

POLITECNICO DI TORINO

Collegio di Ingegneria Gestionale

Corso di Laurea Magistrale in

Engineering and Management

Master Degree Thesis

## **Social Media Marketing**

Analysis and application to the Specializing Master's Programmes and  
Lifelong Learning School of Polytechnic of Turin



**Supervisor:**

Paolo Neirotti

**Candidate:**

Valentina Bocchio

A.A. 2019/2020

## **Acknowledgments**

I would like to thank my Professor and supervisor Paolo Neirotti, for his help and suggestions indispensable for me to complete this work and for all the notions that he has provided during his courses.

I would like to thank my parents for giving me the possibility to study, for all the support they have provided me through all my path at Politecnico and for always believing in me. I owe my deepest gratitude also to all my family, which is always there for me when I need it and to my friends, in particular Francesca, Giulia, Giorgia, Giorgia and Giada, for all the support and encouragement.

A big thank you also to my housemates, which had to deal with my everyday problems. Finally, I would like to thank my boyfriend Edoardo for all the support and advices he has given me during these years and for his endless patience.

*Valentina Bocchio*



# Index

<b>Acknowledgments .....</b>	<b>I</b>
<b>Index of Figures .....</b>	<b>V</b>
<b>Index of Tables .....</b>	<b>VII</b>
<b>1 Introduction .....</b>	<b>1</b>
1.1 Background .....	1
1.2 Research problem .....	1
1.3 Objectives.....	1
1.4 Limitations .....	2
<b>2 Digital marketing essentials.....</b>	<b>3</b>
2.1 Digital marketing .....	3
2.1.1 Outbound marketing .....	3
2.1.2 Inbound Marketing .....	4
2.1.3 Mobile technology .....	5
2.2 The use of social media.....	5
2.2.1 Customers .....	7
2.2.2 Companies .....	7
2.3 How to engage customers .....	8
2.3.1 Metrics .....	8
2.3.2 Post characteristics.....	9
<b>3. Business Schools on social media .....</b>	<b>11</b>
3.1 SDA Bocconi .....	13
3.2 MIP.....	13
3.3 Luiss Business School.....	14
3.4 Cuo Business School .....	14
3.5 Specializing Master’s Programmes and Lifelong Learning School of Polytechnic of Turin.....	15
3.6 Followers comparison .....	15
<b>4. Objective and method of the analysis .....</b>	<b>17</b>
4.1 Objective .....	17
4.2 Method .....	17

4.2.1	Data collection.....	17
4.2.2	Database creation .....	23
4.2.3	Descriptive statistics.....	28
4.2.4	Linear Regression model.....	34
<b>5.</b>	<b>Results .....</b>	<b>51</b>
5.1	Expected results .....	51
5.1.1	Social media expected results .....	51
5.1.2	Language expected results .....	51
5.1.3	Type of post expected results .....	52
5.1.4	Hashtag expected results .....	52
5.1.5	Post length expected results .....	52
5.1.6	Post categories expected results .....	53
5.2	Results obtained.....	55
5.2.1	Linear regression model 1 results.....	55
5.2.2	Linear regression model 2 results.....	57
5.2.3	Linear regression model 3 results.....	59
5.2.4	Linear regression model 4 results.....	60
5.2.5	Summary of linear regression results .....	62
<b>6.</b>	<b>Discussion.....</b>	<b>65</b>
6.1	Social media .....	65
6.2	Language .....	65
6.3	Type of post.....	66
6.4	Hashtags.....	66
6.5	Post length .....	67
6.6	Post categories .....	67
6.7	Examples from the Polito Master School’s Facebook page .....	69
<b>7.</b>	<b>Conclusions.....</b>	<b>75</b>
	<b>References .....</b>	<b>77</b>
	<b>Attachments .....</b>	<b>81</b>

## Index of Figures

Figure 2-1: Social media timeline.....	6
Figure 2-2: World’s most-used social platforms .....	7
Figure 2-3: Social media marketing objectives and related metrics .....	8
Figure 3-1: Social media pages followers.....	16
Figure 4-1: Example of data collected.....	18
Figure 4-2: Comparison of Facebook posts.....	20
Figure 4-3: Comparison of Instagram posts.....	20
Figure 4-4: Comparison of LinkedIn posts.....	21
Figure 4-5: Comparison of video views.....	21
Figure 4-6: Comparison among the social media pages of Luiss Business School.....	22
Figure 4-7: Comparison among the social media pages of SDA Bocconi .....	22
Figure 4-8: Comparison among the social media pages of MIP.....	23
Figure 4-9: Comparison among the social media pages of Cuoia Business School.....	23
Figure 4-10: Database of social media posts .....	25
Figure 4-11: Post categories .....	26
Figure 4-12: Frequency of presence of post categories on each social media.....	30
Figure 4-13: Frequency of presence of each post category according to Business Schools.....	34
Figure 4-14: Graphs for the variable ‘likes’ .....	36
Figure 4-15: Graph for the variable ‘Log_likes’ .....	36
Figure 4-16: Scatter plot for model 1.....	37
Figure 4-17: Statistics of collinearity model 1.....	38
Figure 4-18: Outliers of model 1 .....	39
Figure 4-19: Graphs for the variable ‘comments’ .....	40
Figure 4-20: Graphs for the variable ‘Log_comments’ .....	41
Figure 4-21: Scatter plot for model 2.....	42
Figure 4-22: Statistics of multicollinearity model 2 .....	42
Figure 4-23: Outliers of model 2 .....	43
Figure 4-24: Graphs for the variable ‘Reshares’ .....	44
Figure 4-25: Graphs for the variable ‘Log_reshares’ .....	45
Figure 4-26: Scatter plot for model 3.....	46
Figure 4-27: Statistics of multicollinearity model 3 .....	46
Figure 4-28: Outliers of model 3 .....	47
Figure 4-29: Graphs for the variable ‘video views’ .....	48
Figure 4-30: Graphs for the variable ‘Log_views’ .....	48
Figure 4-31: Scatter plot model 4 .....	49
Figure 4-32: Statistics of multicollinearity model 4 .....	50
Figure 4-33: Outliers model 4.....	50
Figure 5-1: Summary of linear regression model 1 .....	56
Figure 5-2: ANOVA model 1 .....	56
Figure 5-3: Coefficients model 1 .....	57
Figure 5-4: Summary of linear regression model 2 .....	58

Figure 5-5: ANOVA model 2.....	58
Figure 5-6: Coefficients model 2 .....	59
Figure 5-7: Summary of linear regression model 3.....	59
Figure 5-8: ANOVA model 3.....	60
Figure 5-9: Coefficients model 3 .....	60
Figure 5-10: Summary of linear regression model 4.....	61
Figure 5-11: ANOVA model 4.....	61
Figure 5-12: Coefficients model 4 .....	62
Figure 6-1: Example 1 from the Facebook page of the Polito Master School .....	70
Figure 6-2: Example 2 from the Facebook page of the Polito Master School .....	71
Figure 6-3: Example 3 from the Facebook page of the Polito Master School .....	73

## Index of Tables

Table 2-1: Summary of the main digital marketing tools.....	5
Table 2-2: Relationship between metrics and post characteristics .....	10
Table 3-1: Number of students of the Schools of Master considered.....	12
Table 3-2: Social media and universities .....	12
Table 3-3: Social media pages followers.....	16
Table 4-1: Post categories.....	28
Table 4-2: Frequency of presence of post categories on each social media. ....	30
Table 4-3: Frequency of presence of each post category according to Business Schools. .....	33
Table 4-4: Summary of the linear regression model assumptions.....	35
Table 5-1: post characteristics and metrics.....	53
Table 5-2: Summary of expected results .....	55
Table 5-3: Summary of results.....	63
Table 5-4: Summary of the p-values.....	64
Table 6-1: Summary of example 1 .....	70
Table 6-2: Summary of example 2 .....	72
Table 6-3: Summary of example 3 .....	73



# 1 Introduction

## 1.1 Background

Social media marketing is part of the wider field of digital marketing. Since the advent of internet and of social media, marketers have found new ways to promote their businesses, exploiting the new channels. Digital marketing was born during the 90s and 00s and it has developed really fast since then, changing the way people look for information and the way companies talk to their customers.

Traditional marketing uses traditional channels, like prints on newspapers and magazines, spots on Tv or on the radio, outdoor billboards or fliers and many others. The main advantages are the fact that it is permanent, easy to remember for the people who sees the ad and impactful as it is easy to understand; the main disadvantages are the cost, the fact that it is not easy to measure its impact and that it doesn't provide a direct interaction with the audience.

Digital marketing instead uses digital channels to communicate with the audience, like websites or social media. Its main advantage is the fact that it is easy to measure, to see how many people liked it, how many shared it and so on; moreover, it allows to target consumers. The main disadvantages are the fact that ads can be considered annoying online, people do not want to see them and try to skip them when it is possible; another drawback is the rate of evolution, digital marketing in fact evolves incredibly fast and it requires a specialist for each channel.

## 1.2 Research problem

Due to the increasing spread and diffusion of social media, not only firms and businesses have joined these communication channels, but also Universities and Business Schools. The methods and strategies of communication for educational institutes can be different than the ones for companies; it is important to understand what are the elements and tools that have a positive influence on brand awareness, brand engagement and word of mouth for Schools and Universities.

## 1.3 Objectives

This research aims to define what are the most effective communication strategies and approaches for the promotion of masters and educational programs online, and, in particular, on social media, in order to apply to the Specializing Master's Programmes and Lifelong Learning School of Polytechnic of Turin the actions and tools, that from the analysis, result efficient and effective. To conduct the analysis, real data, from the social pages of the main Business Schools in Italy, were used; the social media taken into consideration are Facebook, Instagram, LinkedIn and partially YouTube, while the schools chosen are MIP, Luiss Business School, SDA Bocconi and Cuoia Business School. The data collected in a three months' time frame were used to create four linear regression models on the software SPSS to understand the correlation between the metrics likes, comments, reshares and video views and the characteristics of the posts published on the social media pages of the Schools. The results of the analysis are used to create a set of strategies to be implemented by the Specializing Master's Programmes and Lifelong Learning School of Polytechnic of Turin.

## *1.4 Limitations*

The limitations of this thesis work are:

- The Business Schools considered were only four and all located in Italy; no International Schools were analysed. The Schools chosen are all in Italy as the School of masters of the Polytechnic of Turin, so the choice was made in order to have educational institutes that could be comparable to it.
- The time frame considered was of only three months and the time frame considered partially corresponded to the lockdown due to the Covid-19 pandemic. Therefore, the posts collected could have been influenced by that. In order to overcome this, the analysis should be carried over by collecting posts also in another time frame, to compare results.
- Only Facebook, Instagram and LinkedIn were used in the linear regression models, as they are the most used channels. YouTube was considered in chapter 3, where a general overview of the use of social media by Business Schools is made; it was not included in the linear regression model as the metrics that should be used to evaluate brand awareness, brand engagement and word of mouth for this social media are different with respect to ones that were used for Facebook, Instagram and LinkedIn.

## 2 Digital marketing essentials

### 2.1 Digital marketing

Digital marketing has destroyed some of the barriers to entry for new companies, which can now make themselves known to the public more easily; in fact, television is not the major marketing mean anymore. Digital technology has changed the way people behave and look for information. It can be defined as the use of digital channels to engage, communicate with and influence consumers in an effective way.

The main categories in which digital marketing can be divided are outbound marketing and inbound marketing (1).

#### 2.1.1 Outbound marketing

Outbound marketing is the traditional way to do marketing, in which the company takes actions in order to send a message to target consumers. In the digital form it can be divided into search, display and video ads (1).

##### 2.1.1.1 Search ads

Nowadays, when people start searching for a product/service they type the relevant terms on a search engine, e.g. Google, rather than going directly to a website. For this reason, it is important for a company to appear in the first positions in the search results pages, in order to be noticed by the customer.

