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VIDEO STREAMING SERVICES: WHAT DO CUSTOMERS WANT?

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Abstract

The increasing popularity of video streaming services has been around for some years, challenging traditional media companies to pay close attention to them. Among other aspects, Portugal is one of the European countries where people watch most television content, making it a relevant case to study in terms of these new services. This research analyses consumers' preferences and willingness-to-pay and proposes segments for the streaming services market in Portugal. It employs conjoint analysis to pursue these goals as well as to identify possible avenues for future research. Content was found to be the main driver in opting between services. Keywords: Over-the-top (OTT); video streaming services; Conjoint analysis; Brand choice; Content design.

Introduction

The media and entertainment industry is a constantly evolving field that has been attracting attention for its fast development alongside technology advancements. It involves "*film, print, radio, and television*" and is mainly concentrated (a third of the global industry) in the United States of America (Vault 2020). Since the emergence of the IP technology, end-users (businesses and consumers) were allowed to access the industry in new ways, which are now trivial, but that revolutionized their needs. Nowadays, it is possible to access "*a growing range of services to be consumed online*", which provide value using different business models operating over the Internet (BEREC 2016).

Over-the-top (OTT) services, which the Body of European Regulators for Electronic Communications (BEREC) defines by their type of distribution ("*content, a service or an application that is provided to the end-user over the public Internet*"), are of increasing relevance. According to a study by the Boston Consultancy Group in 2014, OTT services accounted for about one per cent of the world Gross Domestic Product (BEREC 2016). This definition includes social media, news sites, search engines, email services, video and multimedia content, and other services directly provided to the end-user over the Internet.

Video is one of the most well-known usages of OTT. According to Statista (2021), it includes rentals (pay-per-view and single transactions), subscription-based services, digital purchases and video advertising; and does not include traditional television advertising, physical home video (DVDs) and pay-TV (cable or satellite, for example). Essentially, these services can be organized in three different business models: "*time-limited individual rentals (…) (transactional VoD or TVoD), the subscription to a video streaming service (…) with unlimited access to the content offered for the duration of the subscription (subscription VoD or SVoD) and individual purchases (…) as direct downloads (…)*" (Statista 2021). The market is projected

to reach 152 thousand million euros in revenue, in 2021, and grow around 10% until 2025, fuelled by revenue from the United States and China.

This dissertation narrows the object of study to OTT video streaming services, with the intent of understanding the attributes valued by Portuguese consumers, alongside the willingness-to-pay, and the characteristics of the Portuguese market. The overall goal is to comprehend the preferences and decision-making processes, including tradeoffs among features, concerning OTT video streaming services. It adds to the academic literature by studying the Portuguese market and introducing new attributes based on professional insights, willingness-to-pay, and consumer segmentation and classification.

These services are also known as subscription video on demand (SVoD). Despite not being responsible for the major share of the market's revenue, it is a close second (50 thousand million versus 67 thousand million euros from OTT video advertising in 2020). Besides that, it registers the highest growth rate in the market (31,2% in 2020) and is expected to keep leading growth until 2025, according to Statista (2021). In the United States, PwC (2019) understood that most consumers are "*satisfied today*", with traditional alternatives but still "*looking for the next big thing*", meaning that consumers are willing and intend to subscribe to new options.

In Europe, SVoD is considered a "*game changer on the audiovisual market which rapid consumer adoption forced traditional players to adapt and shift their business strategy towards direct-to-consumer services and escalated competition*" (European Audiovisual Observatory 2021). Revenues reached 9,7 billion euros in 2020 (from 12,1 million euros in 2010), a rise fuelled by the entry of Netflix in 2012 and numerous launches in the years after, which consumers adopted easily (a combined increase in supply and demand).

Thus, it is of great relevance to understand more about these services and the preferences in terms of attributes and features they should have. Having been studied in other countries, namely United Stated of America (Lee, et al. 2018), South Korea (Kim, et al. 2017) and China

(Shin, Park and Lee 2016), through the use of conjoint techniques[1], information relative to the Portuguese market is absent. Since Portugal is a European country, with a different socioeconomical and cultural structure in society when compared to American and Asian countries, it is relevant to study the impacts of these differences on consumers' perceptions and needs, concerning the video streaming services market. Also, Portugal is the most "feminine" and the most "uncertainty avoidant" country from the factors that measure intercultural differences among nations (Hofstede Insights 2021). This means that Portugal is a country where quality of life is appreciated and consensus is key, while being dependent on rules, beliefs and institutions to avoid unorthodoxy and uncertainty. Portugal is also the 3rd European country where TV is watched most per day, behind two Eastern European countries (Statista 2018).

This dissertation answered the following research questions: Q1) Which attributes of video streaming services are most valued by Portuguese consumers?; Q2) Are there relevant differences between consumers' preferences in Portugal and in other studied countries?.

In order to answer these questions, a Literature review framed the research, explaining the four exploratory interviews conducted to support the topic, and providing key insights to develop the Methodology, which laid the ground for the study. Afterwards, data was collected, analysed and discusses in the Results. All main findings were summarised in the Conclusion, with some limitations and guidelines for future studies.

Although price may seem the most relevant factor when choosing among options for a country which has undergone economic struggles, this research highlights the greater importance of content and branding, as well as the options to access the catalogue.

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[1] The study developed in the United Stated of America (Lee, et al. 2018) does not use a conjoint technique. However, through a questionnaire, it also collects valid results and draws meaningful conclusions in regard to video streaming services, which was addressed in this dissertation (see Literature review).

Literature review

Non-European consumers' preferences towards OTT video streaming industry

Past studies have analysed several issues and taken different approaches to the OTT video streaming industry, namely business model discussion, regulation and the impact on traditional media industries and services (Shin, Park and Lee 2016). However, for the purpose of the current study, it is especially useful to focus on studies about consumers' preferences.

Lee, et al. (2018) studied the factors affecting online streaming subscription in the United States of America. The study tests if a set of features has a positive or negative relationship with the choice of either online streaming or cable TV. The authors used a survey that collected 131 responses. The data was then analysed through a multiple regression model and led the researchers to believe that, whereas cost was a significant factor when choosing cable TV services, it was not significant for online streaming. It concludes that the available channels are impactful in online streaming and that "*customer service is the main driver to customer satisfaction while social trends persuade the adoption of online streaming*" (Lee, et al. 2018).

A different approach was taken in the Korean market. Shin, Park and Lee (2016) applied the conjoint analysis technique to the OOT video streaming industry. Relying on five attributes ("*real-time broadcasting*", "*terrestrial television broadcasting*", "*newest broadcasting/movie*", "*number of VOD*" and "*monthly fee*"), the research concluded that consumers "*significantly prefer real-time broadcasting services, terrestrial television broadcasting content, and the newest broadcasting/movie (...) they also prefer increases in the available number of VODs*" (Shin, Park and Lee 2016). With the exception of the monthly fee, the real-time broadcasting is the most important factor, according to this research ("*consumers consider OTT services to be another alternative for watching a traditional linear TV service*").

A third study focused on the Korean and Chinese markets in 2017. Using conjoint analysis, Kim, et al. (2017) study the attributes and the willingness-to-pay for OTT video streaming

services. To define the attributes, the researchers decided to select "*competitive features that OTT players are striving towards*", namely "*recommendation system, resolution, viewing options, and price*". It concludes that the Asian market is heterogeneous (e.g. Japan is different from China or South Korea) and that, in the studied markets, consumers are not "*familiar with purchasing the content they consume*", highlighting the importance of appropriate pricing strategies. While, in China, resolution was the most important attribute, in Korea, the quality of the recommendation system was ranked the highest. The study indicates a topic for further discussion: "*Being ranked first by Chinese consumers (1.6 USD) but last by Korean consumers (.6 USD), the resolution attribute poses an interesting topic for discussion. The lack of importance of resolution in Korea could suggest that consumers already enjoy satisfactory picture quality for their video content*" (Kim, et al. 2017).

Portuguese consumers' preferences towards OTT video streaming industry

The first operator in this market in Portugal was Netflix (Matos 2018). According to the company's website (Netflix 2021), it offers "*a wide variety of television series, movies, anime titles, documentaries and other awarded content*" that can be watched without advertisements. Other players have also entered the Portuguese market, as well as Portuguese solutions mainly created by Portuguese media groups (e.g., RTP Play, OPTO and TVI Player), Portuguese TV channels (e.g., FOX Play) and telecommunication companies (e.g., NPlay) (Matos 2018).

As of 2021, the European Audiovisual Observatory (EAO) considers Portugal a country with low SVoD penetration (22% of households), but high pay TV penetration (97% of households). According to Ampere Analysis (quoted in EAO 2021), the main players in the Portuguese market are Netflix (47%), Apple TV+ (21%) and Amazon (13%). The market share results contrast with JustWatch's analysis (quoted in (Ferreira 2020)), as of Q3 2020, that state Netflix leads with 31% of market share, followed by Amazon (22%), HBO Portugal (18%), FOX Play (6%), Disney+ (5%), and Apple TV+ (5%). Applying the Herfindahl-Hirschman Index (a

popular method for measuring market concentration) and considering the remaining percentage ("other") as a company for the computation, it is possible to say that the Portuguese market is a moderately concentrated marketplace with a score of 2024. This application is indicative and has some flaws, such as not taking into account markets' idiosyncrasies. The index has been further described by Rhoades (1993), Brezina, et al. (2016), and Hayes (2020).

In relation to consumers' preferences, there are few studies that focus on the topic in Portugal and none was found using conjoint analysis. Matos (2018) studied the effects of Netflix in television and media consumption. In the researcher's findings, it is possible to understand that customers value the brand (e.g., awareness): "*Awards won in previous years by original content from Netflix add quality and stress the idea that having a Netflix subscription is a sign of contemporaneity and sophistication*" (Matos 2018).

Oliveira (2019) compared these effects in Portugal and in Brazil, extending the research to other markets. In the study, the researcher points out that "*quality*", "*variety*" and "*diversity*" were popular words in the respondents' speeches, referring the content produced by Netflix as a major factor in the consumption of OTT video streaming services.

