found a strong connection between intrinsic motivation and older fitness center customers which could not be proven in this study.

Of all the respondends 37.1% are female and 62.7% male, which is close to the distribution of the study by Luna-Arocas & Tang (2005). This study argues that female customers demonstrate higher intrinsic motivation than male customers which is in line with the previous studies (i.e., Fortiet et al., 1995; Pelletier et al., 1995, Vallerand & Bissonnette, 1992; McGeown et al., 2012; Vecchione et al., 2014).

Based on earlier literature, male customers tend to be the more active than female customers (i.e., Luna-Arocas & Tang, 2005; Angosto et al., 2020). However, this study did not find a significant difference between intrinsically motivated customers (females overrepresented) and extrinsically motivated customers (male overrepresented). Even when looking at differences between the gender of the respondents (not via motivation clusters) significance did not exist.

Overall, the satisfaction levels between *Intrinsically motivated Cluster* and *Extrinsically motivated Clusters* are desirable (*Stars Given Overall* 3.931 and 3.834 respectively). However, intrinsically motivated customers demonstrate higher levels of customer satisfaction in all of the significant satisfaction variables which is in line with observations from White (2015). Thus, one could argue that female customers (who are more likely intrinsically motivated) have overall higher customer satisfaction as sport center clients.

5.2 Managerial Implications

This study provides knowledge of motivation differences in sport center customer base that can benefit all kinds of sport and fitness centers globally. Firstly, willingness to pay does not seem to be attached to the form of customers' motivation. Thus, managements of the sport centers do not need to consider motivation of the customers in terms of monetary differences between intrinsic and extrinsically motivated customers but concentrate on customer satisfaction to receive a higher level of overall willingness to pay.

Sport center managers should pay extra attention to the extrinsically motivated customers as it is more challenging to keep them satisfied compared to intrinsically motivated customers. As it seems that extrinsically motivated customers are interested in networking, making new friends, and meeting new people, managers could organize different kinds of low-threshold events for the customers. These events do not need to be directly tennis tournaments as it was shown that competition is not a dividing variable between the motivation clusters. However, it seems that overall, there are fewer extrinsically motivated customers so managers should maintain understanding of division in their organizations to estimate necessity of these actions.

Finally, the management of a sport center should frequently organize a customer questionnaire or other forms of inquiries to be able to monitor changes within their motivational customer segments. Constant monitoring enables flexibility in the business to react and reform the shape of a business if needed. The sample size does not have to exceed two hundred respondents as Luna-Arocas & Tang (2005) demonstrated in their study and thus the questionnaires could be organized frequently. It is more important to maintain the frequency of questionnaires and customer insights than to organize one questionnaire in a

decade to gather large number of respondents when a smaller number would be statistically significant as well.

5.3 Limitations and Further Research

Most of the relevant literature on motivational aspects and customer segmentation among sports clients is based on surveys in fitness centers which evokes a risk of irrelevancy when comparing the results to tennis center clients. However, this is a problem that all the studies outside the fitness center-based studies will face and it is inevitable to confront it to maintain diversity in studies.

The quality of data is limited in this study as the author was not involved in the planning and structuring of the survey. The motivation variables are binary variables which build challenges in principal component analysis and cluster analysis. It is recommended to use acknowledged scales in questionnaires as, for example, Luna-Arocas &Tang (2005) did in their study.

In the principal component analysis, the three principal components that obtain eigenvalues higher than 1, explain only 50.5% of the total variance (see table 4). Thus, the results and findings should be examined by acknowledging this limitation.

Although differences in how customers value certain kinds of service quality areas play a major role in the theory part of this study. It was almost impossible to examine them with the dataset received from Tali Tennis Center as the questionnaire considered only the perceived service quality through customer satisfaction variables. However, it was still included in the study to provide knowledge of the customer value chain.

For the further research, the role of SDT in the light of customer value creation needs to be further explored in the context of sport centers. The previous research is mostly focused on describing characteristics of different motivation profiles in the customer bases but there is a need for extension. This study can be used as a theoretical framework for furthermore detailed analysis of motivation and customer value creation.