Links can be divided into organic and sponsored. The former are ranked based on relevance and popularity, while the latter are above organic links, so in a more visible position. To appear as a sponsored link the company must pay the search engine and buy the keywords (individual words or multiword phrases) in which it wants to appear. For the company it is essential to create with attention its keyword portfolio, since consumers searching for the same information may use different words, different languages but also for the fact that misspellings are common. Moreover, companies have the possibility to buy negative keywords to avoid appearing in specific searches. Keywords can be divided into branded and generic. Companies can buy their branded words or the ones of other companies for defensive and offensive reasons (1). Most search engines provide a service to help companies choose the keywords and monitor the web traffic for each of them, being it not an easy task.

##### 2.1.1.2 Display ads

This kind of ads appear on a website that the company considers relevant for its target consumers. It can take many forms:

1. Banner ads: usually at the top of the web page;
2. Interstitial ads: entire web pages that appear to the consumer before he is directed to the requested page;
3. Expandable banner ads: banner ads that automatically expand to a larger portion of the screen;
4. Overlay: interstitial ads with a transparent background, so that the user can see the original web page;

5. Rich media: Ads that include videos, audio or hyperlinks to click;
6. 360-degree ads: designed for mobile phones, they provide a 360-degree view as the user moves the phone.

The value chain of display ads is composed of many players. The publisher of the content sells space on its website to marketers who want to promote their business. To help the connection between marketers and content publishers there are intermediaries: ad networks and ad exchanges. Ad networks collect the supply of advertising space and match it with advertiser's demand; they also provide support to optimally place ads. Ad exchanges make this matching automatically, using programmatic buying, which implies a real-time bidding, like for stock exchange. There are also demand-side platforms and supply-side platforms, which act as brokers to connect the players in the value chain (1).

Displays ads can be

1. contextual if they match the website topic;
2. retargeting if they are shown to consumers who have previously visited the company's website;
3. morphing if they are selected from a portfolio of ads based on consumer attributes.

#### *2.1.1.3 Video ads*

This kind of ads are similar to display ads, but they are made of more dynamic images. Their use is currently growing not only on digital platforms, but also on smart TVs and streaming services (1).

They can be:

1. skippable in-stream (it can be skipped after a few seconds),
2. non-skippable in-stream (lasts 15-20 seconds),
3. bumper (non-skippable, lasts less than 6 seconds).

#### *2.1.2 Inbound Marketing*

Inbound marketing is based on a close relationship between the company and consumers, which have voluntarily showed interest in the products or services offered by the company, for example by subscribing to a newsletter or to the company's social networks (2) and they have been attracted by high quality content marketing. In this kind of marketing the focus for the company is to ensure that consumers can find it when they search for information.

Among inbound marketing we can distinguish between content marketing, search engine optimization and social media marketing (3). In the following paragraphs content marketing and search engine optimization will be analyzed, while social media will be taken into consideration in greater details in paragraph 2.2.

##### *2.1.2.1 Content marketing*

Content marketing consists in creating, distributing and sharing content, which is useful, relevant for customers and you can obtain profits from it (4). This kind of content is usually published on proprietary media, like websites.

### 2.1.2.2 Search engine optimization

Search engine advertising or pay-for-search ads, is based on the fact that sponsored content appears on the search page on top or next to the search results (5). Since people conduct online researches before buying a product, it is important for companies to be visible when a consumer makes a search on a search engine.

The first organic links are the ones that are viewed more times by consumers, so companies need to find a way to position their website in the top results for a search. Companies can gain ranks through search engine optimization (SEO). For example, Google ranks links based on relevance (match between search and the web page; page content and meta tags) and authority (measure of the importance of the web page). The authority is measured by Google with a proprietary algorithm, the so-called PageRank (1). So, the content of the web page is essential, it has to answer consumers' questions, to go beyond basic product information and it must be interesting, original and create trustworthiness in order to encourage other pages to provide links to it.

Another focal point is the landing page since its goal is to convert visitors into customers, so website design and user experience are essential.

### 2.1.3 Mobile technology

Mobile technology has changed the way consumers behave with respect to the desktop of a computer. First, the screen size is different; people are used to smaller screens and so less inclined to read for long periods. Contents on mobile phones are usually rich, they include many photos and videos. Second, mobile phones allow companies to target consumers in a specific location, thanks to location data. In fact, the use of mobile phones allows companies to show an ad at the right moment (moment-based marketing) by using the information they have concerning the location or plans of the consumer. Third, phones provide access to information in an easy and fast way, so people can compare prices and read reviews even while they are shopping in a physical store. Fourth, smartphones include many apps, so ads need to adapt to them (1).

In Table 2-1 the main tools of both outbound and inbound marketing are summarized.

<b>Outbound marketing</b>	Search ads
	Display ads
	Video ads
<b>Inbound marketing</b>	Content marketing
	Search engine optimization
	Social Media

Table 2-1: Summary of the main digital marketing tools.

## 2.2 The use of social media

The origin of social media goes back to 1979, when Tom Truscott and Jim Eliss, from Duke University, founded Usenet, a social network which allowed worldwide users to post public messages in a discussion system. Probably, the first social media as it is intended today was

“Open Diary”, a weblog, or in short just blog, created by Bruce and Susan Abelson in 1998, which gathered together online diary writers (6). In the following years, thanks also to the growing availability of high-speed internet connections, social media gained popularity and new ones were created. In particular, at the beginning of the 2000s, many social platforms that we still know and use today were founded. In figure 2.1, the timeline representing the history of social media from 1978 to 2015 is shown.

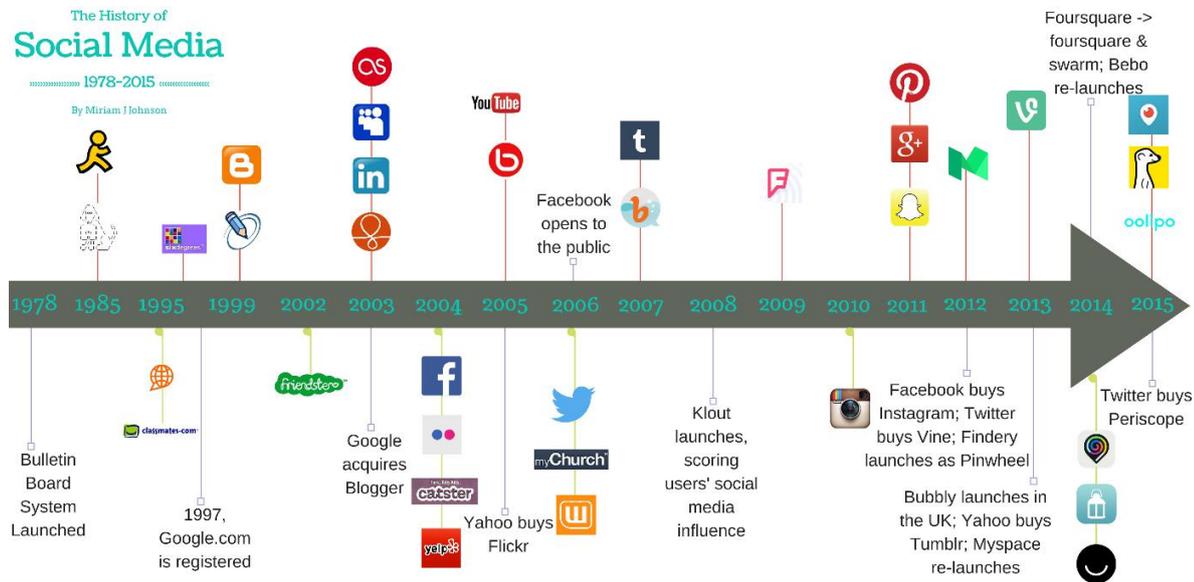


Figure 2-1: Social media timeline (7)

Among the most important social media founded at the beginning of the 2000s, there are Friendster, Myspace, LinkedIn, Facebook, YouTube and Twitter. Today Friendster does not exist anymore, while Myspace is still active but not with a large customer base (8). Facebook, LinkedIn, YouTube and Twitter are still in use and they are among the most popular ones.

Social media have now more than 3.8 billion of users around the world, and, by the middle of 2020, half of the global population will use them (9). In figure 2-2 the most used social media around world are shown. The first place is taken by Facebook, with almost 2.5 million of monthly active users.

In general, social media can be defined as web-based applications that are built on the foundations of Web 2.0, both ideologically and technically, and allow users to create and exchange User Generate Content (UGC) (6). What characterizes and differentiates social media from the traditional communication means is the fact that they allow the actors that take part on social media to communicate with one another along dyadic ties (10); besides, they are multi-way by definition.

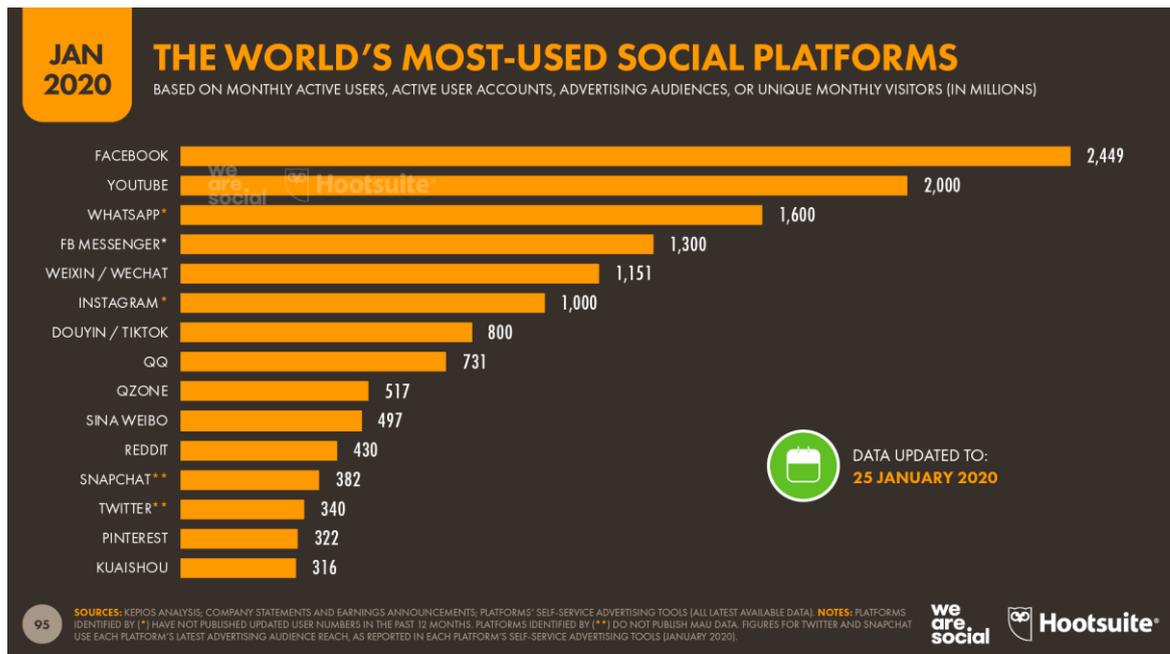


Figure 2-2: World’s most-used social platforms (9).

### 2.2.1 Customers

The use of social media has spread significantly over the last 15 years; from the advent of Facebook on, many relationships have migrated to the online world and today the question is no more whether people are signing in but what they are looking for on social media and which platforms they choose according to their needs (11). For companies it is crucial to understand what consumers are looking for in order to answer to their desires.

According to O. Toubia, A. T. Stephen (12) people contribute to social media for mainly two reasons:

1. Intrinsic utility: this is the utility users get from posting content;
2. Image-related utility: it is indirect utility that depends on the perception that others have about us on social media.

These reasons can be found also in the value that users are looking for on social media, which can be summarized in values identified by M. Seraj (13):

1. Intellectual value: coming from the co-creation of contents and the quality of content itself;
2. Social value: coming from the use of the platforms and their social connections;
3. Cultural value: represented by the self-governed community culture and social norms to evaluate the behaviour of other users.