Preliminary interviews

For the purpose of this dissertation, four exploratory interviews were conducted to identify crucial findings specialists would like to read about. The first interviewee was an employee from a major Portuguese telecommunications company responsible for the negotiating and managing content in streaming platforms. The specialist validated the hypothesis that studying consumers' preferences and willingness-to-pay in Portugal would be adding value to the industry's current situation since these platforms are gaining undeniable importance. She also suggested other topics that could be further studied, such as the impact of the COVID-19 pandemic in the cinema industry (content supplier of OTT video streaming services).

One employee from a major Portuguese television channel, responsible for content promotion was also interviewed. This marketer also supported the research idea, highlighting the willingness-to-pay information. He added that OTT capabilities is the main trend in the television and media industry.

The third interview was with an employee from a Portuguese OTT video streaming service, by a television channel, responsible for the overall product ownership. The specialist validated the topic, adding that the increasing competition makes it crucial to know more about what people actually value, across different business models (subscription, ad-based, free…).

Finally, an employee from a major entertainment company (which includes a streaming service in its product portfolio), responsible for digital marketing, was also interviewed and agreed that researching Portuguese consumers' preferences would be meaningful.

Conjoint analysis

As previously described, studies commonly use conjoint analysis as the methodologic approach to studying consumers' preferences. This research methodology has been around academia and industry since 1964. The authors explained that the "*essential character of what is classically considered (…) the fundamental measurement of extensive quantities is described by an axiomatization for the comparision [sic] of effects of (or responses to) arbitrary combinations of "quantities" of a single specified kind*" (Luce and Tukey 1964).

However, the methodology was only popularized by Green and Rao in 1971, who coined the name "*conjoint measurement*", when it was introduced in marketing (Vriens 1994). Green and Rao (1971) defined it as being "*concerned with the joint effect of two or more independent variables on the ordering of a dependent variable*". The study lead the authors to believe that "*a typical conjoint analysis project consists of four main steps: (i) development of stimuli based on a number of salient attributes (hypothetical profiles or choice sets); (ii) presentation of stimuli to an appropriate sample of respondents: (iii) estimation of partworth functions for the*

attributes as well as any heterogeneity among the respondents; and use of the estimates in tackling any managerial problems (e.g., forecasting, pricing, or product design)" (Green and Rao, Conjoint Measurement for Quantifying Judgmental Data 1971).

According to the authors, it is "*a major set of techniques for measuring buyers' tradeoffs among multiattributed products and services*" (Green and Srinivasan, Conjoint Analysis in Marketing: New Developments with Implications for Research and Practice 1990). A more detailed definition by the same authors is: "*conjoint analysis is any decompositional method that estimates the structure of a consumer's preferences (i.e., estimates preference parameters such as partworths, importance weights, ideal points), given his or her overall evaluations of a set of alternatives that are prespecified in terms of levels of different attributes*". A complete and detailed timeline of definitions and theoretic developments about the topic has already been documented in Kulshreshtha, Tripathi and Bajpai's (2018) research, so only the most relevant theoretic definitions were included in the present document.

Conjoint analysis in marketing

As stated before, Green and Rao introduced the technique to the Marketing discipline in 1971. After some years of use, Green and Srinivasan's (1990) article describes the main finding of the 1989's study by Wittink and Cattin which researched the application of this method during the 1980s and concluded that it was most used for consumer goods (59%) and for "*new product evaluation, repositioning, competitive analysis, pricing and market segmentations*". In the 1990s, Vriens (1994) reports several differences in commercial usages, according to the location. For instance, "*pricing was the single most frequently identified purpose in Europe, whereas in U.S. it was the third in frequency*".

According to the American Marketing Association (AMA) (2017), Marketing is "*the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large*". One of the most

well-known books about the topic ("Marketing Management") has been re-edited since 1967, when Kotler and Keller introduced the idea that companies should be focused on the market and the customer. Nowadays, "*customers are telling companies what types of product or services they want and when, where, and how they want to buy them*" (Kotler and Keller 2016). That is why listening to and understanding customers (their "*needs, wants, and demands*") better is of major importance in a customer-centric approach to marketing. "*The job is to find not the right customers for your products, but the right products for your customers*" (Kotler and Keller 2016). One of the key marketing management tasks identified by the authors is "*capturing marketing insights*", where marketing research is required, before anything else. Hence, conjoint analysis plays an important part in receiving this type of information and proves to be useful to marketeers, because marketing requires an "*adequate analysis of consumers' preferences for specific products or services*" (Vriens 1994).

As explained by Vriens (1994), products and services have a limited number of features, which are designated "*attributes*", for which several "*levels*" can be defined. Then, different combinations can be made to develop "*full profiles*", which are product descriptions (see Appendix 1). Afterwards, by evaluating a collection of full profiles, respondents are providing researchers with a number linked with each level – conjoint analysis proves to be a powerful technique by displaying tradeoffs to consumers. "*To every level of each attribute a number is attached in such a way, that given a certain model, the rating or ordering can be reconstructed as good as possible. The numbers attached to these levels are called partworth utilities. Summing the partworth utilities, which belong to a certain profile, yields the overall utility if the additive model is used. It should be noted that the levels of the different attributes are quantified on one common scale: the utility-scale.*" (Vriens 1994). The analysis starts at an individual level and allows to compare different characteristics, and thus conclude about the importance of each attribute (the purpose of the current study).

A more modern and marketing-applied approach (Kulshreshtha, Tripathi and Bajpai 2018) says that it is an "*advanced market research technique that gets under the skin of people and underlying thought to find out what consumer is thinking prior to finalizing purchasing decision*". This definition agrees with Rao's (2008) perspective. The author defines a general U-function that explains the model, where "*r*" is the number of attributes, "*x_{jt} is the level for the j-th profile on the t-th attribute a product profile*", "*y_i*" is one respondent and "*U_t is the component utility function specific to the t-th attribute (also called part-utility function or partworth function)*"[2]:

$$y_j = U_1(x_{j1}) + U_2(x_{j2}) + \cdots + U_r(x_{jr})$$

Rao (2008) also identifies two ways of employing this technique ("*ratings-based and choice based*"). One of the usages of this technique is to work in "*product related purposes and competitive analyses*", namely *"product modifications", "optimal product design",* "*redesigning of product lines*" and "*evaluation of new product concepts*" (Vriens 1994). The author underlines that both consumers' interests and tradeoffs (including willingness-to-pay) between different attributes can be understood through conjoint analysis.

In terms of disadvantages concerning conjoint analysis, Vriens (1994) states that it is a method that may be difficult to apply to products that are linked to image ("*the complexity of the market*"), as well as it is an expensive and time-consuming method, not suitable for a low-resourced research. Among others, relevant limitations include the dependence on proper descriptions by researchers, problems of redundancy, issues with linearity towards quantitative attributes (automatically assessing quantitative attributes with the correspondent number of the measuring scale), lack of application in Asian countries and lack of application in the service sector (Kulshreshtha, Tripathi and Bajpai 2018).

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[2] A complete and detailed explanation about the function, the absence of a constant term and the measurement of both quantitative and categorical (brand name, for instance) attributes can be read elsewhere (Rao 2008) and, so, it was not considered to be useful in the present dissertation.

Methodology

Conjoint analysis: PAPRIKA method

In order to study the Portuguese consumers' preferences about video streaming services and having in mind the previous literature review, a conjoint analysis will be conducted, following four steps: "*A typical conjoint analysis project consists of four main steps: (i) development of stimuli based on a number of salient attributes (hypothetical profiles or choice sets); (ii) presentation of stimuli to an appropriate sample of respondents: (iii) estimation of partworth functions for the attributes as well as any heterogeneity among the respondents; and use of the estimates in tackling any managerial problems (e.g., forecasting, pricing, or product design)*" (Rao 2008).

To fulfil the first step a survey was constructed using the 1000minds software. The specialized platform helps build the stimuli, which are combinations of levels and attributes in subsets (also known as "concepts" or "profiles"). The platform has been approved in more than 380 universities and research organizations, which makes it ideal for the current dissertation's goals. In order to compute partworth utilities, it uses the Potentially All Pairwise Rankings of all possible Alternatives (PAPRIKA) method. According to the company, founded by two academics, it makes respondents choose between two alternatives with just two attributes (partial profiles), instead of all the attributes (full-profiles) (1000minds 2021). The managers highlight that this method guarantees easier choices for respondents, which corresponds to more confidence when answering the survey.

Since using "*a full factorial design (all profiles) will place an undue burden on respondent*" (Rao 2008), the questions will be adapted according to previous answers of each respondent. By applying the transitivity logical property, "*PAPRIKA immediately identifies all other pairs of hypothetical concepts that can be pairwise ranked and eliminates them*" (1000minds 2021), which makes the experience of answering the survey more user-friendly. The full extent of this

model's advantages and characteristics has already been studied scientifically (Hansen and Ombler 2009).

Framing this description in Rao's (2008) types of conjoint analysis, the research will be choice-based (and not rating-based). This type requires careful attention to minimal level overlap ("*the probability that an attribute level repeats itself in each choice set should be as small as possible*") and also utility balance ("*the utilities of the alternatives in a choice set are approximately equal*"). While the latter will be supported by the software, the overlap will be prevented in the definition of attributes and levels.

Survey design: attributes and levels

Some personal data will be collected in the beginning of the survey. Respondents should be Portuguese adults and/or adults that have lived in Portugal for the past five years, so that the results are significant concerning both research questions. Additional basic data will also be asked to characterise the sample (gender, age, education level[3], and average monthly income). Time spent watching video content per day will be added for the particular interest it may have in assessing relationships between it and other variables, since it can attest for frequency.

Concerning the attributes and levels, all can be found organised in Table 3 (Appendix 2). The study by Kim, et al. (2017) selected the attributes by their competitiveness in the market. Firstly, a "recommendation system" that can suggest popular content or personalized content, which "*can be seen as providing additional value for consumers*". Then, "Resolution" has two levels (4K UHD content or Full HD content) that reflect the increase popularity of higher quality content in terms of detail, for instance ("*UHD delivers four times as much detail as 1080p Full HD*"). In terms of "viewing options", one can opt among adding, on top of streaming video on demand, live streaming and download abilities. This attribute is also mentioned by Shin, Park and Lee (2016). Concerning "price", the attribute was included, but with different levels, which

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[3] Organised according to guidelines from "Direcção-Geral da Administração e do Emprego Público" public Portuguese institution (see Appendix 4).

are adapted to Portugal's reality (see Table 2, Appendix 2). Therefore, three levels were defined: 3,99€ (the lowest price), 7,99€ (the highest price) and 11,99€ (a new maximum with the same difference from the previous levels).