6 Conclusion

This study shows that there are differences between customers when it comes to intrinsic and extrinsic motivation, and it resulted in four main conclusions. Firstly, customer satisfaction is higher for intrinsically motivated customers than extrinsically motivated customers throughout the results although the absolute difference is not considerable. The second conclusion is that the form of motivation is not related to willingness to pay or frequency of visits. Thirdly, female customers demonstrate intrinsic motivation relatively more than male customers. And finally, age is not a significant variable when it comes to motivation.

As with the previous studies about motivation over the decades, this study too proves that intrinsic and extrinsic motivations exist and can be applied to various different areas of society. Behind every action, there is motivation.

References

Afthinos, Y., Theodorakis, N. D., & Nassis, P. (2005). Customers' expectations of service in Greek fitness centers: Gender, age, type of sport center, and motivation differences. *Managing Service Quality: An International Journal*, *15*(3), 245-258.

Alexandris, K., Tsorbatzoudis, C., & Grouios, G. (2002). Perceived constraints on recreational sport participation: Investigating their relationship with intrinsic motivation, extrinsic motivation and amotivation. *Journal of leisure research*, *34*(3), 233-252.

Alexandris, K., Zahariadis, P., Tsorbatzoudis, C., & Grouios, G. (2004). An empirical investigation of the relationships among service quality, customer satisfaction and psychological commitment in a health club context. *European Sport Management Quarterly*, *4*(1), 36-52.

Anderson, E. W., Fornell, C., & Lehmann, D. R. (1994). Customer satisfaction, market share, and profitability: Findings from Sweden. *Journal of marketing*, *58*(3), 53-66.

Anderson, E. W., & Sullivan, M. W. (1993). The antecedents and consequences of customer satisfaction for firms. *Marketing science*, *12*(2), 125-143.

Angosto, S., Berengüí, R., Vegara-Ferri, J. M., & López-Gullón, J. M. (2020). Motives and commitment to sport in amateurs during confinement: a segmentation study. *International journal of environmental research and public health*, *17*(20), 7398.

Bollók, S., Takács, J., Kalmár, Z., & Dobay, B. (2011). External and internal sport motivations of young adults. *Biomedical Human Kinetics*, *3*(2011), 101-105.

Brady, M. K., & Cronin Jr, J. J. (2001). Some new thoughts on conceptualizing perceived service quality: a hierarchical approach. *Journal of marketing*, *65*(3), 34-49.

Breidert, C., Hahsler, M., & Reutterer, T. (2006). A review of methods for measuring willingness-to-pay. *Innovative marketing*, *2*(4).

Churchill Jr, G. A., & Surprenant, C. (1982). An investigation into the determinants of customer satisfaction. *Journal of marketing research*, *19*(4), 491-504.

Crespo, M., & Reid, M. (2007). Motivation in tennis. *British journal of sports medicine*.

Deci, E. L., & Ryan, R. M. (1988). *Intrinsic motivation and self-determination in human behavior*. Springer Science & Business Media.

Ding, C., & He, X. (2004). K-means clustering via principal component analysis. Proceedings of the twenty-first international conference on Machine learning.

Downey, R. G., & King, C. V. (1998). Missing data in Likert ratings: A comparison of replacement methods. *The Journal of general psychology*, *125*(2), 175-191.

Fornell, C., Johnson, M. D., Anderson, E. W., Cha, J., & Bryant, B. E. (1996). The American customer satisfaction index: nature, purpose, and findings. *Journal of marketing*, *60*(4), 7-18.

Fortier, M. S., Vallerand, R. J., Briere, N. M., & Provencher, P. J. (1995). Competitive and recreational sport structures and gender: A test of their relationship with sport motivation. *International journal of sport psychology*, *26*, 24-24.

Funk, D. C., & James, J. (2001). The psychological continuum model: A conceptual framework for understanding an individual's psychological connection to sport. *Sport Management Review*, *4*(2), 119-150.