### 2.2.2 Companies

Firms engage in social media for marketing purposes mainly due to external pressures (11), competition and the increasing popularity of these channels for communication, but they soon realized that they can be a way to improve the performance (14), create or strengthen relationships with consumers, reach new audience and enhance word of mouth (15). In addition, the introduction and fast spread of social media have offered companies and brands

new ways to communicate and interact with consumers; firms have always talked to their consumers through the traditional marketing means, like broadcast, advertising, direct mails and telephone, but now, thanks to online platforms, customers can not only talk to each other but also to companies (16). In any case, social media users talk about brands, it is the brand that has to decide whether it wants to participate in the discussion or not (17).

On social media companies lose the control they were used to have on traditional media, in which you can easily buy a sustained reach; on online platforms, the content will not reach the targeted number of people if it not shared by users. Thus, it is crucial for firms to understand the motives of consumers, so that the content published by the company can match the tastes of consumers, which will then have the incentive to pay attention to it and most of all share it with their network (18).

## 2.3 How to engage customers

### 2.3.1 Metrics

The first step in order to measure and understand customer engagement on social media is to define the metrics that will be used; by doing this, managers and marketers can understand what is having success, so what actions can be repeated, and what is not, so that corrective measures can be undertaken. A metric can be defined as a measurement system that quantifies a static or dynamic characteristic (19).

The metrics must measure the three main objective of a social media marketing campaign, which are the following:

- Brand awareness: the exposure of the brand is increased every time a user reaches content created by or regarding the brand (20);
- Brand engagement: it can be identified on social media by looking at the content generated by users, which creates commitment from the consumers and increases their loyalty towards the brand (20);
- Word of mouth: the opinions and feedbacks, both positive and negative, of consumers are shared (20);

Brand awareness can be measured online through metrics that look at the exposure of the brand page, so for example the number of fans/members of the page itself; Brand engagement is related to the content generated by users, so a good measure can be the number of comments of a post; word of mouth can be analysed through the number of reshares of a post. Figure 2.1. summarizes a certain amount of metrics divided according to the objective they are related to.

SOCIAL MEDIA APPLICATION	BRAND AWARENESS	BRAND ENGAGEMENT	WORD OF MOUTH
Social Networks (e.g., Bebo, Facebook, LinkedIn)	<ul style="list-style-type: none"> <li>•number of members/fans</li> <li>•number of installs of applications</li> <li>•number of impressions</li> <li>•number of bookmarks</li> <li>•number of reviews/ratings and valence +/-</li> </ul>	<ul style="list-style-type: none"> <li>•number of comments</li> <li>•number of active users</li> <li>•number of "likes" on friends' feeds</li> <li>•number of user-generated items (photos, threads, replies)</li> <li>•usage metrics of applications/ widgets</li> <li>•impressions-to-interactions ratio</li> <li>•rate of activity (how often members personalize profiles, bios, links, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>•frequency of appearances in timeline of friends</li> <li>•number of posts on wall</li> <li>•number of reposts/shares</li> <li>•number of responses to friend referral invites</li> </ul>

Figure 2-3: Social media marketing objectives and related metrics. (20)

Due to the highly dynamic nature of social media, it is important to consider also how the numbers change over time, so the increase or decrease in metrics such as the number of followers, as it can be more important than the mere state (18).

K. Peters et. al (18) give also other suggestions regarding the metrics that a firm should adopt. First, all the relevant social media used by the company must be included in the analysis, in order to check which are the most effective ones and to detect possible spillover effects among them. Then, different categories of users that engage with the brand social page have to be considered; each category will have different characteristics and different levels of engagement, it is important to look at this and marketers should have a particular focus on the most engaged category; what matters here is quality more than quantity. Finally, due again to the dynamic nature of social media, it is important to update the metrics and the method used to analyze the actions undertaken over time, since things can change, like the state of diffusion of social media or the engagement of users.

### *2.3.2 Post characteristics*

To effectively engage consumers, it is important to understand what types of posts on social media attract more attention, what characteristics increase the number of likes and comments, in order to successfully implement them.

The metrics that will be considered from this point on are:

- Number of likes received in a social media post;
- Number of comments received in a social media post;
- Number of times the post has been shared by social media users;
- Number of fans/followers of the social media page;
- Number of visits of the social media page.

As shown in Figure 2-1, number of like and number of followers are metrics that measure brand awareness, the number of comments is a measure of brand engagement, number of shares measures the word of mouth (17), while number of visits of the page is related to the usage intensity (21).

The main post characteristics that are considered are:

- Vividness: extent to which a brand post stimulates the different senses (22);
- Interactivity (or co-creation): The degree to which two or more communication parties can interact, on the communication medium, and on the messages. Possibility to share opinions and read feedbacks of other consumers (21), (22);
- Informational content (or functional value): The post contains useful, functional or practical information about the company or its products (22),(21), (23);
- Entertainment content: The post is not related to the brand, but it is made of fun, exciting and entertaining content (22);
- Top position of the post: The most recent posts are on the top of the brand page, while older ones shift down (22);
- Number of positive comments: The comments written under the post and positive feedbacks by other customers (22);

- Number of negative comments: The comments written under the post and negative feedbacks by other customers (22);
- Emotional content: The post stimulates very strong emotions, which can both be positive and negative (23) (24).

In table 2-1 the previously mentioned post characteristics are put in relation with the most common social media metrics (number of likes, number of comments, number of shares, number of fans, number of visits to the page). The symbol “+” is used to show a positive correlation between the post characteristic and the metric, which means that the presence of that particular characteristic increases the related metric; the symbol “-” instead is used for negative correlation, so the presence of that characteristic reduces the value associated to the metric.

	Vivid	Interactive	Informational content	Entertainment content	Top position of the post	Positive comments	Negative comments	Emotional content
Number of likes	+	-	+		+	+		
Number of comments		+	+		+	+	+	-
Number of shares								+
Number of fans	+							
Number of visits to the page				+				

Table 2-2: Relationship between metrics and post characteristics

### 3. Business Schools on social media

Everything said concerning the use of social media for companies in paragraph 2.2.2 can apply also to universities, but it can be of interest to further identify what are the reasons and motives that push universities to join social media and how they can exploit this mean. Universities can exploit the potential of social media not only to attract new students but also to share the principles and history of the institute. Culture and sense of tradition make students feel part of something and encourages them to share the posts on their own social media. Moreover, they can be used as a platform to answer questions and share students' feedbacks; they are a channel for communication and for the spread of information.

To engage both enrolled and potentially new students, variety is a key element. Sharing always the same type of contents makes people get bored and they will not pay attention to posts, so it is important to create interest in many areas (news, researches published, students highlights, campus events and activities, etc...) (25). Exciting events should be used to boost current students' engagement and increase the number of people that share the post on their own profiles in order to reach also their followers. It is also a way to increase the interest of prospective students who are scoping out the university.

Another important role of social media for universities is the fact that they allow to keep a connection with alumni after their graduation (26). Through these channels the institutions can share the life and career of the most valuable students that carried out their studies there. It is a way to increase the exposure of the school and the value for both students and university.

It can be useful and interesting to look at how universities and schools of master relate to social media, what do they publish, how often and in which channels, in order to understand what tools the Specializing Master's Programmes and Lifelong Learning School of Polytechnic of Turin can use for its own social networks and which social media it should engage in. In order to make a comparison, business schools have been chosen, as they offer, in addition to MBAs and executive programs, masters of first and second level, as the Specializing Master's Programmes and Lifelong Learning School of Polytechnic of Turin. The Business Schools that have been taken into consideration are Luiss Business School, SDA Bocconi, MIP and Cuoia Business School; the choice has been made to have some variety in the sample; in fact, MIP is connected to a public University, the Polytechnic of Milan, Luiss Business School and SDA Bocconi are related to private Universities, respectively Luiss Guido Carli and Bocconi, while Cuoia Business School is not connected to any University, but it just offers master programs. Moreover, they cover different areas of Italy, as MIP and SDA Bocconi are located in Milan, Luiss Business School in Rome and Cuoia Business School in Altavilla Vicentina.

Another important aspect to take into account concerning the schools of master considered for the analysis is the sizes of the faculties, which are summarized in Table 3-1. To have a measure of the size the number of students enrolled is considered.

Luiss Business School in the school year 2018/2019 had 1293 students enrolled in a master's degree of I or II level (27); in SDA Bocconi the number of students of a master or of an MBA during the school year 2016/2017 was 589 (28); in the school year 2018/2019, MIP had around 3000 students, plus thousands participants attending the customized courses

organized for business customers, and, at the moment, there are around 4900 students enrolled (29); Cuoia Business School in the school year 2018/2019 offered master programs to around 4800 students (30); the Specializing Master’s Programmes and Lifelong Learning School of Polytechnic of Turin during the school year 2018/2019 had 565 students enrolled in I and II level Specializing Master programs, Lifelong Learning courses and training courses for businesses (31).

School of masters	Number of students
Luiss Business School	1293 (school year 2018/2019)
SDA Bocconi	589 (school year 2016/2017)
MIP	4900 (school year 2019/2020)
Cuoia Business School	4800 (school year 2018/2019)
Specializing Master’s Programmes and Lifelong Learning School of Polytechnic of Turin	565 (school year 2018/2019)

Table 3-1: Number of students of the Schools of Master considered

In their websites, Business Schools clearly display at the bottom or at the top of the web page the social media in which they are present by displaying the icon of the social network, with a direct link to the social page. SDA Bocconi (32) and MIP (33) show on their webpage that they have a social brand page on Facebook, Instagram, Twitter, LinkedIn and YouTube; Cuoia Business School (34) in addition to these social media has also the link to the ‘social cuoia space’, a webpage with articles about many fields, from finance to sustainability and food & wine, feedbacks from alumni that share their personal experience and the possibility to subscribe to their newsletter; Luiss Business School (35) shows the icon not only of Facebook, Twitter, Instagram, LinkedIn, YouTube as the other universities, but also Flickr and, in some parts of the website, of Google plus, even though the latter was closed in April 2019. The Specializing Master’s Programmes and Lifelong Learning School of Polytechnic of Turin (36) is present only on Facebook.

University					
SDA Bocconi	✓	✓	✓	✓	✓
MIP	✓	✓	✓	✓	✓
Luiss Business School	✓	✓	✓	✓	✓
Cuoia Business School	✓	✓	✓	✓	✓
Specializing Master’s Programmes and Lifelong Learning School	✓	✗	✗	✗	✗

Table 3-2: Social media and universities

### *3.1 SDA Bocconi*

SDA Bocconi is a section of Bocconi University that is dedicated to post-experience programs, from Specialized Master Programs and MBAs to executive courses, and it has its own social media pages, which are separated from the ones of Bocconi university. The Facebook page (37) is mainly used for the promotion of the educational programs through photos with information concerning the master and many videos of the successful stories of people who have already completed their studies in the school, of interviews with important guests that will take part to lectures during the courses, called ‘leadership series’ and other ones with explanations about current topics, which are part of the series ‘#hottopic’. This channel is also used to show the architecture and shape of the new campus in Milan and the events that take place there. Contents are published daily and sometimes even more than once in a day. On LinkedIn (38) the posts shared are mainly the ones already on Facebook, the frequency is the same, and, in addition, among contents published, there are also pictures with the goals of the programs offered and the type of person they target. Instagram (39) is used to share again the contents already posted on the social media previously mentioned and, moreover, highlighted stories show brief descriptions, by the director, of the masters offered. Instagram is used less frequently, with a post every couple of days more or less. The Instagram stories last 24 hours after they are published, but the owner of the Instagram page can decide to sign them as highlighted and make them available to everyone all the time. The YouTube channel (40) is used a few times a week to publish videos that share the experience of current students, the reasons that pushed them to choose a program in SDA Bocconi and their expectations for the future; these are generally quite short videos, of just a couple of minutes. Moreover, there are much longer videos, of the duration of about one hour, which are taken during webinar or conferences that took place virtually during the Covid-19 pandemic or, previously, at the campus. Other contents that can be found on YouTube are short videos that have the aim to present the programs offered, describing what will the focus be and the expected learning outcomes of the courses, and the ‘hottopic’ series of videos, mentioned before. Some of these contents are the same that can be found also on the other social media pages of the school.