Despite not using conjoint analysis, Lee et al. (2018) also provides interesting attributes to be included, namely "additional purchases" (buys that occur after the subscription for exclusive or earlier access, for example) and "customer service" (quality and availability of customer assistance), which were adapted for the purpose of this study. "Additional purchases" was changed to "access to content catalogue" in order to understand how much customers value a bundled offer against access to only a part of the catalogue and additional purchases to access exclusive content.

Having in mind competitiveness as a criterion and also a connection to sources outside of academia, Nielsen (2020) insights were also taken into account, not only to corroborate previous attributes, but also to include adapted new ones: "advertisement" (if the service is ad-free or ad-based) and "content" (brands that provide the most valued content). It is important to note that content is the main driver of the decision-making process for subscribing a paid video streaming service, according to Nielsen (2020), since it accounts for four of the top five reasons to subscribe.

Cluster analysis

So as to extract further information from the raw data, a cluster analysis will also be performed. In order to find the ideal number of clusters, a hierarchical approach will be done before a non-hierarchical one (k-means). Afterwards, the clusters will be described in order to find key trends in groups of consumers with similar preferences towards OTT video streaming services.

Survey design: detailed configurations

All things considered, there are 8 attributes distributed according to Table 3 in Appendix 2. The selected platform requires levels to be ordered according to their ranking in user objective

preference (for example, descending price) so that a normalisation of the first level (lowest ranked) is computed and the added partworths of the higher ranked levels are computed. However, one of the attributes ("content") could not be ranked by the researcher, so it was self-explicated (meaning that the user needed to rank it before starting to answer the tradeoff questions).

Exclusion rules (rules that exclude participants based on some criteria (e.g., time spent to answer)) were not adopted, so that every observation was accessible (e.g., participants who started and did not finished). Nevertheless, a consistency checking was added. The two easiest tradeoff questions were repeated at the end of each participant's survey to test for the decision's reliability, but no submissions were automatically excluded by the software.

The results were then collected, and data analysis was performed using Microsoft Excel and IBM SPSS software.

Results

The survey collected answers from the 26th March 2021 until 29th March 2021. It was promoted in the researcher's personal social media accounts, social media groups intended for survey sharing among researchers, and thematic Facebook groups (about streaming services with consumers). It is important to document that a previous version of the survey was put up online, during the 23rd and 24th of March. Despite having collected 81 responses, the survey was not functional, since it contained an error in the attribute order. That is why it served as a test survey. In the final survey, apart from the corrected errors, other inputs were taken into account (e.g., questions' clarity).

A total of 383 answers were collected (see Table 5 and 6, Appendix 3), from which 199 were related to completed surveys and 184 were related to started surveys that were not finished (not all tradeoffs were done). The sample contained 127 male respondents (approximately 33%) and 254 female respondents (approximately 66%), as well as 2 respondents that preferred not to

disclose their gender. The gender percentages get more balanced when considering completed surveys only (see Table 7, Appendix 3): a sample with 71 male respondents (35,7%) and 128 female respondents (64,3%). In Portugal, in 2019, female sex (not gender) represented 52,8% of the total population, according to PORDATA and INE (2021).

Sample characteristics

Age

When it comes to age, the mean is approximately 33,9 years old when considering the 383 responses. It is possible to verify that the distribution of this variable is not normal, with a lack of responses from people between 30 and 50 years old and a surplus of responses from people between 20 and 30 years old (see Figure 1, Appendix 3). The survey was developed to allow respondents from 18 years old to 100 years old and, in fact, observations registered a minimum of 18 years old and a maximum of 70 years old for both all responses and completed responses. Considering only the completed surveys, the mean decreases to 33,7 years old and the distribution is similar to the previously described one (see Figure 2, Appendix 3). This is below the average age in Portugal in 2015, which was 43,9 years old (United Nations 2019).

Qualifications

Qualifications was another measured descriptive variable. From all 383 respondents, 77% have studied for at least 12 years: 38,4% have a bachelor's degree ("Licenciatura"); 20,9% have a high school diploma; and 17,8% have a master's degree (see Figure 3, Appendix 3). Considering only the 199 completed surveys, the results are similar: bachelor's degree remains the mode (39,2%), followed by high school (21,6%) and master's degree (16,6%). It is possible to conclude that the sample is skewed towards highly educated people. In comparison, according to PORDATA and INE (2021), in 2020, 45,1% of Portugal's population had studied for at least 12 years.

Monthly salary

As far as monthly earnings go, 21,7% of the 383 respondents did not report to have a salary. From the other 78,3% the distribution is very diverse, with a range of 80 thousand euros, standard deviation of 6162 euros and a mean of 1427 euros. When considering completed surveys (199), the results are similar: 24,6% report not having monthly earnings. From the other 75,4%, the mean is 1962 euros, with similar dispersion of values. In the last quarter of 2020, Portugal registered an average monthly salary of 1473 euros (Instituto Nacional de Estatística 2021).

Time spent watching television

About time spent watching television (or other types of content) per day, when considering the total sample, most people (54,4%) reported to spend between 2 and 3 hours. However, the mean value was 3,21 hours, with one observation of 15 hours being registered (see Figure 4, Appendix 3). There was no respondent reporting to spend 0 hours – not watching content daily – which could be a justification to exclude their answers through data cleaning, due to lack of relevance. Considering completed surveys, the results change a little, but the distribution remains similar: 64,3% declare to spend between 2 and 3 hours per day consuming content. The mean is the same (3,20 hours).

For the rest of the analysis, only the valid answers were considered. This means just completed surveys were taken into account (199) and one entry was disregarded due to not being compliant with the requirements (being Portuguese or have been living in Portugal for 5 years). Thus, the new sample to consider is constituted by 198 answers.

Preliminary analysis

Gender impact on results

In order to understand the impact of gender in the results, an Analysis of Variance (ANOVA) was run considering each attribute separately. The null hypothesis of this ANOVA is that there

is no difference between different groups ($\bar{x}_{Male} = \bar{x}_{Female}$). The alternative hypothesis is that there is such difference between the groups' means. The results (see Table 8, Appendix 4) show that there the differences between the means are not significant, considering a 95% confidence interval, since the p-value is always higher than the significance level (0,05). This means there is not enough evidence to reject the previously stated null hypothesis, and, hence, there is no evidence to reject that the means between male and female respondents are the same.

Correlation among variables

Since gender was the only non-metric variable, all others (namely: age, salary, time spent watching content and each attribute's highest ranked level) were the object of a Pearson correlation test (pairwise). The table with the results highlights the significant ones, considering a 95% confidence interval (see Table 9, Appendix 4). This analysis reports the positive (e.g., age and salary) and negative (e.g., preference for Netflix and bundled all included option) relationships between pairs of variables.

Preferences for both personalised and UHD content are positively correlated with the time spent watching TV (and other content) per day, which may be indicative that highly frequent consumers tend to value these specific attributes. It does not necessarily mean that these are the most preferred attributes. However, it can suggest that the more someone watches content (a niche segment of the market) the more they value resolution and recommendation system.

The resolution is also positively correlated with age, meaning that older people in the sample and higher preference for UHD content are often registered in the same observation (positive linear relationship).

Considering significant results, preference for Netflix was negatively correlated with most attributes (bundled offer, viewing options, advertisement, recommendations, quality, customer support and age), meaning that a higher preference for content (represented by Netflix) is

enough to demand less from other attributes. Content is the most powerful attribute in consumers' preferences.

In terms of price, all significant correlations are negative. This means that there is a negative linear relationship between price and viewing options (VOD, live and download), an ad-free service and advanced customer service. It is an indicator that preference for lower prices is, for example, related to a lower preference for an ad-free service, which can indicate that consumers are willing to tolerate ads for a lower price. This suggestion agrees with a recent report from Integral Ad Science that shows that 76% of consumers are willing to see ads in exchange for free streaming video. In a context where the number of alternative OTT video streaming services is growing and "*knowing that two or three streaming subscriptions can potentially cost as much as a cable package, when considering budgeting concerns, consumers are resistant to layering streaming services*" (Integral Ad Science 2020).

Concerning an ad-free service, apart from the previous correlations, it is also negatively correlated with UHD service. This may be indicative that a higher preference for an ad-free service makes image quality not as relevant for the consumers, and vice-versa.

Another positive correlation is between two descriptive statistics: age and monthly salary – which is sensible, since most people earn more money at older than at younger ages.

Conjoint analysis: partworths utilities

The main results from the conjoint analysis were eight attributes (see Table 10, Appendix 4). One of them, "content", was self-explicated (hence, there was not any level with a 0% mean value partworth) so that the brand preference could be understood. Netflix (33,9%), HBO (23,0%), and Disney (18,4%) are the main preferred content suppliers (see Table 11, Appendix 4). It is interesting to note that, out of the six brands, only two have a range below 50%, which indicates that most brands have at least one fan in the sample – an expected result. The highest level represents 33,9%, making "content" the most important factor when subscribing to an

OTT video streaming service and agreeing with Nielsen (2021). While Netflix is the preferred (1st place) brand both in the results of this report and market share data, the 2nd and 3rd places are not. Instead of HBO and Disney, market share data suggests a higher preference for Apple and Amazon.

All the remaining attributes had their lowest ranked levels' partworths normalized to 0%, so that the incremental worth was calculated. Hence, the analysis only comprises the higher ranked levels, whose partworths are always different from 0% (see Table 12, Appendix 4). The results show that, after "content", the most preferred feature is "additional purchases / access to content catalogue" and it is 12,3%. The lowest mean value is for "customer service" and it is 5,8%.

Table 13 (see Appendix 4) shows the attributes' preferences ordered by their mean ranking. "Content" is actually so valued that the distance from the first place (1,51) to the second place (3,91) mean values is bigger than the distance from the second place (3,91) to the last place (6,21). As it is possible to see in Table 14 (see Appendix 4), "content" is 2,8 times more important than "additional purchases / access to content catalogue" and 5,8 times more important than "customer service". Also, it is worth to note that apart from being number one, "content" is the only attribute that is never the least preferred attribute.