Harazin, P., Kollár, L. J., & Bába, É. B. (2022). Sport involvement analysis of Hungarian tennis players and tennis clubs. *Journal of Physical Education & Sport*, *22*(9).

Hartigan, J. A., & Wong, M. A. (1979). Algorithm AS 136: A k-means clustering algorithm. *Journal of the royal statistical society. series c (applied statistics)*, *28*(1), 100-108.

Hill, B., & Green, B. C. (2012). Repeat participation as a function of program attractiveness, socializing opportunities, loyalty and the sportscape across three sport facility contexts. *Sport Management Review*, *15*(4), 485-499.

ITF. (2021). ITF Global Tennis Report 2021 A Report on Tennis Participation and Performance Worldwide. Retrieved from http://itf.uberflip.com/ i/1401406-itf-global-tennis-report-2021/0?

Javadein, S. R. S., Khanlari, A., & Estiri, M. (2008). Customer loyalty in the sport services industry: the role of service quality, customer satisfaction, commitment and trust. *Journal of Human Sciences*, *5*(2).

Jolliffe, I. (2022). A 50-year personal journey through time with principal component analysis. *Journal of Multivariate Analysis*, *188*, 104820.

Jolliffe, I. T., & Cadima, J. (2016). Principal component analysis: a review and recent developments. *Philosophical transactions of the royal society A: Mathematical, Physical and Engineering Sciences*, *374*(2065), 20150202.

Kelman, H. C. (1958). Compliance, identification, and internalization three processes of attitude change. *Journal of conflict resolution*, *2*(1), 51-60.

Kim, C. (1998). Segmentation of sport center members in Seoul based on attitudes toward service quality. *Journal of Sport Management*, *12*(4), 273-287.

Kim, D., & Kim, S. Y. (1995). QUESC: An instrument for assessing the service quality of sport centers in Korea. *Journal of Sport Management*, *9*(2), 208-220.

Kim, T. K. (2017). Understanding one-way ANOVA using conceptual figures. *Korean journal of anesthesiology*, *70*(1), 22-26.

Kölbl, K., Blank, C., Schobersberger, W., & Peters, M. (2022). Increasing the willingness to stay–a novel and comprehensive member satisfaction index (MSI) model tested in a leading German tennis club. *The TQM Journal*.

Kolenikov, S., & Angeles, G. (2004). The use of discrete data in PCA: theory, simulations, and applications to socioeconomic indices. *Chapel Hill: Carolina Population Center, University of North Carolina*, *20*, 1-59.

Lee, S. Y. (2017). Service quality of sports centers and customer loyalty. *Asia Pacific Journal of Marketing and Logistics*, *29*(4), 870-879.

Liu, Y.-D., Taylor, P., & Shibli, S. (2013). Utilizing importance data to identify customer segments for English public sport facilities. In *Performance measurement and leisure management* (pp. 55-72). Routledge.

Locke, E. A., & Schattke, K. (2019). Intrinsic and extrinsic motivation: Time for expansion and clarification. *Motivation Science*, *5*(4), 277.

Luna-Arocas, R., & Li-Ping Tang, T. (2005). The use of cluster analysis to segment clients of a sport center in Spain. *European Sport Management Quarterly*, *5*(4), 381-413.

McGeown, S., Goodwin, H., Henderson, N., & Wright, P. (2012). Gender differences in reading motivation: Does sex or gender identity provide a better account? *Journal of Research in Reading*, *35*(3), 328-336.

Parasuraman, A., Zeithaml, V. A., & Berry, L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, *64*(1), 12-40.

Pelletier, L. G., Tuson, K. M., Fortier, M. S., Vallerand, R. J., Briere, N. M., & Blais, M. R. (1995). Toward a new measure of intrinsic motivation, extrinsic motivation, and

amotivation in sports: The Sport Motivation Scale (SMS). *Journal of sport and Exercise Psychology*, *17*(1), 35-53.

Polyakova, O., & Mirza, M. T. (2016). Service quality models in the context of the fitness industry. *Sport, Business and Management: An International Journal*, *6*(3), 360-382.