### *3.2 MIP*

MIP is the school of management of the Polytechnic of Milan and it offers MBAs, specialized masters, executive and corporate education. It has its own social network profiles, separated from the ones of the Polytechnic. On Facebook (41) contents are published more than once a day and they are mostly related to the masters offered by the university and to the events organized for the promotion of these programs of education. To promote them, photos taken from the lectures or with information about the program are posted, or, instead, articles from the Knowledge section of the website of the Polytechnic of Milan are shared. In this section many arguments are treated, from entrepreneurship, innovation, economics to reading suggestions and travel tips. Every Monday there is a post with a quote of famous people, as a Monday motivation for the followers of the page. Among the Facebook videos, some of them are dedicated to culture, they are called ‘MIP Open Culture’ and share information about museums, historic palaces and pieces of art, while the majority of the remaining videos are mainly promotional, in which it is shown in

the details what the masters offer and how they are organized, if they are online or in a classroom, their goals and expected learning outcomes of the students.

The posts that are shared on LinkedIn (42) are exactly the same that can be found on Facebook, so also here there are daily updates which are mainly connected to the programs and masters offered. On Instagram (43) contents are published less often than on the other two channels (Facebook and LinkedIn), but the photos that are shared are the same that can be found on the other social medias. The highlighted stories are used to show some moments taken from classes and lectures or from some events, like graduation ceremonies.

Some of the videos that are published on Facebook can be found also on the YouTube channel (44), like the ‘MIP Open Culture videos’ and the promotional ones. In addition, all the webinar and conferences that took place are published on YouTube; many of them have, as guest speakers, CEOs of important companies and talk about firms and their management. During the Covid-19 pandemic some of the webinar that took place had the aim to give advices to students on how to deal with current situation and to schools on how to exploit the circumstances to innovate.

### *3.3 Luiss Business School*

As SDA Bocconi and MIP, also Luiss Business School is a section of a university that is dedicated to masters, MBAs and executive programs, and it has its own social media pages. On Facebook (45) contents are shared every day. The posts are related to the events organized by the University, with photos and videos, and to the success of some of the graduated students that attended their studies there. Moreover, there are also pictures of the beautiful spots around the campus, which are reshared from the Instagram account. The page is used also to share many links of articles from the news section of the university webpage, many of which in collaboration with ‘il Sole 24 ore’, a famous Italian daily newspaper.

On this platform there are also many videos in which professors explain why they have chosen to teach there, what are the strengths of the University, and it is also a way to present professors to students. Among the videos there is also a series called “Leader 4 Talent”, in which famous CEOs and managers talk about their personal experience and share some advices.

On LinkedIn (46) the contents are mainly the same ones that can be found on Facebook, while on Instagram (47) the posts have the main goal to share the students’ experience, so in the highlighted stories we can find past events, like graduation ceremonies and guest speakers that participated to some lectures.

The YouTube page (48) is not used as much as the other channels; contents are published weekly and they include the series ‘Leader 4 Talent’ mentioned before and some videos for the promotion of the programs offered.

### *3.4 Cuoia Business School*

As the universities previously analyzed, Cuoia Business School offers MBAs, masters and executive programs. On Facebook (49) it shares posts less frequently than the other school, only a few times a week and not every day; it shares many links to articles published on the school website, in a section called Cuoia Space mentioned at the beginning of chapter 0. The videos published are about current topics in the economics and firm management field but

also about advices for young students on how to build their carrier, the path they should follow and what the best master for them could be. Moreover, there are some videos about the stories of some entrepreneurs who have completed a master in Cuoia, who share how their career has changed thanks to it.

Most of the posts that can be found on LinkedIn (50) are already present on the Facebook social page. The Instagram page (51) is the least used, contents are published only a few times every month, but they are exclusively shared there. Some of the Instagram photos are taken during graduation ceremonies, which are shown also in the highlighted stories, or during lectures and conferences to share the students experience, while other ones show the campus and its details.

YouTube (52) is used weekly and many of the contents that can be found here are already published on Facebook and LinkedIn, but, in addition, there are some short videos with the news of the school, about the future of the students and so on.

### *3.5 Specializing Master's Programmes and Lifelong Learning School of Polytechnic of Turin*

The Polytechnic of Turin has a specific section dedicated to the promotion and organization of 1<sup>st</sup> and 2<sup>nd</sup> level Specializing Master's Programmes and Lifelong Learning courses. As previously mentioned, it has only a Facebook page (53) in which posts are published twice a week more or less. Contents are mostly related to the promotion of the programs offered, with information about how to subscribe and what will be the arguments treated during the course.

The videos that are present on the social page share the experience of former students of the master, how they found out about it and what is their personal feedback about it or videos in which professors talk about the masters that the school offers, with the goals, expected learning outcomes and future opportunities that they can open to the students.

### *3.6 Followers comparison*

In paragraph 2.3.1 the metrics that can be used to analyze social media are listed; in particular, to have a measure of brand awareness, the number of followers or fans of the pages can be used. In the following table (Table 3-3) the number of fans of the social media pages of the Schools of Masters taken into consideration are summarized in order to have an idea of the brand awareness of each social network profile.

To have a clearer view of the numbers, a graph is displayed in Figure 3-1: Social media pages followers. As it can be seen from both Table 3-3 and Figure 3-1 Figure 3-1: Social media pages followers the social network with the highest amount of followers, for all the schools considered, is LinkedIn, followed by Facebook, which has the second-highest number of fans. In the following chapter, concerning the analysis, the social media that are considered are LinkedIn, Facebook and Instagram; the choice has been made by looking at both the number of followers and number of posts shared.

School of masters	facebook	Instagram	LinkedIn	YouTube	twitter
SDA Bocconi	41.287	11.032	132.099	34.800	15.947
MIP	26.708	2.909	60.202	7.810	11.828
Luiss Business School	32.740	6.452	38.037	921	3.677
Cuoa Business School	21.330	1.908	29.488	220	2.800
Specializing Master's Programmes and Lifelong Learning School of Polytechnic of Turin	842	-	-	-	-

Table 3-3: Social media pages followers

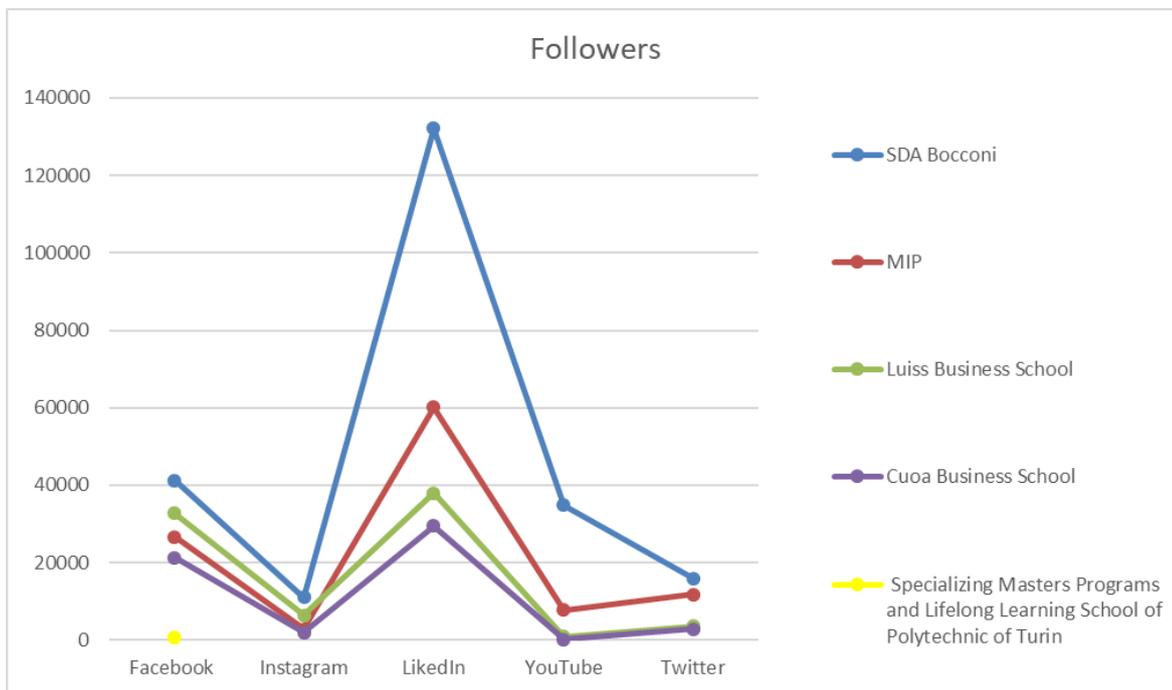


Figure 3-1: Social media pages followers

## 4. Objective and method of the analysis

### 4.1 Objective

The following analysis is carried out in order to comprehend how Business Schools use social media, in particular which social networks, how often and the contents that they publish, in order to apply to the Specializing Master's Programmes and Lifelong Learning School of Polytechnic of Turin the tools that result significant and efficient. The objective is to understand, starting from real data, what are the elements that positively or negatively influence the engagement, brand awareness and word of mouth of a post of a school of masters on social media.

### 4.2 Method

#### 4.2.1 Data collection

The analysis is carried out on the data concerning the social media posts of SDA Bocconi School of Management, MIP, Luiss Business School and Cuo Business School. For each school the time frame considered was three months, from the 1<sup>st</sup> of February 2020 to the 30<sup>th</sup> of April 2020 and the social media considered were Facebook, Instagram and LinkedIn, as they are the most used by universities.

To collect data a software called ScrapeStorm was used. It allows the automatic collection of data that you are interested in from website pages; it collects them locally on the software, with the possibility of export them into excel files; the free version allows to export only 100 rows per day, so the collection of data took some days.

The data collected concerning each post were:

- Date in which the post was published;
- The link of the post;
- Post description;
- Number of likes;
- Number of comments;
- Number of views in case of videos;
- Number of reshares on Facebook, since it is the only social media that allows the user to see this kind of data;
- Information concerning the external links reshared on social media;
- Hashtags.

Once the data were collected for a school, it was computed the number of hashtags for each post, the length in characters of each posts, the weekly number of posts for each school on each of the social media considered and, in addition, the posts where compared to see which ones had been published on more than one social media page of the School. An example of the data collected is shown in Figure 4-1. The full database can be found in Attachment I.