A practical example can be used to better explain the importance of "content" in the decision-making process. Apple would need an all-included platform with a 3,99€ price and no advertisements to overcome the 29 percentual points difference from Netflix and be chosen by a consumer. At the time of this research, Apple had those features and a 4,99€ price, which may explain why market share data indicates a higher share for Apple TV +, despite a lower brand preference. Managers understood that a lower price and a bundled offer with no advertisements would be a winning strategy so as to compensate for Netflix's brand equity value. However, it is important to notice that Netflix also shares some of the features (e.g., ad-free service).

The ability to have a bundled offer and the monthly price are very similar in terms of partworth utility (12,3% and 12,2%, respectively). In the past, Lee, et al. (2018) concluded that the cost/price would not be a significant factor in video streaming services. While these findings agree that there are more significant factors, it is important to note that price still accounts for up to 12,2% of the partworth of a video streaming service.

This means that if managers do not have a competitive price for their services, they can compensate by having a bundled offer. Just to name another possibility, having a personalised recommendation system (6,9%) and a UHD resolution (5,8%) would also compensate for a higher price. Since each attribute has the contribution for the total worth, it is possible for managers to effectively check what features to include and exclude, and at what cost.

"Additional purchases" and "monthly price" are 1,1 times more important than the next alternative ("viewing options"), so the distance between attributes is not as much as to the first position. "Viewing options" and "advertisements" still get a respectable score (11,0% and 9,9%, respectively), which are worth considering. "Recommendation system", "resolution" and "customer service" are the lowest partworths registered, meaning that consumers do not attribute that much value to these features. Lee, et al. (2018) mention "customer service" as a main driver for customer satisfaction in North America. In this research, this attribute was the least valued in terms of partworth, which may indicate that Portuguese consumers do not value this feature as much. Considering the available viewing options, which were found to be impactful by Lee et al. (2018), besides not being as important as the content, the access to catalogue or monthly price, they are still more relevant than three other attributes (up to 1,9 times), which can be classified as in line with the author's findings.

Kim et al. (2017) studied the Asian market. Compared to China (where "resolution" was the biggest factor) and to Korea (where the "recommendation system" was the highest ranked), it is possible to conclude that Portuguese consumers are different from both, since those two

attributes are ranked very low. "Resolution" was a polarising attribute in China and Korea. Some similarities between the Portuguese and the Korean consumers can be found, since both do not value it, perhaps because of already satisfying picture quality (Kim, et al. 2017).

Willingness to pay

In order to find out willingness-to-pay (WTP), the number of currency units per util was calculated (1000minds 2021). Computing the difference between the highest price presented to respondents (11,99€) and the lowest (3,99€), it is possible to then to attribute it to the utility gain (which is, in this case, 12,2%). Hence, each util is worth 65 cents. Since it is an extrapolation, its calculation should be considered with care and consciousness.

This method is useful to understand that, for instance, customers would be willing to pay 22,2 euros for Netflix content and only 3,2 euros for Apple TV + content, all else equal. It is also a clear way to compare the importance of each attribute. The preference for Netflix (22,2€) can only be substituted for all the next four attributes (bundled offer, VOD, live and download options, ad-free service, and personalised recommendation), which would be worth 26,2 euros. Concerning the previously stated finding about consumers being willing to tolerate ads for a lower price, a report from Deloitte has computed a price value for it: "*forty percent of U.S. consumers note that they would prefer to pay $12 a month for a streaming video service with no ads, versus 60% of consumers who would accept some ads for a reduction in monthly subscription costs*" (Deloitte 2020). The current research found that consumers would be willing to pay 6,5 euros for an ad-free service, which may suggest that Portuguese consumers are not as willing to pay to get rid of advertisements as American consumers.

Cluster analysis[4]

To complement the current study and enlarge the scope of its findings, a cluster analysis was performed in order to find different segments inside the research sample.

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[4] A fully detailed explanation of the combined approach to cluster analysis (hierarchical and non-hierarchical methods) can be found in *Multivariate Data Analysis* (Jr, et al. 2019).

The selected variables were the highest levels for each attribute, since they represent the partworth of the whole attribute (lowest ranked levels' partworths were normalized to 0%). Since the dataset was all in percentages, there was no need to standardise it before applying two hierarchical methods to assess the robustness of the analysis (Average Linkage and Ward's). A better visualization of the coefficients' differences was ensured by a dot plot.

The average linkage method (see Table 16 and Figure 5, Appendix 5) shows that the most significant jump occurs from the 195th to the 194th position in Table 16, suggesting a 4-cluster solution, since in order to obtain homogenous clusters it is advisable to maximise the distance among them. On the other hand, the Ward's method (see Table 17 and Figure 6, Appendix 5) shows the most significant jump from the 197th to the 196th position in Table 17 and then other less significant jumps from the 196th to the 195th and likewise until the 193th position, suggesting an ideal number of clusters between 3 and 5. So as to compare the conclusions of the two methods, solutions for both 3 and 4 clusters were saved as variables and a crosstabulation between the results was done (see Table 18 and Table 19, Appendix 5). For both a 3-cluster solution and a 4-cluster solution the distributions using Ward's and average linkage methods (respectively) were not the same, attesting for a lack of robustness. The Ward's method for a 3-cluster solution was selected since it displays values more in line with the dataset.

A data aggregation was then performed in order to generate a new dataset with the centroids for each variable (mean value) in regard to each cluster. This allows a non-hierarchical clustering to be performed, namely a k-means cluster analysis (made from the centroids of the hierarchical approach). As can be seen in Table 20 (Appendix 5), the total (198) is divided in: Cluster 1, with 96 cases, Cluster 2, with 77 and Cluster 3, with 25.

Crosstabulations can also be useful to compare with the hierarchical methods once more. As expected, robustness reduces when the comparison is with the average linkage method (see Table 21 and 22, Appendix 5). To verify clusters' variation considering each variable

(partworth), an ANOVA was developed. While most significance levels are low and suggest that the variation is also low, that is not the situation in "price" and "resolution". Overall, however, it is a takeaway that fits the goal of minimising variation within clusters and maximising it among different clusters (see Table 24 and Figure 7, Appendix 5).

As far as Cluster 1 (Appendix 6) is concerned, it is possible to see that these respondents have an unbalanced distribution where "content" accounts for approximately 30% of the partworth. "Customer service", "resolution" and "recommendation system" are the least valued attributes with less than 10% mean value for partworth. This cluster is formed by 73% female gendered respondents, with a mean age of 33,6 years old, an average monthly salary of 2497 euros and who spend 2,89 hours per day, on average, watching content. More than half (59,4%) have some kind of University degree. So as to better understand the cluster, and according to its characteristics, Cluster 1 can be designated **the casual watchers**.

Cluster 2 (Appendix 7) consumers show the highest preference for "content" (47%), making all other attributes significantly less relevant. "Price" is also valued, but not as much (11,9%). They are more balanced in terms of gender with lower salaries than "the casual watchers" (950 euros), but they spend more time-consuming content (3,35 hours per day). This cluster shows a high percentage of high education. Since they attribute so much value to the source of the content, they can be designated **the branded watchers**.

Finally, Cluster 3 (Appendix 8) is the most balanced in terms of partworth distribution. They are the ones that spend more time watching content (3,92 hours per day), the oldest (36,16 years old on average) and the biggest earners (mean monthly salary of 3.031 euros). Since they are the ones that spend the most time watching content, they can be designated **the binge watchers**. In the Korean Market, Shin, Park and Lee (2016) used a similar method as the current study and highlighted the importance of "viewing options" and "monthly price". In fact, despite not being the most preferred attributes overall, they are in Cluster 3, which can mean that a segment

of the Portuguese consumers fit the findings of the Korean market better than the overall results (which place the two attributes in fourth and third place, respectively).

Conclusion and limitations

This research allowed to find meaningful results that contribute for knowledge about the media industry, conjoint analysis in marketing and the Portuguese market. Despite seeming to be price sensitive consumers, the Portuguese value the brand of the content above all. Managers[5] should focus on building and maintaining a healthy and powerful brand and content as a top priority, while also being aware of three potentially interesting clusters when tackling the Portuguese market.

Some points of contact with Asian and American consumers were found but also distinctive features. The Portuguese market does not value resolution as in China, nor the recommendation system as in Korea. Compared with North America, the Portuguese do not value customer service as much – in fact, it is the least worthy factor.

The research also studied the willingness-to-pay per feature and proposed three segments for the Portuguese market, which allow to conclude that while international similarities may be harder to find, similarities between segments of markets may be a more successful approach (such as the binge watchers in Portuguese and Korean consumers).

Besides being hard to put in practice in low-resourced research (Vriens, 1994), the successful application of conjoint analysis was crucial not only to find meaningful results, but also opportunities and cues for future research, which outweighed the costs of the method. Future papers may increase the number of attributes in order to include account sharing, as suggested by one respondent. Additionally, since this research has demonstrated the worth of brand and content in the industry, a relevant new research can build on these findings to study the brand associations in depth (through a more qualitative approach).

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[5] As Green and Rao (1971) suggest, conjoint analysis' results should be used "*in tackling any managerial problems*".

References

1000minds. 2021. "What is Conjoint Analysis?" *1000minds.* March. Accessed April 24, 2021. https://www.1000minds.com/conjoint-analysis/what-is-conjoint-analysis.

1000minds. 2021. *Pairwise comparisons method.* Accessed March 22, 2021. https://www.1000minds.com/conjoint-analysis/pairwise-comparisons-method.

Amazon. 2021. *Bem-vindo(a) ao Prime Video.* Accessed March 22, 2021. https://www.primevideo.com/.

American Marketing Association. 2017. *Definitions of Marketing.* Accessed March 30, 2021. https://www.ama.org/the-definition-of-marketing-what-is-marketing/.

Apple. 2021. *Apple TV+ - Apple (PT).* Accessed March 22, 2021. https://www.apple.com/pt/apple-tv-plus/.

BEREC. 2016. *BEREC Report on OTT services.* BEREC.

Brezina, I.,, J. Pekár, Z. Čičková, and M. Reiff. 2016. "Herfindahl–Hirschman index level of concentration values modification and analysis of their change." *Central European journal of operations research* 49-72.