Punj, G., & Stewart, D. W. (1983). Cluster analysis in marketing research: Review and suggestions for application. *Journal of marketing research*, *20*(2), 134-148.

Reiss, S. (2012). Intrinsic and extrinsic motivation. *Teaching of psychology*, *39*(2), 152-156.

Reiss, S., & Havercamp, S. M. (1998). Toward a comprehensive assessment of fundamental motivation: Factor structure of the Reiss Profiles. *Psychological assessment*, *10*(2), 97.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary educational psychology*, *25*(1), 54-67.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist*, *55*(1), 68.

Saunders, J. A. (1980). Cluster analysis for market segmentation. *European Journal of marketing*, *14*(7), 422-435.

Smith, W. R. (1956). Product differentiation and market segmentation as alternative marketing strategies. *Journal of marketing*, *21*(1), 3-8.

Teixeira, M., & Correia, A. (2009). Segmenting fitness centre clients. *International Journal of Sport Management and Marketing*, *5*(4), 396-416.

Teva-Villén, M. R., Pérez-Ordás, R., Grao-Cruces, A., Tamayo-Fajardo, J. A., Nuviala, R., & Nuviala, A. (2014). Abandono de usuarios en un centro deportivo español: segmentación. *Movimento*, *20*(2), 619-635.

Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. In *Advances in experimental social psychology* (Vol. 29, pp. 271-360). Elsevier.

Vallerand, R. J. (2007). Intrinsic and extrinsic motivation in sport and physical activity: A review and a look at the future. *Handbook of sport psychology*, 59-83.

Vallerand, R. J., & Blssonnette, R. (1992). Intrinsic, extrinsic, and amotivational styles as predictors of behavior: A prospective study. *Journal of personality*, *60*(3), 599-620.

Vallerand, R. J., & Losier, G. F. (1999). An integrative analysis of intrinsic and extrinsic motivation in sport. *Journal of applied sport psychology*, *11*(1), 142-169.

Vecchione, M., Alessandri, G., & Marsicano, G. (2014). Academic motivation predicts educational attainment: Does gender make a difference? *Learning and Individual differences*, *32*, 124-131.

White, C. (2015). The impact of motivation on customer satisfaction formation: a self-determination perspective. *European Journal of Marketing*, 49(11/12), 1923-1940.

Appendix A: Customer Questionnaire

Table A1: Customer Questionnaire

	1	2	3	•••	50	51	52	53
Number	Respondent ID	Age Group	Sex	.	Future wish: Co-player finder service	Future wish: Coaching for physical condition and health	Future wish: Full service team league organized in Tali	Future wish: Online store
1	1,14018E+11	60-69	1	•••	0	0	0	1
2	1,14018E+11	40-49	2	•••	0	0	0	0
3	1,14018E+11	60-69	1	•••	1	0	0	0
4	1,14018E+11	60-69	1	•••	1	1	1	1
5	1,14018E+11	60-69	2	•••	0	0	0	0
•••	•••	•••	•••	•••	•••	•••	•••	•••
1012	1,1401E+11	30-39	2	•••	0	1	1	1
1013	1,1401E+11	16-19	1	•••	0	0	0	0
1014	1,1401E+11	30-39	2	•••	0	0	0	0
1015	1,1401E+11	30-39	2	•••	1	0	0	1
1016	1,1401E+11	40-49	1	•••	0	0	0	0
1017	1,1401E+11	30-39	2	•••	0	0	0	1
1018	1,1401E+11	70-	2	•••	0	0	0	0
1019	1,1401E+11	40-49	2	•••	0	0	0	0
1020	1,1401E+11	30-39	2	•••	0	0	0	1

1021	1,1401E+11	60-69	1	•••	0	0	0	0
1022	1,1401E+11	70-	2	•••	0	0	0	0
1023	1,1401E+11	40-49	2	•••	0	0	0	0
1024	1,1401E+11	40-49	1	•••	0	0	0	0
1025	1,1401E+11	40-49	1	•••	0	0	1	1
1026	1,14009E+11	40-49	2	•••	0	0	0	0