Weekly posts	Date	Post-link	Image-Link	Post-description	Likes	Comments	Reshares	Video views	Hashtag 1	Hashtag 2	Hashtag 3	Number of hashtag	External link website	External link title	post length	LinkedIn	Instagram
29	april	<a href="https://www/https://static">https://www/https://static</a>	<a href="https://www/https://static">https://www/https://static</a>	Responsabilità, fid	21	3	8	642	webinar	LuisBusiness	Morrell	4			312	Yes	Yes
	29	april	<a href="https://www/https://scont">https://www/https://scont</a>	Come il	28	0	2		Risorse umane	Covid19	EmployeeDigitalExperience	5			950	Yes	No
28	april	<a href="https://www/https://extern">https://www/https://extern</a>	<a href="https://www/https://extern">https://www/https://extern</a>	Managing a busin	8	0	2		Energy			1	businessschool.luis.it	Global Energy Manag	421	Yes	No
	28	april	<a href="https://www/https://extern">https://www/https://extern</a>	Come l'emergenza	12	4	5		webinar	LuisBusiness		4	2	businessschool.luis.it	Webinar Series con M	188	Yes
27	april	<a href="https://www/https://static">https://www/https://static</a>	<a href="https://www/https://static">https://www/https://static</a>	La scelta più corag	26	0	3	919	Impresafamiliare	governance	webinar	4			328	Yes	No
	27	april	<a href="https://www/https://extern">https://www/https://extern</a>	Le #Impresefamili	14	0	2		Impresefamiliari	coronavirus	webinar	6	businessschool.luis.it	Luis Business School	309	Yes	No
25	april	<a href="https://www/https://scont">https://www/https://scont</a>	<a href="https://www/https://scont">https://www/https://scont</a>	Goodbye to #Luis	2	0	0		LuisBusiness	Buddy/Programme	aperitivo	4			511	Yes	Yes
	25	april	<a href="https://www/https://scont">https://www/https://scont</a>	Il progetto #ConLa	18	1	2		#ConLaScuola	#LuisBusiness	#webinar	7			285	Yes	Yes
24	april	<a href="https://www/https://scont">https://www/https://scont</a>	<a href="https://www/https://scont">https://www/https://scont</a>	La presentazione c	22	0	1		RealEstate	Finance	Master	6			310	Yes	No
	24	april	<a href="https://www/https://extern">https://www/https://extern</a>	Oggi su #DigitEcon	5	0	0		DigitEconomy24	5g	LuisBusiness	3	businessschool.luis.it	«Inwt è una tower co	242	Yes	No
23	april	<a href="https://www/https://scont">https://www/https://scont</a>	<a href="https://www/https://scont">https://www/https://scont</a>	«fondamentale sv	12	0	1		webinar	LuisBusiness	DigitEconomy24	3	lisoledzadone.com	de Vecchi (Chi): «fron	245	Yes	No
	23	april	<a href="https://www/https://extern">https://www/https://extern</a>	Come la trasforma	16	3	4		webinar	LuisBusiness	DigitEconomy24	2	businessschool.luis.it	Webinar con Luigi de	334	Yes	Yes
20	april	<a href="https://www/https://extern">https://www/https://extern</a>	<a href="https://www/https://extern">https://www/https://extern</a>	Un #webinar con C	27	5	5		webinar	LuisBusiness	Covid19	2	businessschool.luis.it	Intelligence econom	465	Yes	No
	20	april	<a href="https://www/https://extern">https://www/https://extern</a>	La media del CE	28	4	2		LuisBusiness			1	corriere.it	Gli ad. delle società e	236	Yes	No
16	april	<a href="https://www/https://extern">https://www/https://extern</a>	<a href="https://www/https://extern">https://www/https://extern</a>	DNA, Codes and B	12	0	2		InternationalManagement			1	businessschool.luis.it	Strategies for Luxury e	157	Yes	No
	16	april	<a href="https://www/https://static">https://www/https://static</a>	Innovare in modo f	28	1	6	1235	disruptive	leadership	startup	4			385	Yes	Yes
14	april	<a href="https://www/https://scont">https://www/https://scont</a>	<a href="https://www/https://scont">https://www/https://scont</a>		10	4	0					0			0	Yes	No
	14	april	<a href="https://www/https://extern">https://www/https://extern</a>	È il momento per l	23	0	4		LuisBusiness			1	businessschool.luis.it	Webinar con Marco St	187	Yes	No
9	april	<a href="https://www/https://scont">https://www/https://scont</a>	<a href="https://www/https://scont">https://www/https://scont</a>	Nonostante l'epid	10	0	1		tic	DigitEconomy24	DigitEconomy24	2	businessschool.luis.it	Webinar con Marco St	257	Yes	No
	9	april	<a href="https://www/https://extern">https://www/https://extern</a>	L'App per il tracci	9	0	1		app	telco	DigitEconomy24	3	businessschool.luis.it	Celineax: «puntiamo a	252	Yes	No
9	april	<a href="https://www/https://scont">https://www/https://scont</a>	<a href="https://www/https://scont">https://www/https://scont</a>	per tracciam	84	12	9		DigitEconomy24			1	businessschool.luis.it	App per tracciamento	221	Yes	No
	9	april	<a href="https://www/https://scont">https://www/https://scont</a>	«l'azione del Gove	21	0	2		digitalizzazione	Italiansmart	DigitEconomy24	3	businessschool.luis.it	«L'azione del Gove	263	Yes	No
9	april	<a href="https://www/https://scont">https://www/https://scont</a>	<a href="https://www/https://scont">https://www/https://scont</a>	Con l'emergenza #	153	0	26		Covid_19	SmartWorking	Italiansmart	4	businessschool.luis.it	Smart working e innov	356	Yes	Yes
	9	april	<a href="https://www/https://scont">https://www/https://scont</a>	Penderà il via il 1	16	0	8		VenetoDelDolom	LuisBusiness	Italiansmart	6	businessschool.luis.it	AI via i corsi dell'Hub	567	Yes	No
7	april	<a href="https://www/https://extern">https://www/https://extern</a>	<a href="https://www/https://extern">https://www/https://extern</a>	Lo studente di mox	16	0	0		LuisBusiness			1	video.repubblica.it	Coronavirus, lo studer	317	Yes	No
	7	april	<a href="https://www/https://extern">https://www/https://extern</a>	Un ampio bagagli	5	0	1		MBA	Zapirle	LuisBusiness	0			0	No	No
6	april	<a href="https://www/https://scont">https://www/https://scont</a>	<a href="https://www/https://scont">https://www/https://scont</a>	Stiamo assistend	29	0	9		Cignolero	globalizzazione	LuisBusiness	3	businessschool.luis.it	Full-time MBA Webin	251	Yes	No
	6	april	<a href="https://www/https://extern">https://www/https://extern</a>	Come il #digitale t	9	0	2		digitale	marketing		2	businessschool.luis.it	Webinar con Massimo	165	Yes	Yes
3	april	<a href="https://www/https://scont">https://www/https://scont</a>	<a href="https://www/https://scont">https://www/https://scont</a>		3	0	0					0			0	No	No
	3	april	<a href="https://www/https://static">https://www/https://static</a>	Oggi abbiamo bisc	14	0	5	506	responsabilità	governance	LuisBusiness	4			408	Yes	No
2	april	<a href="https://www/https://scont">https://www/https://scont</a>	<a href="https://www/https://scont">https://www/https://scont</a>	#luisbusiness do	19	0	2		LuisBusiness	DoubleDegree	Austria	6			531	Yes	No
	2	april	<a href="https://www/https://scont">https://www/https://scont</a>		9	2	0					0			0	Yes	No
9	april	<a href="https://www/https://scont">https://www/https://scont</a>	<a href="https://www/https://scont">https://www/https://scont</a>	Oggi alle 15:00 si	18	4	4		Italiasmart	LuisBusiness	Innovazione	4	businessschool.luis.it	ICDP, Luis Business S	403	Yes	No
	9	april	<a href="https://www/https://scont">https://www/https://scont</a>	Il 3 aprile parteci	4	0	1		MBA	Diatricadigitale		2	businessschool.luis.it	Part-time MBA Online	283	Yes	No
31	marzo	<a href="https://www/https://scont">https://www/https://scont</a>	<a href="https://www/https://scont">https://www/https://scont</a>	Per gli studenti de	22	0	1		LuisBusiness	ProjectWork	Distancelearning	3			182	Yes	No
	28	marzo	<a href="https://www/https://scont">https://www/https://scont</a>	Come gestire le cr	14	1	3					0	businessschool.luis.it	Webinar con Stefano I	0	No	No
27	marzo	<a href="https://www/https://extern">https://www/https://extern</a>	<a href="https://www/https://extern">https://www/https://extern</a>	Sulle reti faremo	8	0	1		DigitEconomy24	LuisBusiness		2	businessschool.luis.it	Nel 2020 continuer	202	Yes	Yes
	27	marzo	<a href="https://www/https://scont">https://www/https://scont</a>	Col coronavirus bo	20	0	2					0	businessschool.luis.it	Coronavirus: boom de	214	Yes	No
26	marzo	<a href="https://www/https://static">https://www/https://static</a>	<a href="https://www/https://static">https://www/https://static</a>	Organizzazioni pres	357	13	57		DigitEconomy24	LuisBusiness		2	businessschool.luis.it	Allieggerie pressione	423	Yes	No
	26	marzo	<a href="https://www/https://extern">https://www/https://extern</a>	L'emergenza floorc	20	0	3	572	leadership	MBA	Milano	3	youtube.com	"A casa con" il prof. P	324	Yes	Yes
25	marzo	<a href="https://www/https://static">https://www/https://static</a>	<a href="https://www/https://static">https://www/https://static</a>	Come guidare le a	47	1	13	12653	LuisBusiness			1			279	Yes	No
	21	marzo	<a href="https://www/https://scont">https://www/https://scont</a>	Come si trasforma	6	0	0		webinar	LuisBusiness		0			153	Yes	No
21	marzo	<a href="https://www/https://extern">https://www/https://extern</a>	<a href="https://www/https://extern">https://www/https://extern</a>		12	1	9					2	businessschool.luis.it	Webinar Series con M	0	No	No
	21	marzo	<a href="https://www/https://extern">https://www/https://extern</a>		12	1	9					2	businessschool.luis.it	Webinar Series con M	250	Yes	Yes

Figure 4-1: Example of data collected

At the end of the collection, for each Business School and for each social media, it was computed the average number of likes, of comments, of video views, of reshares (only for Facebook) and the average number of weekly posts, in order to be able to compare the metrics among schools and also among social media. The metrics that were chosen for the analysis were taken from Figure 2-3, in which for each social media goal a list of metrics that can be used to measure that specific objective are listed. The metrics chosen are the following:

- Number of likes, as a measure of brand engagement;
- Number of comments, as a measure of brand engagement;
- Number of video views, as a measure of the word of mouth;
- Number of reshare (for Facebook only), as a measure of the word of mouth.

These metrics were chosen because they are the most common way to compare posts on social media and they allowed the creation of graphs used for the comparisons.

In the following figures the posts of the universities have been compared on Facebook, Instagram and LinkedIn, by looking at average number of likes, of comments, of reshare (only on Facebook) and of weekly posts; The average number of video views is shown in another graph as the values of this metric were too high compared to the other metrics. In Figure 4-2 it can be seen that, on Facebook, Luiss Business School has the highest average number of likes, of comments and of reshares, while MIP the highest number of weekly posts.

In Figure 4-3 the comparison is made among the posts on Instagram; SDA Bocconi has the highest number of likes and number of comments, while MIP is the one that publishes more posts each week.

In Figure 4-4 LinkedIn posts are compared; SDA Bocconi has the highest number of likes and Cuo Business School the highest value of comments, while MIP has the highest number of weekly posts.

So, in general, MIP is the business school that publishes the highest amount of posts each week on all the social media considered, Luiss has the highest engagement and word of mouth on Facebook, while SDA Bocconi has the highest engagement on LinkedIn and Instagram.

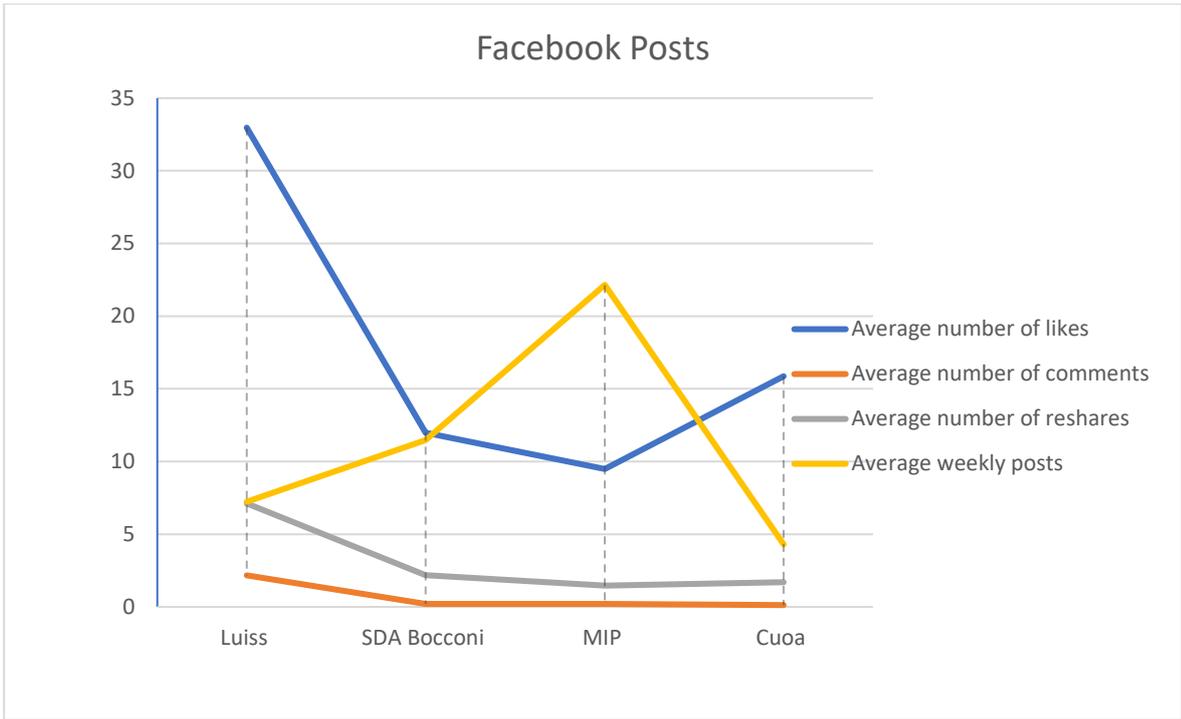


Figure 4-2: Comparison of Facebook posts.