Deloitte. 2020. "COVID-19 and Shifting Generational Preferences Reshape the Future of the US Media and Entertainment Landscape ." *Cision PR Newswire.* Accessed May 9, 2021. https://www.prnewswire.com/news-releases/covid-19-and-shifting-generational-preferences-reshape-the-future-of-the-us-media-and-entertainment-landscape-301271040.html?tc=eml_cleartime.

Direcção-Geral da Administração e do Emprego Público. n.d. Accessed March 23, 2021. https://www.dgaep.gov.pt/upload/homepage/Noticias/LVCR/TAB_LVCR_HABILIT ACOES.pdf.

Disney. 2021. *Disney + | Introducing Star.* Accessed March 22, 2021. https://www.disneyplus.com/en-pt.

European Audiovisual Observatory. 2021. *Trends in the VOD Market in EU28.* Strasbourg: Council of Europe.

Ferreira, Bernardo. 2020. *Disney+ iguala quota da HBO Portugal no mês de lançamento.* 14 November. Accessed March 22, 2021. https://espalhafactos.com/2020/11/14/disney-iguala-quota-da-hbo-no-mes-de-lancamento/.

Green, Paul E., and V. Srinivasan. 1990. "Conjoint Analysis in Marketing: New Developments with Implications for Research and Practice." *Journal of Marketing* 3-19.

Green, Paul E., and Vithala R. Rao. 1971. "Conjoint Measurement for Quantifying Judgmental Data." *Journal of Marketing Research* 355-363.

Hansen, Paul, and Franz Ombler. 2009. "A new method for scoring additive multi-attribute value models using pairwise rankings of alternatives." *Journal of Multi-criteria Decision Analysis* 87-107.

Hayes, Adam. 2020. *Herfindahl-Hirschman Index (HHI) | Investopedia.* 11 February. Accessed March 31, 2021. https://www.investopedia.com/terms/h/hhi.asp.

HBO. 2021. *HBO Portugal. As melhores séries e filmes. Veja agora!* Accessed March 22, 2021. https://hboportugal.com/.

Hofstede Insights. 2021. *Country Comparison - Hofstede Insights.* Accessed March 17, 2021. https://www.hofstede-insights.com/country-comparison/china,portugal,south-korea,the-usa/.

INE; PORDATA. 2021. "PORDATA." *População residente, média anual: total e por sexo .* 15 April. Accessed April 23, 2021. https://www.pordata.pt/Portugal/Popula%C3%A7%C3%A3o+residente++m%C3%A9dia+anual+total+e+por+sexo-6.

INE; PORDATA. 2021. *População residente com 15 a 64 anos e 65 e mais anos: por nível de escolaridade completo mais elevado (%) .* 12 February. Accessed April 4, 2021.

https://www.pordata.pt/Portugal/Popula%c3%a7%c3%a3o+residente+com+15+a+64+ anos+e+65+e+mais+anos+por+n%c3%advel+de+escolaridade+completo+mais+eleva do+(percentagem)-2266.

Instituto Nacional de Estatística. 2021. "A remuneração bruta mensal média aumentou 3,5% no trimestre terminado em dezembro de 2020, para 1 473 Euros." *Instituto Nacional de Estatística.* 11 February. Accessed April 23, 2021. https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESde st_boui=458529551&DESTAQUESmodo=2.

Integral Ad Science. 2020. *Streaming Wars: How connected TV is shaping the future of content consumption.* Integral Ad Science.

Jr, Joseph F. Hair, William C. Black, Barry J. Babin, and Rolph E. Anderson. 2019. *Multivariate Data Analysis.* Annabel Ainscow.

Kim, Min Sung, Eun Kim, ShinYoung Hwang, Junghwan Kim, and Seongcheol Kim. 2017. "Willingness to pay for over-the-top services in China and Korea." *Telecommunications Policy* 197-207.

Kotler, Philip, and Kevin Lane Keller. 2016. *Marketing Management - Global Edition.* Harlow: Pearson Education Limited.

Kulshreshtha, Kushagra, Vikas Tripathi, and Naval Bajpai. 2018. "1971–2017: Evolution, exploration and test of time of conjoint analysis." *Quality & Quantity* 2893–2919.

Lee, C. Christopher, Pankaj Nagpal, Sinead G. Ruane, and Hyoun Sook Lim. 2018. "Factors Affecting Online Streaming Subscriptions." *Communications of the IIMA.*

Luce, R. Duncan, and John W. Tukey. 1964. "Simultaneous conjoint measurement: A new type of fundamental measurement." *Journal of Mathematical Psychology* 1-27.

Lusa. 2021. *Portugueses são dos europeus que mais aderem ao streaming.* 9 February. Accessed March 31, 2021. https://eco.sapo.pt/2021/02/09/portugueses-sao-dos-europeus-que-mais-aderem-ao-streaming/.

Matos, João. 2018. *A Netflix e as novas formas de fruir e consumir os conteúdos televisivos em Portugal.* Master Thesis, Lisboa: Instituto Universitário de Lisboa.

Netflix. 2021. *Netflix Portugal - Veja séries de televisão e filmes online.* Accessed March 22, 2021. https://www.netflix.com/pt/.

Netflix. 2021. *Netflix.* Accessed March 13, 2021. https://www.netflix.com/pt/.

Nielsen. 2020. *Playback time: which consumer attitudes will shape the streaming wars?* 02 November. Accessed March 22, 2021. https://www.nielsen.com/us/en/insights/article/2020/playback-time-which-consumer-attitudes-will-shape-the-streaming-wars/.

Oliveira, Alan de Freitas. 2019. *Comportamento de consumidores de serviços de streaming: um estudo de caso de usuários da Netflix no Brasil e em Portugal.* Master Thesis, Porto: Instituto Superior De Contabilidade E Administração Do Porto Politécnico Do Porto.

PwC. 2019. *Consumer survey of on video streaming preferences and attitudes.* Accessed February 26, 2021. https://www.pwc.com/us/en/services/consulting/library/consumer-intelligence-series/consumer-video-streaming-behavior.html.

Rao, Vithala R. 2008. "Developments in Conjoint Analysis." *Handbook of Marketing Decision Models (International Series in Operations Research & Management Science)* 23-53.

Rhoades, Stephen A. 1993. *The herfindahl-hirschman index.* Fed. Res. Bull.

Shin, Jungwoo, Yuri Park, and Daeho Lee. 2016. "Strategic management of over-the-top services: Focusing on Korean consumer adoption behavior." *Technological Forecasting and Social Change* 329-337.

Song, Jiwoong, Taewon Jang, and So Young Sohn. 2009. "Conjoint analysis for IPTV service."
Expert Systems with Applications 7860-7864.

Statista. 2018. "Average daily time spent watching TV per capita in Europe in 2018, by
country(." *Statista.* Accessed May 10, 2021.
https://www.statista.com/statistics/361551/time-spent-watching-tv-europe/.

Statista. 2021. *OTT Video - Worldwide.* Accessed February 26, 2021. https://www-statista-
com.eu1.proxy.openathens.net/outlook/amo/media/tv-video/ott-
video/worldwide?currency=EUR .

United Nations. 2019. *Portugal: Average age of the population from 1950 to 2050.* July.
Accessed April 23, 2021. https://www.statista.com/statistics/372131/average-age-of-
the-population-in-portugal/.

Vault. 2020. *Media and Entertainment.* Accessed February 18, 2020.
https://www.vault.com/industries-professions/industries/media-and-entertainment.

Vodafone Portugal. 2021. *FOX+: veja as séries mais aclamadas da FOX.* Accessed March 22,
2021. https://www.vodafone.pt/pacotes/televisao/apps-tv/fox-plus.html.

Vriens, Marco. 1994. "Solving Marketing Problems With Conjoint Analysis." *Journal of
Marketing Management* 37-55.

Appendices

Appendix 1 – Vriens' example about conjoint analysis.

Table 1: An example of a full profile (Vriens 1994).

Brand:	Philips
Capacity:	Max. 10 cups
Price:	$50
Colour:	White
Flavour cap:	Present

Appendix 2 – Survey design

Table 2: Prices of OTT video streaming services in Portugal (March 2021).

Brand[6]	Price of least expensive plan (in euros, per month)
Netflix	7,99 (Netflix 2021)
Amazon Prime Video	5,99 (Amazon 2021)
HBO Portugal	4,99 (HBO 2021)
FOX play	3,99 (Vodafone Portugal 2021)
Disney +	7,49 (Disney 2021)
Apple TV +	4,99 (Apple 2021)

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[6] Selection according to the six brands with most market share in Q3 2020, in Portugal (JustWatch, 2020, quoted in (Ferreira 2020)).

Table 3: Attributes and levels used in the survey and respective references.

Attributes	Levels	References
Content	Netflix	(Nielsen 2020)
	Amazon Prime Video	
	HBO Portugal	
	FOX play	
	Disney +	
	Apple TV +	
Resolution	Full HD	(Kim, et al. 2017)
	UHD 4K	
Recommendation system	Recommends popular content	(Kim, et al. 2017)
	Recommends personalized content	
Viewing options	VOD streaming only	(Shin, Park and Lee 2016) (Kim, et al. 2017)
	VOD streaming + live streaming (terrestrial television broadcasting)	
	VOD streaming + live streaming (terrestrial television broadcasting) + download	
Customer service	Basic customer service	(Lee, et al. 2018)
	Customer service widely available (phone, email, long hours)	
Additional purchases / Access to content catalogue	Menu (charges for early access to part of catalogue)	(Lee, et al. 2018)
	Bundle (all included)	
Advertisements	Ad-based service	(Nielsen 2020)
	Ad-free service	
Monthly price	3,99€	(Kim, et al. 2017) (Song, Jang and Sohn 2009)
	7,99€	
	11,99€	

__Table 4__: Education level organisation in Portuguese (Direcção-Geral da Administração e do Emprego Público n.d.).

Código	HABILITAÇÕES LITERÁRIAS
01	MENOS DE 4 ANOS DE ESCOLARIDADE
02	4 ANOS DE ESCOLARIDADE (1.º ciclo do ensino básico)
03	6 ANOS DE ESCOLARIDADE (2.º ciclo do ensino básico)
04	9.º ANO (3.º ciclo do ensino básico)
05	11.º ANO
06	12.º ANO (ensino secundário)
07	CURSO TECNOLÓGICO/PROFISSIONAL/OUTROS (Nível III)*
08	BACHARELATO
09	LICENCIATURA
10	PÓS-GRADUAÇÃO
11	MESTRADO
12	DOUTORAMENTO
13	CURSO DE ESPECIALIZAÇÃO TECNOLÓGICA
99	HABILITAÇÃO IGNORADA

Table 5: Descriptive statistics of overall survey results.

Statistics

		Gender	Requirements	Age
N	Valid	383	383	383
	Missing	0	0	0
Mean				33.94
Std. Deviation				11.126
Variance				123.781

Table 6: Count of the "status" variable (completed and started surveys).

Status

	N	%
Complete	199	52.0%
Started	184	48.0%

Table 7: Descriptive statistics of survey results according to survey completion.

Crosstab

			Status Complete	Status Started	Total
Gender	Male	Count	71	56	127
		% within Status	35.7%	30.4%	33.2%
	Female	Count	128	126	254
		% within Status	64.3%	68.5%	66.3%
	I'd rather not say	Count	0	2	2
		% within Status	0.0%	1.1%	0.5%
Total		Count	199	184	383
		% within Status	100.0%	100.0%	100.0%
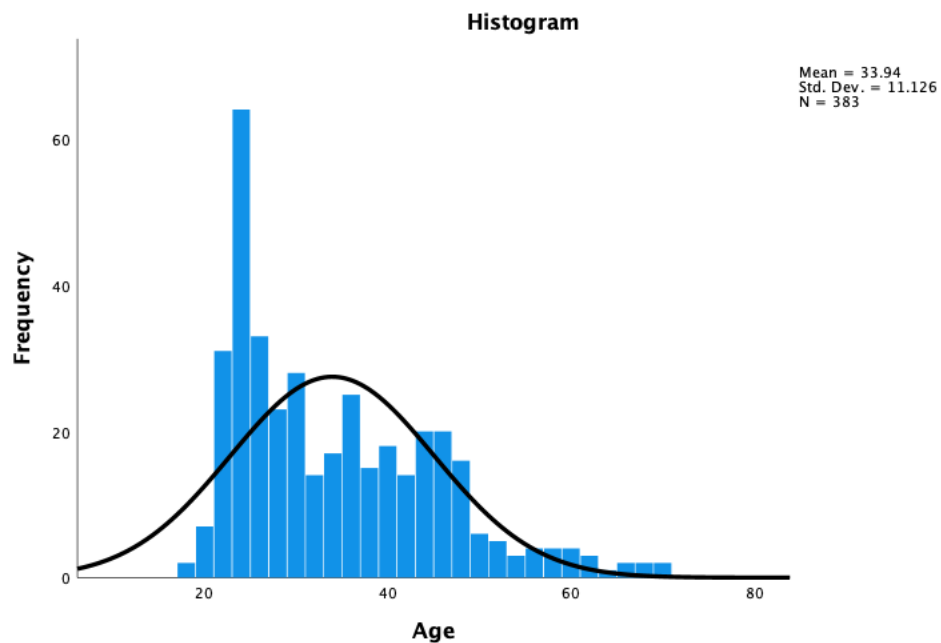
Figure 1: Age distribution (all 383 respondents) histogram.
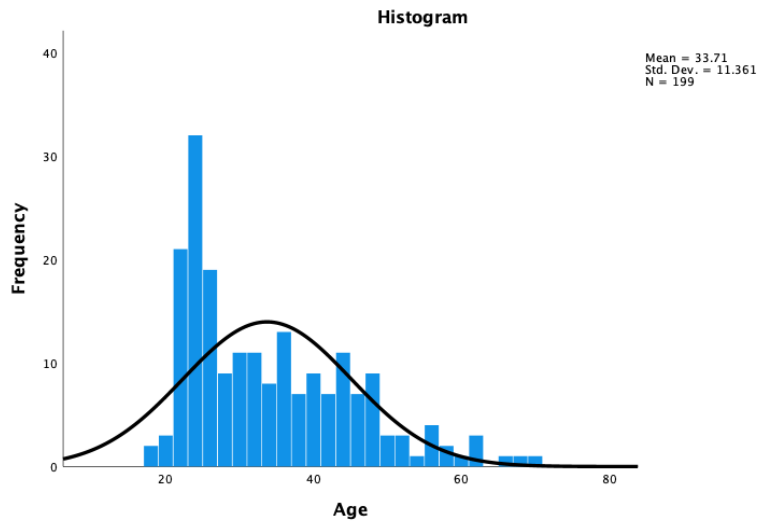
Figure 2: – Age distribution (199 respondents that completed the survey) histogram.
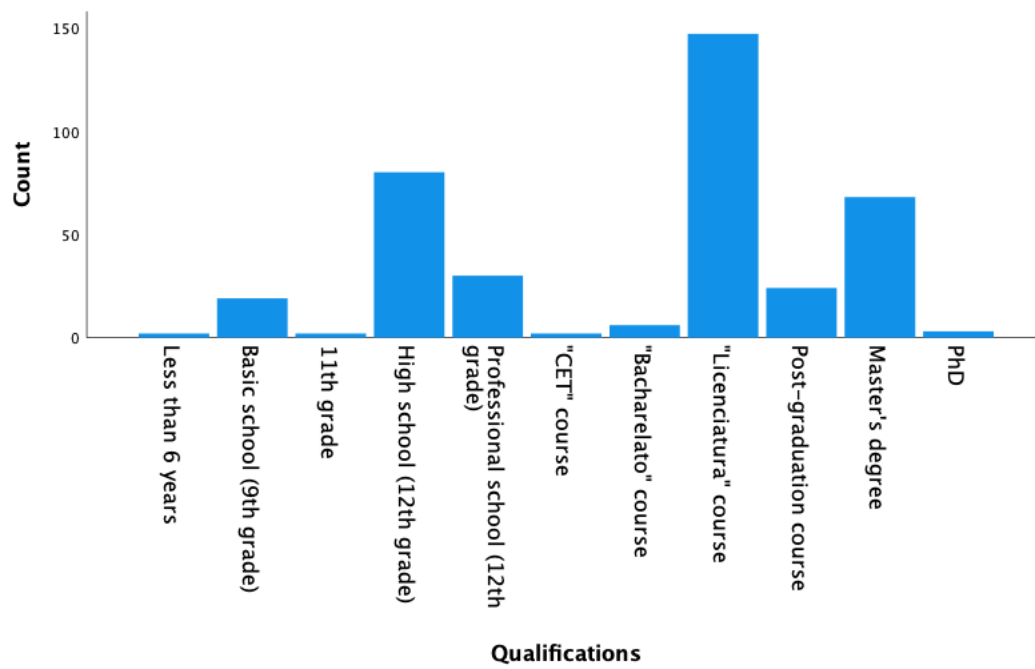
Figure 3: Qualification (all 383 respondents) bar chart.

Histogram

Mean = 3.21
Std. Dev. = 2.126
N = 383
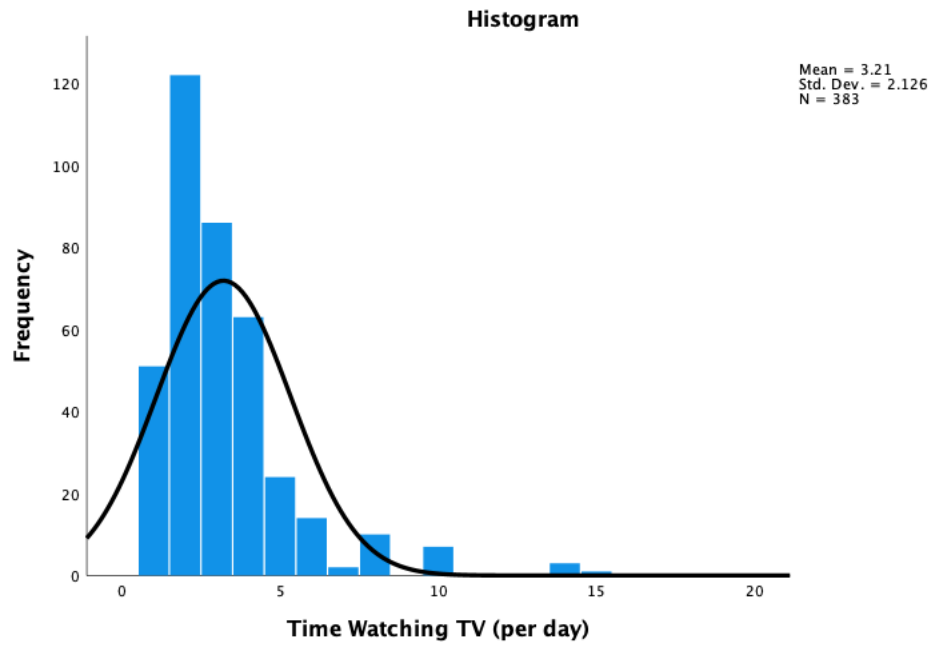
Figure 4: Time watching content distribution (all 383 respondents) histogram.