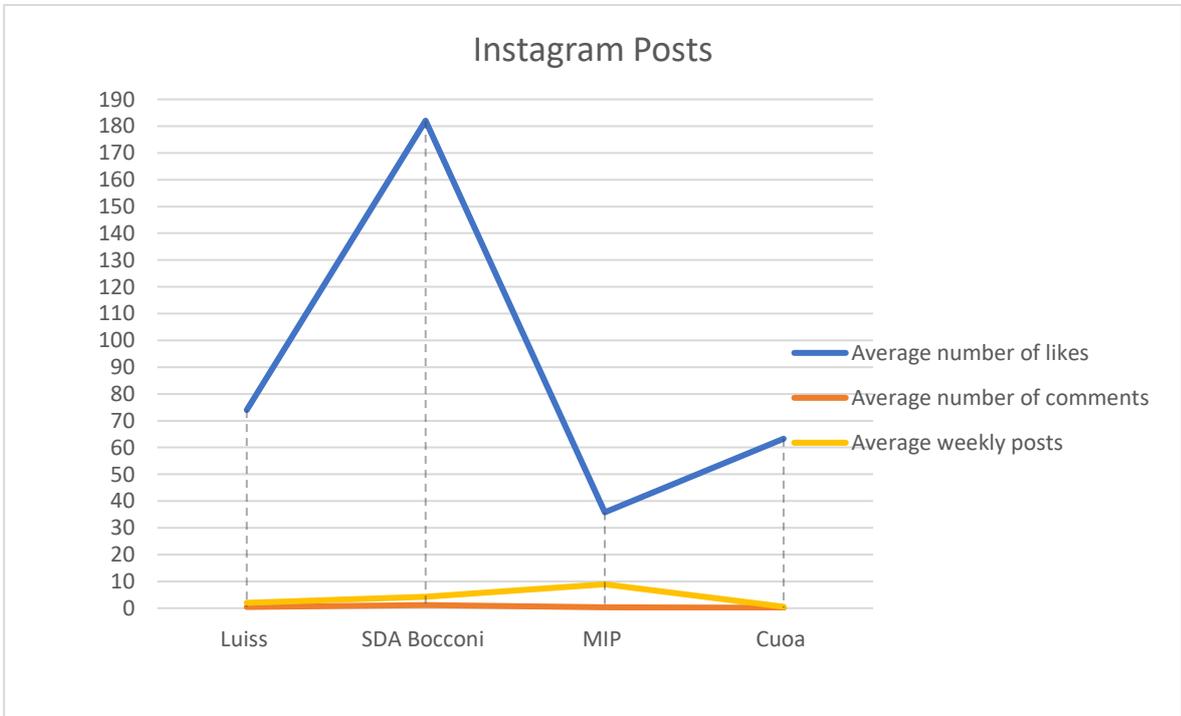


Figure 4-3: Comparison of Instagram posts.

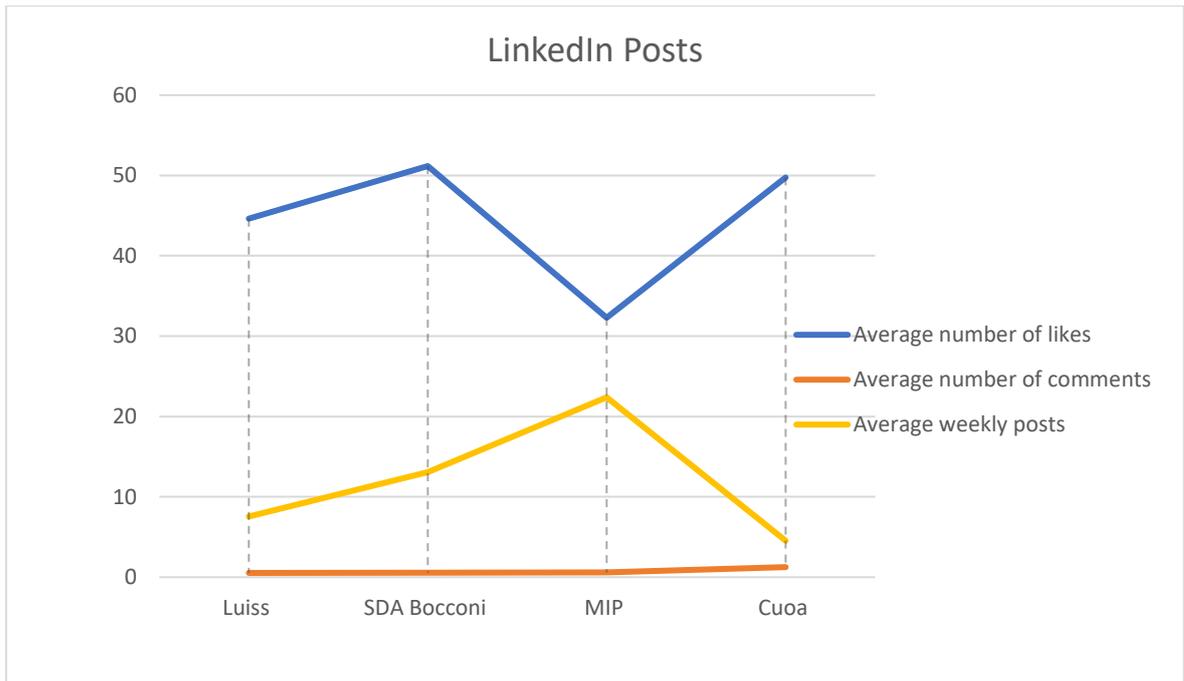


Figure 4-4: Comparison of LinkedIn posts.

In Figure 4-5: Comparison of video views. the average number of video views of the different schools is compared on Facebook, Instagram and LinkedIn. Luiss Business school has the highest value on LinkedIn and on Facebook, while on Instagram the highest value is related to the social page of SDA Bocconi.

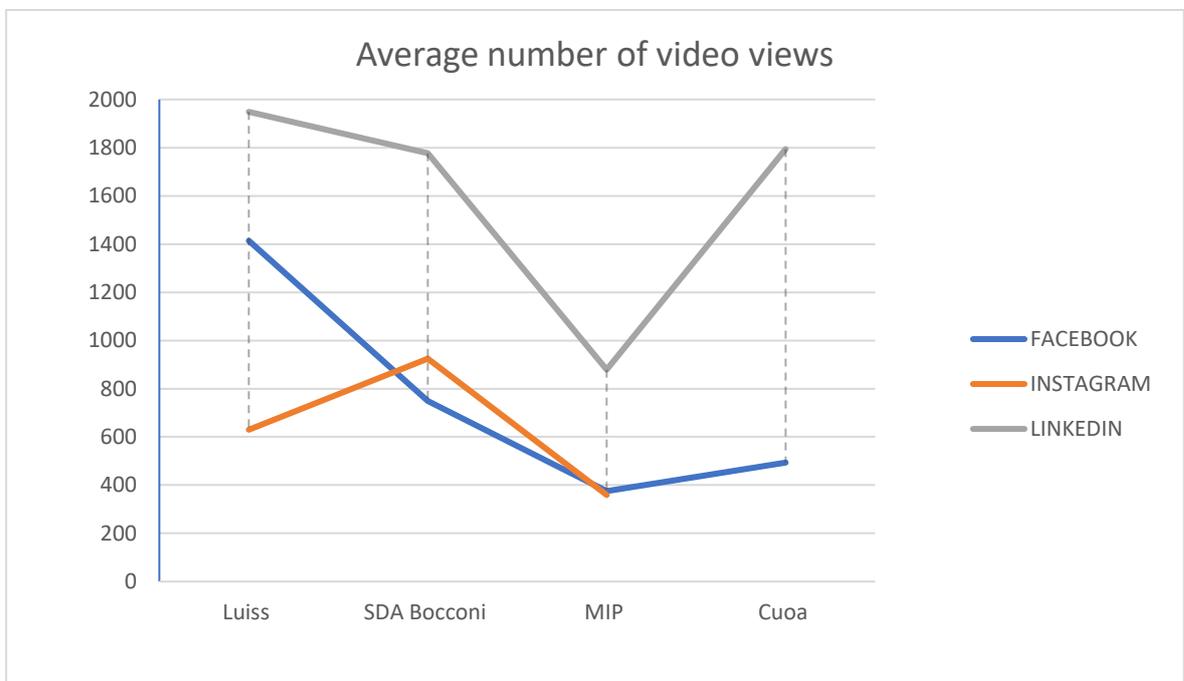


Figure 4-5: Comparison of video views.

The following figures compare the metrics computed for a school among the different social media, in particular in Figure 4-6 Luiss Business School is considered, in Figure 4-7 SDA

Bocconi, in Figure 4-8 MIP and in Figure 4-9 Cuoia Business School. In all the graphs, the social media with the highest average number of likes is Instagram and the social page with the highest amount of posts per week is LinkedIn; there is a difference however in the number of comments: for Luiss Business School Facebook posts receive the highest number of comments, for SDA Bocconi the highest value is found on Instagram while for both MIP and Cuoia Business School on LinkedIn.

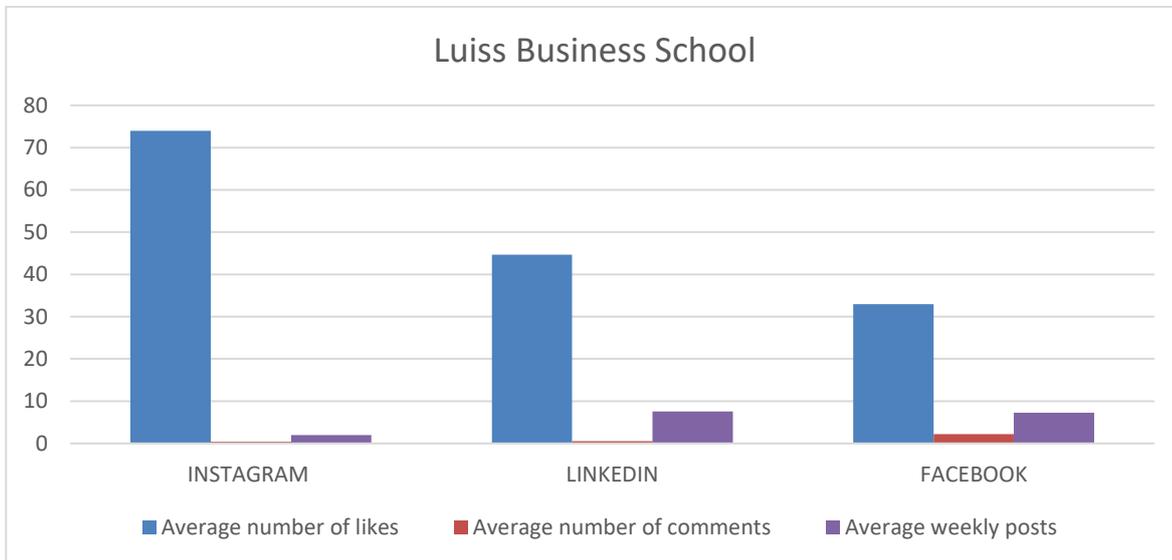


Figure 4-6: Comparison among the social media pages of Luiss Business School

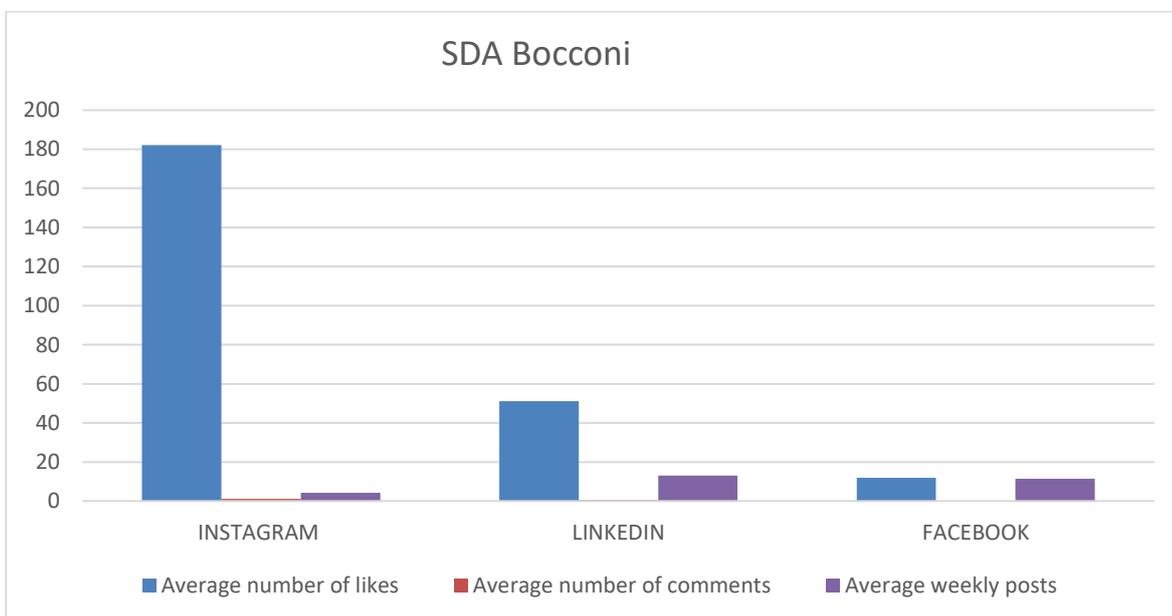


Figure 4-7: Comparison among the social media pages of SDA Bocconi

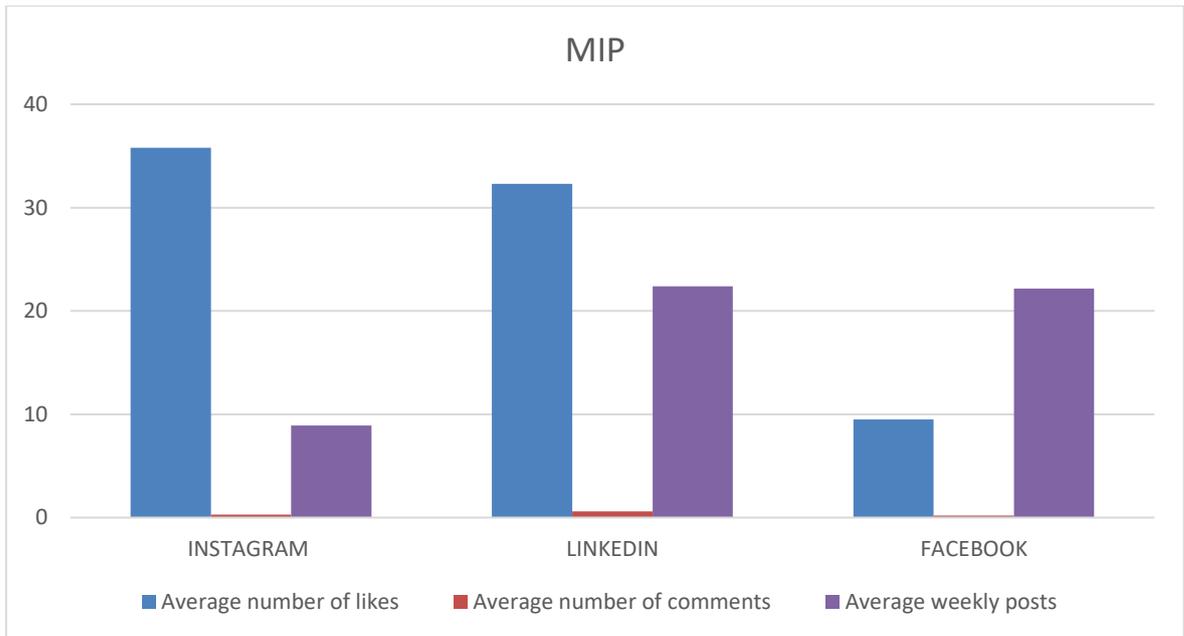


Figure 4-8: Comparison among the social media pages of MIP

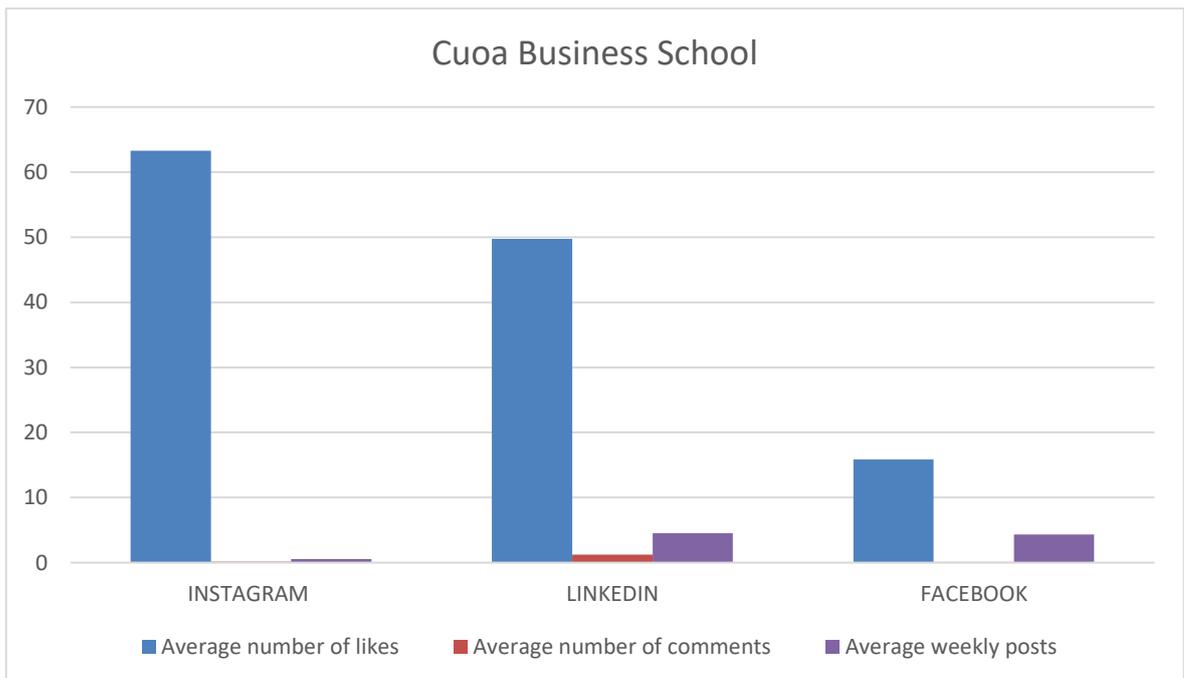


Figure 4-9: Comparison among the social media pages of Cuoa Business School

#### 4.2.2 Database creation

The following step was the creation of a database on excel with all the data collected from the social media posts of the different Business School; a total of 1407 posts was collected. An extract of the database is given in Figure 4-10, while the entire database can be found in Attachment II; the information are represented using binary values, in which '1' indicates the belonging of the post to the variable and '0' means that the post does not belong to it. The variables used contain information about posts, in particular, in addition to all the data previously collected, the following characteristics were specified:

- The Business school which published the post, so whether the post was collected on the social pages of Luiss Business School, MIP, SDA Bocconi or Cuoia Business School;
- The social media on which the post was published (Facebook, Instagram or LinkedIn);
- The language, whether the post was written in Italian, in English or in both languages;
- The type of post; posts have been divided into videos, photos, written posts, events, reshares of links from the school website and reshares of other links or posts;
- Whether the post was reshared also on other social media or not.

Concerning the type of post, Instagram allows only the share of photos and videos, while Facebook and LinkedIn have also the possibility to share a written text, with no photos or videos, and to create events, in which there is a description and information about when and where it will take place, with the opportunity for users to let the event creator know that they will participate; moreover on Facebook and LinkedIn you can also publish external links or reshare the posts created by other users.

In addition to what can be seen in Figure 4-10, there is also a variable for the week in which the post was published. Weeks go from 1 to 13, where week 1 refers to the first week considered for the collection of the posts, which goes from 1<sup>st</sup> February to 7<sup>th</sup> February; week 13 is the last week considered for the data collection and it is the last week of April, from the 25<sup>th</sup> to the 30<sup>th</sup>.

Within the database, posts were divided into categories, as it can be seen in Figure 4-11, each post was assigned to one or more categories, according to its content; as for other variables binary values were used. The categories were taken from ‘A framework for categorizing social media posts’ by Tafesse, Wondwesen & Wien, Anders (54); a summary of the categories and their definition is given in Table 4-1.