Appendix 4 – Survey results analysis

Table 8: *Analysis of variance (ANOVA) regarding highest ranked levels of each attribute.*

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Netflix	Between Groups	13.677	1	13.677	.073	.787
	Within Groups	36777.753	196	187.642		
	Total	36791.430	197			
Bundle	Between Groups	60.929	1	60.929	1.190	.277
	Within Groups	10038.021	196	51.214		
	Total	10098.950	197			
Low_price	Between Groups	4.306	1	4.306	.115	.734
	Within Groups	7309.251	196	37.292		
	Total	7313.556	197			
VOD+live+download	Between Groups	13.093	1	13.093	.330	.566
	Within Groups	7766.474	196	39.625		
	Total	7779.567	197			
Ads_no	Between Groups	.176	1	.176	.004	.948
	Within Groups	8258.083	196	42.133		
	Total	8258.260	197			
Pers	Between Groups	2.338	1	2.338	.085	.772
	Within Groups	5421.293	196	27.660		
	Total	5423.631	197			
UHD	Between Groups	18.820	1	18.820	.563	.454
	Within Groups	6547.375	196	33.405		
	Total	6566.195	197			
Cust_adv	Between Groups	32.181	1	32.181	1.224	.270
	Within Groups	5152.613	196	26.289		
	Total	5184.795	197			

Table 9: *Pearson Correlation analysis regarding highest ranked levels of each attribute.*

Correlations

		Netflix	Bundle	Low_price	VOD+live+download	Ads_no	Pers	UHD	Cust_adv	Age	After tax salary	Time Watching TV (per day)
Netflix	Pearson Correlation	1	-.305**	-.106	-.290**	-.397**	-.256**	-.202**	-.317**	-.142*	-.043	-.083
	Sig. (2-tailed)		.000	.139	.000	.000	.000	.004	.000	.046	.547	.246
Bundle	Pearson Correlation	-.305**	1	.045	-.124	.155*	-.111	-.169*	-.174*	-.113	.102	-.094
	Sig. (2-tailed)	.000		.532	.083	.029	.118	.017	.014	.112	.152	.186
Low_price	Pearson Correlation	-.106	.045	1	-.162*	-.212**	-.119	-.093	-.258**	-.022	.050	-.106
	Sig. (2-tailed)	.139	.532		.022	.003	.094	.192	.000	.758	.485	.136
VOD+live+download	Pearson Correlation	-.290**	-.124	-.162*	1	-.053	-.056	-.107	.123	.012	.044	.095
	Sig. (2-tailed)	.000	.083	.022		.461	.431	.134	.084	.871	.541	.185
Ads_no	Pearson Correlation	-.397**	.155*	-.212**	-.053	1	-.041	-.185**	.104	.057	.033	-.085
	Sig. (2-tailed)	.000	.029	.003	.461		.569	.009	.145	.423	.644	.232
Pers	Pearson Correlation	-.256**	-.111	-.119	-.056	-.041	1	.027	.003	.055	.050	.141*
	Sig. (2-tailed)	.000	.118	.094	.431	.569		.702	.970	.445	.485	.047
UHD	Pearson Correlation	-.202**	-.169*	-.093	-.107	-.185**	.027	1	.048	.163*	-.072	.184**
	Sig. (2-tailed)	.004	.017	.192	.134	.009	.702		.498	.022	.314	.010
Cust_adv	Pearson Correlation	-.317**	-.174*	-.258**	.123	.104	.003	.048	1	.085	-.103	.036
	Sig. (2-tailed)	.000	.014	.000	.084	.145	.970	.498		.234	.148	.611
Age	Pearson Correlation	-.142*	-.113	-.022	.012	.057	.055	.163*	.085	1	.216**	-.105
	Sig. (2-tailed)	.046	.112	.758	.871	.423	.445	.022	.234		.002	.141
After tax salary	Pearson Correlation	-.043	.102	.050	.044	.033	.050	-.072	-.103	.216**	1	-.082
	Sig. (2-tailed)	.547	.152	.485	.541	.644	.485	.314	.148	.002		.249
Time Watching TV (per day)	Pearson Correlation	-.083	-.094	-.106	.095	-.085	.141*	.184**	.036	-.105	-.082	1
	Sig. (2-tailed)	.246	.186	.136	.185	.232	.047	.010	.611	.141	.249	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 10: Mean values for each attribute's levels.

Attributes	Levels	Mean value of partworth
Content	Netflix	33,9%
	Amazon Prime Video	13,1%
	HBO Portugal	23,0%
	FOX play	9,7%
	Disney +	18,4%
	Apple TV +	4,9%
Resolution	Full HD	0,0%
	UHD 4K	5,8%
Recommendation system	Recommends popular content	0,0%
	Recommends personalized content	6,9%
Viewing options	VOD streaming only	0,0%
	VOD streaming + live streaming (terrestrial television broadcasting)	5,7%
	VOD streaming + live streaming (terrestrial television broadcasting) + download	11,0%
Customer service	Basic customer service	0,0%
	Customer service widely available (phone, email, long hours)	5,8%
Additional purchases / Access to content catalogue	Menu (charges for early access to part of catalogue)	0,0%
	Bundle (all included)	12,3%
Advertisements	Ad-based service	0,0%
	Ad-free service	9,9%
Monthly price	3,99€	12,2%
	7,99€	6,1%
	11,99€	0,0%

Table 11: Attribute "content" partworths descriptive statistics.

Statistics

		Netflix	Amazon	HBO	FOX	Disney	Apple
N	Valid	198	198	198	198	198	198
	Missing	0	0	0	0	0	0
Mean		33.900%	13.075%	22.989%	9.676%	18.382%	4.862%
Median		34.424%	11.141%	21.682%	7.390%	17.373%	0.000%
Std. Deviation		13.6660%	10.4707%	12.3735%	10.3104%	13.6976%	7.2969%
Range		63.8%	40.9%	53.0%	60.6%	59.0%	37.1%
Minimum		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Maximum		63.8%	40.9%	53.0%	60.6%	59.0%	37.1%

Table 12: Attributes partworths descriptive statistics (excluding "content").

Statistics

		Bundle	Medium_price	Low_price	VOD+live	VOD+live+download	Ads_no	Pers	UHD	Cust_adv
N	Valid	198	198	198	198	198	198	198	198	198
	Missing	0	0	0	0	0	0	0	0	0
Mean		12.263%	6.070%	12.155%	5.657%	11.041%	9.869%	6.921%	5.795%	5.767%
Median		10.897%	5.139%	11.312%	4.348%	9.798%	8.833%	5.835%	3.697%	4.106%
Std. Deviation		7.1599%	4.0635%	6.0930%	4.3576%	6.2841%	6.4746%	5.2470%	5.7733%	5.1302%
Range		33.2%	21.0%	34.8%	23.1%	48.3%	27.5%	32.8%	37.1%	30.1%
Minimum		0.5%	0.4%	1.4%	0.3%	1.0%	0.6%	0.3%	0.3%	0.4%
Maximum		33.7%	21.3%	36.1%	23.4%	49.4%	28.1%	33.1%	37.4%	30.6%

Table 13: Attribute rankings

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Content	198	1	7	1.51	1.178
Additional purchases / Access to content catalogue	198	1	8	3.91	2.041
Monthly price	198	1	8	4.15	1.798
Viewing options	198	1	8	4.42	1.769
Advertisement	198	1	8	4.62	1.978
Recommendation system	198	1	8	5.47	1.801
Resolution	198	1	8	6.01	2.080
Customer service	198	1	8	6.21	1.803
Valid N (listwise)	198				

Table 14: Comparative attribute rankings (relative importance).

Attributes / Mean part-worths		Content	Access to content catalogue	Monthly price	Viewing options	Advertisements	Recommendation system	Resolution	Customer service
		33,9	12,3	12,2	11	9,9	6,9	5,8	5,8
Content	33,9	1,0	2,8	2,8	3,1	3,4	4,9	5,8	5,8
Additional purchases / Access to content catalogue	12,3	0,4	1,0	1,0	1,1	1,2	1,8	2,1	2,1
Monthly price	12,2	0,4	1,0	1,0	1,1	1,2	1,8	2,1	2,1
Viewing options	11	0,3	0,9	0,9	1,0	1,1	1,6	1,9	1,9
Advertisements	9,9	0,3	0,8	0,8	0,9	1,0	1,4	1,7	1,7
Recommendation system	6,9	0,2	0,6	0,6	0,6	0,7	1,0	1,2	1,2
Resolution	5,8	0,2	0,5	0,5	0,5	0,6	0,8	1,0	1,0
Customer service	5,8	0,2	0,5	0,5	0,5	0,6	0,8	1,0	1,0

Table 15: Attributes and levels willingness to pay.

Attributes and levels	Part-worth	WTP	
Content			
Netflix	33,8	€	22,2
Amazon Prime Video	13,1	€	8,6
HBO Portugal	23,0	€	15,1
FOX Play	9,6	€	6,3
Disney+	18,3	€	12,0
Apple TV+	4,8	€	3,2
Additional purchases / Access to content catalogue			
Menu	0,0	€	-
Bundle	12,2	€	8,0
Viewing options			
VOD streaming only	0,0	€	-
VOD streaming + live streaming (TV)	5,6	€	3,7
VOD streaming + live streaming (TV) + download	11,0	€	7,2
Advertisements			
Ad-based service	0,0	€	-
Ad-free service	9,9	€	6,5
Recommendation system			
Recommends popular content	0,0	€	-
Recommends personalized content	6,9	€	4,5
Resolution			
Full HD	0,0	€	-
Ultra HD 4K	5,9	€	3,9
Customer service			
Basic customer service	0,0	€	-
Customer service widely available	5,8	€	3,8

Table 16: *Hierarchical clustering (Average linkage method) mains clusters.*

190	23	155	835.913	168	0	194
191	1	2	910.469	187	186	192
192	1	97	1027.559	191	174	194
193	12	108	1197.093	189	0	195
194	1	23	1245.022	192	190	195
195	1	12	1638.868	194	193	196
196	1	80	1705.087	195	183	197
197	1	181	1827.276	196	0	0
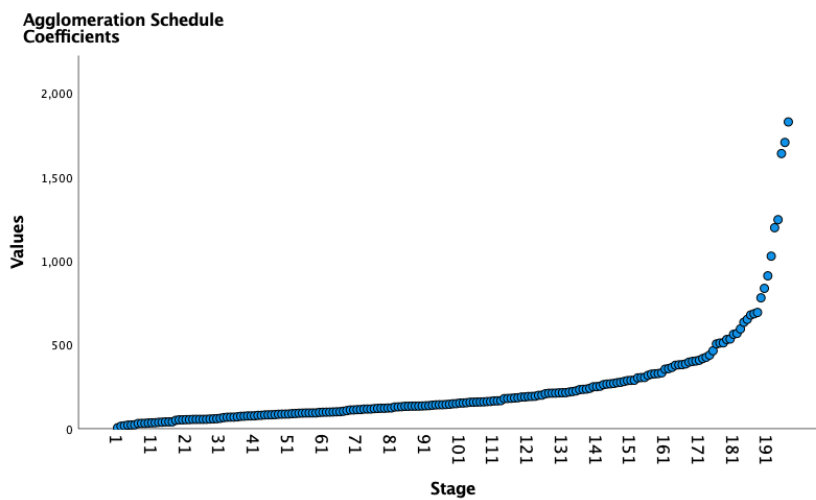
Figure 5: *Hierarchical clustering (Average linkage method) dot plot.*

Table 17: *Hierarchical clustering (Ward's method) mains clusters.*

190	8	44	40190.492	184	156	192
191	10	80	42019.227	189	153	193
192	1	8	43949.613	179	190	194
193	3	10	47150.603	176	191	194
194	1	3	50955.194	192	193	196
195	2	11	56088.574	188	178	197
196	1	12	62584.628	194	186	197
197	1	2	87416.384	196	195	0

Agglomeration Schedule Coefficients
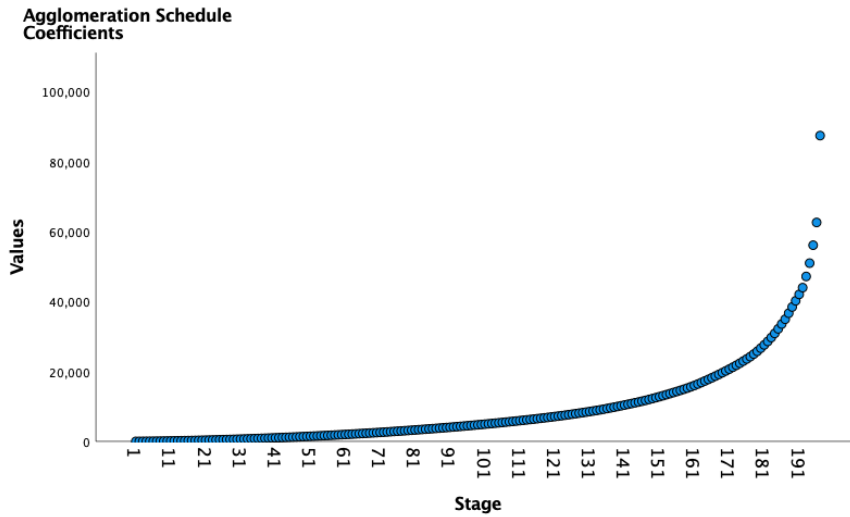
Figure 6: Hierarchical clustering (Ward's method) dot plot.

Table 18: Crosstabulations between hierarchical clustering methods for four clusters.

Average Linkage (Between Groups) * Ward Method Crosstabulation

Count

		Ward Method				Total
		1	2	3	4	
Average Linkage (Between Groups)	1	80	67	31	1	179
	2	0	0	0	16	16
	3	2	0	0	0	2
	4	1	0	0	0	1
Total		83	67	31	17	198

Table 19: Crosstabulations between hierarchical clustering methods for three clusters.

age Linkage (Between Groups) * Ward Method Crosstabulation

Count

		Ward Method			Total
		1	2	3	
Average Linkage (Between Groups)	1	80	98	17	195
	2	2	0	0	2
	3	1	0	0	1
Total		83	98	17	198

Table 20: K-means non-hierarchical clusters.

Number of Cases in each Cluster

Cluster	1	96.000
	2	77.000
	3	25.000
Valid		198.000
Missing		.000

Table 21: *Hierarchical (Ward's method) and non-hierarchical methods comparison.*

Ward Method * Cluster Number of Case Crosstabulation

Count

		Cluster Number of Case			
		1	2	3	Total
Ward Method	1	73	2	8	83
	2	23	75	0	98
	3	0	0	17	17
Total		96	77	25	198

Table 22: *Hierarchical (Average Linkage method) and non-hierarchical methods comparison.*

Average Linkage (Between Groups) * Cluster Number of Case Crosstabulation

Count

		Cluster Number of Case			
		1	2	3	Total
Average Linkage (Between Groups)	1	94	77	24	195
	2	1	0	1	2
	3	1	0	0	1
Total		96	77	25	198

Table 23: *Cluster analysis' ANOVA.*

ANOVA

	Cluster		Error			
	Mean Square	df	Mean Square	df	F	Sig.
Netflix	14477.437	2	40.187	195	360.248	.000
Bundle	980.606	2	41.732	195	23.498	.000
Low_price	12.520	2	37.377	195	.335	.716
VOD+live+download	422.457	2	35.562	195	11.879	.000
Ads_no	604.090	2	36.154	195	16.709	.000
Pers	243.236	2	25.319	195	9.607	.000
UHD	76.390	2	32.889	195	2.323	.101
Cust_adv	215.831	2	24.375	195	8.855	.000

The F tests should be used only for descriptive purposes because the clusters have been chosen to maximize the differences among cases in different clusters. The observed significance levels are not corrected for this and thus cannot be interpreted as tests of the hypothesis that the cluster means are equal.

Table 24: *Mean values for each variable and each cluster.*

Final Cluster Centers

	Cluster		
	1	2	3
Netflix	29.5%	47.0%	10.4%
Bundle	15.3%	8.5%	12.2%
Low_price	12.1%	11.9%	13.1%
VOD+live+download	11.6%	9.0%	15.5%
Ads_no	11.7%	6.8%	12.5%
Pers	6.7%	5.9%	10.9%
UHD	5.2%	5.8%	8.0%
Cust_adv	6.2%	4.3%	8.9%

Final Cluster Centers
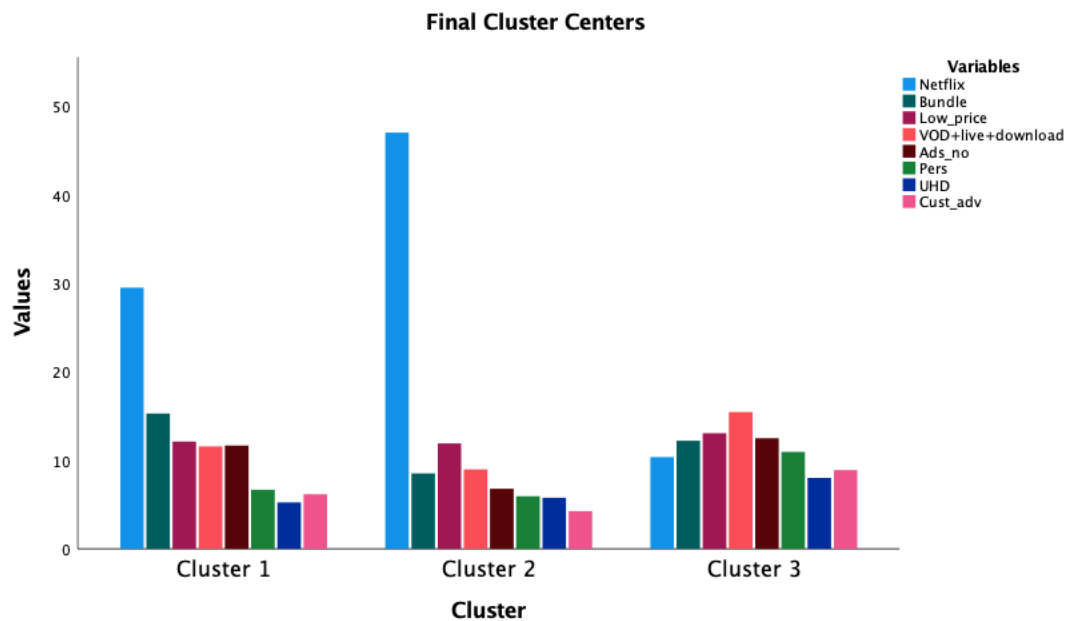
Figure 7: Mean values for each variable and each cluster bar chart.

Appendix 6 – Cluster 1 descriptive statistics

Table 25: Cluster 1 descriptive statistics for sociodemographic characteristics.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Gender	96	0	1	.73	.447
Age	96	20	70	33.56	10.758
After tax salary	96	0	80000	2497.08	11398.994
Time Watching TV (per day)	96	1	10	2.89	1.615
Qualifications	96	1.00	9.00	5.8125	2.47221
Valid N (listwise)	96				

Table 26: Cluster 1 detailed statistics for "qualification".

Qualifications

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Basic school (9th grade)	5	5.2	5.2	5.2
	11th grade	1	1.0	1.0	6.3
	High school (12th grade)	24	25.0	25.0	31.3
	Professional school (12th grade)	6	6.3	6.3	37.5
	"CET" course	1	1.0	1.0	38.5
	"Bacharelato" course	2	2.1	2.1	40.6
	"Licenciatura" course	32	33.3	33.3	74.0
	Post-graduation course	11	11.5	11.5	85.4
	Master's degree	14	14.6	14.6	100.0
	Total	96	100.0	100.0	

Appendix 7 – Cluster 2 descriptive statistics

***Table 27**: Cluster 2 descriptive statistics for sociodemographic characteristics.*

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Gender	77	0	1	.57	.498
Age	77	18	65	32.99	11.083
After tax salary	77	0	4500	950.95	863.316
Time Watching TV (per day)	77	1	15	3.35	2.553
Qualifications	77	.00	10.00	6.1818	2.53256
Valid N (listwise)	77				

***Table 28**: Cluster 2 detailed statistics for "qualification".*

Qualifications

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 6 years	1	1.3	1.3	1.3
	Basic school (9th grade)	3	3.9	3.9	5.2
	High school (12th grade)	15	19.5	19.5	24.7
	Professional school (12th grade)	6	7.8	7.8	32.5
	"Bacharelato" course	1	1.3	1.3	33.8
	"Licenciatura" course	31	40.3	40.3	74.0
	Post–graduation course	1	1.3	1.3	75.3
	Master's degree	17	22.1	22.1	97.4
	PhD	2	2.6	2.6	100.0
	Total	77	100.0	100.0	

Appendix 8 – Cluster 3 descriptive statistics

***Table 29**: Cluster 3 descriptive statistics for sociodemographic characteristics.*

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Gender	25	0	1	.56	.507
Age	25	18	67	36.16	14.358
After tax salary	25	0	30000	3031.00	8142.142
Time Watching TV (per day)	25	1	10	3.92	1.869
Qualifications	25	1.00	9.00	5.8400	2.32164
Valid N (listwise)	25				

***Table 30**: Cluster 3 detailed statistics for "qualification".*

Qualifications

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Basic school (9th grade)	2	8.0	8.0	8.0
	High school (12th grade)	4	16.0	16.0	24.0
	Professional school (12th grade)	2	8.0	8.0	32.0
	"Licenciatura" course	14	56.0	56.0	88.0
	Post–graduation course	1	4.0	4.0	92.0
	Master's degree	2	8.0	8.0	100.0
	Total	25	100.0	100.0	