Business School			Social media		Post Data							Language			Type of post			Post Reshared on											
Luiss	Mip	ISDA Bocconi	Quora	Facebook	Instagram	LinkedIn	Post-link	Image-link	Post-description	Likes	Comments	Reshares	Video views	Number of hashtags	Post length	Eng	Ita	Video	Photo	Written post	Event	School website	External link	Facebook	LinkedIn	Instagram			
1	0	0	0	1	0	0	0	https://www.facebook.com/luiss	Start Responsabilità, fid	21	3	8	642	4	312	0	1	1	0	0	0	0	0	0	0	1	1		
1	0	0	0	1	0	0	0	https://www.linkedin.com/company/luiss	scornil progetto #conia	28	0	2	0	5	950	0	1	0	1	0	0	0	0	0	0	1	1		
1	0	0	0	1	0	0	0	https://www.instagram.com/luiss	external Come il management	8	0	2	0	1	421	1	0	0	0	0	0	0	1	0	0	1	0		
1	0	0	0	1	0	0	0	https://www.facebook.com/luiss	external Come l'emergenza	12	4	5	0	2	158	0	1	0	0	0	0	0	1	0	0	1	0		
1	0	0	0	1	0	0	0	https://www.instagram.com/luiss	external La scelta più coragg	26	0	3	919	4	328	0	1	1	0	0	0	0	0	0	0	1	0		
1	0	0	0	1	0	0	0	https://www.linkedin.com/company/luiss	external #impresaFamily	14	0	2	0	2	309	0	1	0	0	0	0	0	1	0	0	1	0		
1	0	0	0	1	0	0	0	https://www.facebook.com/luiss	external Oggi #25aprile alle	9	0	3	0	5	366	0	1	0	0	0	0	0	0	0	1	0	1		
1	0	0	0	1	0	0	0	https://www.linkedin.com/company/luiss	scornil Goodbye to #Luiss	2	0	0	0	4	511	1	0	0	1	0	0	0	0	0	1	1			
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	Responsabilità, fid	44	1	1	1347	3	308	0	1	1	0	0	0	0	0	0	1	0	1		
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	external Come il management	86	2	2	0	5	952	0	1	0	1	0	0	0	0	0	1	0	0		
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	Managing a business	11	0	0	0	1	409	1	0	0	0	0	0	0	1	0	0	1	0		
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	external Come l'emergenza	27	0	0	0	2	158	0	1	0	0	0	0	0	1	0	0	1	0		
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	La scelta più coragg	35	0	0	1714	4	328	0	1	1	0	0	0	0	0	0	1	0	0		
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	Qualche #performan	29	0	0	0	4	456	0	1	0	1	0	0	0	0	0	0	0	0	0	
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	external Oggi #25aprile alle	28	0	0	0	5	377	0	1	0	0	0	0	0	0	0	1	0	0	1	
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	Goodbye to #Luiss	23	0	0	0	5	571	1	0	0	1	0	0	0	0	0	1	0	0	1	
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	external Series con	24	0	0	423	4	359	0	1	1	0	0	0	0	0	0	0	1	1	0	
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	external Oggi alle 18:30 un	42	0	0	0	6	497	0	1	0	1	0	0	0	0	0	1	1	0	0	
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	Goodbye to #Luiss	4	4	4	0	5	510	1	0	0	1	0	0	0	0	0	1	1	0	0	
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	scornil progetto #conia	18	1	2	0	7	255	0	1	0	1	0	0	0	0	0	0	1	1	0	
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	La presentazione c	22	0	1	0	6	310	0	1	0	1	0	0	0	0	0	0	1	0	0	
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	external Oggi su #DigitalEcon	5	0	0	0	3	242	0	1	0	0	0	0	0	1	0	0	1	0	0	
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	external Come l'emergenza	12	0	1	0	3	245	0	1	0	0	0	0	0	0	1	0	0	1	0	
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	external Come la trasformazione	16	3	4	0	2	334	0	1	0	0	0	0	0	1	0	0	1	1	0	
1	0	0	0	0	0	0	0	https://www.facebook.com/luiss	external Un #webinar con c	27	5	5	0	2	455	0	1	0	0	0	0	0	1	0	0	1	1	0	0
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	external La media del CE	28	4	2	0	1	256	0	1	0	0	0	0	0	0	1	0	1	0	0	1
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	Il progetto #conia	31	0	0	0	7	256	0	1	0	1	0	0	0	0	0	1	0	0	1	
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	external Le #impresaFamily	10	0	0	0	6	300	0	1	0	0	0	0	0	1	0	0	1	0	0	0
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	La presentazione c	29	0	0	0	6	322	0	1	0	1	0	0	0	0	1	0	0	1	0	0
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	external Oggi su #DigitalEcon	15	0	0	0	3	249	0	1	0	0	0	0	0	1	0	0	1	0	0	0
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	external Come l'emergenza	48	0	0	0	3	244	0	1	0	0	0	0	0	0	1	0	0	1	0	0
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	Una cosa farà la d	15	0	0	0	2	254	0	1	0	0	0	0	0	0	0	1	0	0	0	0
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	external Un #webinar con c	41	0	0	0	1	476	0	1	0	0	0	0	0	1	0	0	1	0	0	0
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	external La media del CE	52	0	0	0	1	256	0	1	0	0	0	0	0	0	0	1	1	0	0	0
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	scornil progetto #conia	49	0	0	0	7	200	0	1	0	1	0	0	0	0	0	0	1	1	0	0
1	0	0	0	0	0	0	0	https://www.linkedin.com/company/luiss	external Come la trasformazione	35	0	0	0	6	343	0	1	0	1	0	0	0	0	0	0	1	1	0	0

Figure 4-10: Database of social media posts

Post Category											
Emotional	Functional	Educational	Brand resor	Experiential	Current ev	Personal	Employee	Brand con	Customer	Cause-re	Sales promotion
0	0	1	0	1	0	0	0	0	0	0	0
0	0	1	0	1	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	1
0	0	1	0	1	0	0	0	0	0	0	0
0	0	1	0	1	0	0	0	0	0	0	0
0	0	1	0	1	0	0	0	0	0	0	0
0	0	1	0	1	0	0	0	0	0	0	0
0	0	1	0	1	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	1	0	0	0
0	0	1	0	1	0	0	0	0	0	0	0
0	0	1	0	1	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	1
0	0	1	0	1	0	0	0	0	0	0	0
0	0	1	0	1	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	1	0	0
0	0	1	0	1	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	1	0	0	0

Figure 4-11: Post categories

Category	Definition	Common themes	Applications related to Master schools
<b>Emotional brand posts</b>	These brand posts evoke consumers' emotions. To this end, the posts typically employ emotion-laden language, inspiring stories or humor and jokes to arouse affective responses, such as fun, excitement and wonder.	Emotion laden language, emotional storytelling, humor and trivia	Motivational quotes, support quotes from famous people (managers, entrepreneurs, scientists, visionaries, etc.).
<b>Functional brand posts</b>	These brand posts highlight the functional attributes of company products and services. Typically, these posts promote the benefits of company products and services according to performance, quality, affordability, design and style criteria.	Product specifications and technical features; benefits from company perspective, attributes and benefits by external reviewers	Benefits and job opportunities students will have by following the master; highlighting of the network the school offers.; characteristics of the master; characteristics of the school.
<b>Educational brand posts</b>	These brand posts educate and inform consumers. These posts help consumers acquire new skills on proper ways of applying products or discover new information about broader industry trends and developments.	Hands on/everyday application, topics not immediately connected with company	e.g. Articles about smart working/online teaching; articles on management or the state of the economy. Not necessarily they are original research content, coming from the faculty of the School.
<b>Brand resonance</b>	These brand posts direct attention to the brand promise and identity of the focal brand. These posts highlight some of the main tropes of brand identity, such as brand image, brand personality, brand association and branded	Brand image, photos of branded products, posts with celebrities or influencers, celebrate brand heritage.	History of the school and its importance; school rankings; school research results and outcome; pictures of the campus.

	products with the goal of differentiating the brand and favorably influencing consumers' brand attitude and association.		
<b>Experiential brand posts</b>	These brand posts evoke consumers' sensory and behavioral responses. Experiential brand posts highlight the sensory and embodied qualities of the brand and often associate the brand with pleasurable consumer experiences.	Sensory brand cues, attention to embodied actions, brand events.	Online or physical events and activities that took place (seminars, conferences, companies visit, webinar).
<b>Current event</b>	These brand posts comment on themes that capture active talking points in the target audience, such as cultural events, holidays, anniversaries, and the weather/season. These brand posts initiate conversations with consumers using timely and widely talked about events	Cultural events, popular holidays, weather or season	Cultural events, popular holidays, weather or season.
<b>Personal brand posts</b>	These brand posts center around consumers' personal relationships, preferences and/or experiences. These brand posts typically invoke personally meaningful themes, such as family, friendship, personal anecdotes or future plans to initiate deeply personal conversations with consumers.	Consumers' personal relationships, consumers' anecdotes and preferences	Personal life of students at the school and outside.
<b>Employee brand posts</b>	These are brand posts about employees. Employee brand posts present employees' perspective on a range of issues, such as employees' technical expertise, their managerial philosophies, or their personal interests, hobbies and worldviews.	Employees' opinion on technology/processes, corporate issues, employees' personal interests/hobby/personal story,	Professional success of professors, e.g. awards received.
<b>Brand community</b>	These brand posts promote and reinforce the brand's online community. These brand posts foster a sense of community identification and engagement with the community, by recruiting new community members, as well as encouraging participation from existing members.	Recruiting new members in the community, enhance community participation.	Events to make alumni know each other.
<b>Customer relationship</b>	These brand posts solicit information and feedback about customers' needs, expectations and experiences. These brand posts seek to	Customer services, customer testimonials, customer feedbacks.	Share of students' feedbacks.

	deepen the impact of customer relationships in social media channels by encouraging customer feedback, reviews and testimonies.		
<b>Cause-related brand post</b>	These brand posts highlight socially responsive programs supported by the focal brand. These brand posts promote worthy social causes and initiatives and encourage customers and fans to support them.	Support to social causes.	Links for donations to hospitals for the Covid-19 emergency.
<b>Sales promotion</b>	These are brand posts that entice consumers to take actions toward a buying decision. These brand posts often contain transactional details such as price and availability points, as well as concrete promotional offers, such as price discounts, coupons and competitions.	Links to landing sites where consumers can Make purchases.	Links to business school website, where you can get additional info or apply for a given master program or course.

Table 4-1: Post categories

#### 4.2.3 Descriptive statistics

After having collected all the data regarding social media posts and having categorized them, descriptive statistics were used to see if there were differences in the contents published by Business Schools and to verify whether categories were more used on a social media with respect to the others or not.

Descriptive statistics are summary statistics, which are used to summarize in a quantitative way features from a collection of information; in this case they were used to measure the frequency of presence of each category of post on the different social media considered and in relation to each Business School included in the analysis. To obtain these measures, the software SPSS was used; after uploading the database on the software, in the section 'Analyze' under 'Descriptive statistics' the tool 'frequencies' was used to obtain the following. In Table 4-2 the SPSS output for the frequencies of the post categories according to the social media is shown.

Case processing summary						
	Cases					
	Valid		Missing		Total	
	N	Percentage	N	Percentage	N	Percentage
Facebook * Emotional	24	1,7%	1383	98,3%	1407	100,0%
Facebook * Functional	234	16,6%	1173	83,4%	1407	100,0%
Facebook * Educational	190	13,5%	1217	86,5%	1407	100,0%

Facebook * Brand resonance	73	5,2%	1334	94,8%	1407	100,0%
Facebook * Experiential	194	13,8%	1213	86,2%	1407	100,0%
Facebook * Current event	2	0,1%	1405	99,9%	1407	100,0%
Facebook * Personal brand post	9	0,6%	1398	99,4%	1407	100,0%
Facebook * Employee brand post	21	1,5%	1386	98,5%	1407	100,0%
Facebook * Brand community	5	0,4%	1402	99,6%	1407	100,0%
Facebook * Customer relationship	75	5,3%	1332	94,7%	1407	100,0%
Facebook * Cause-related	17	1,2%	1390	98,8%	1407	100,0%
Facebook * Sales promotion	161	11,4%	1246	88,6%	1407	100,0%
Instagram * Emotional	19	1,4%	1388	98,6%	1407	100,0%
Instagram * Functional	84	6,0%	1323	94,0%	1407	100,0%
Instagram * Educational	31	2,2%	1376	97,8%	1407	100,0%
Instagram * Brand resonance	35	2,5%	1372	97,5%	1407	100,0%
Instagram * Experiential	43	3,1%	1364	96,9%	1407	100,0%
Instagram * Current event	3	0,2%	1404	99,8%	1407	100,0%
Instagram * Personal brand post	8	0,6%	1399	99,4%	1407	100,0%
Instagram * Employee brand post	13	0,9%	1394	99,1%	1407	100,0%
Instagram * Brand community	2	0,1%	1405	99,9%	1407	100,0%
Instagram * Customer relationship	45	3,2%	1362	96,8%	1407	100,0%
Instagram * Cause-related	5	0,4%	1402	99,6%	1407	100,0%
Instagram * Sales promotion	25	1,8%	1382	98,2%	1407	100,0%
LinkedIn * Emotional	26	1,8%	1381	98,2%	1407	100,0%
LinkedIn * Functional	258	18,3%	1149	81,7%	1407	100,0%

LinkedIn * Educational	205	14,6%	1202	85,4%	1407	100,0%
LinkedIn * Brand resonance	70	5,0%	1337	95,0%	1407	100,0%
LinkedIn * Experiential	198	14,1%	1209	85,9%	1407	100,0%
LinkedIn * Current event	2	0,1%	1405	99,9%	1407	100,0%
LinkedIn * Personal brand post	8	0,6%	1399	99,4%	1407	100,0%
LinkedIn * Employee brand post	25	1,8%	1382	98,2%	1407	100,0%
LinkedIn * Brand community	6	0,4%	1401	99,6%	1407	100,0%
LinkedIn * Customer relationship	78	5,5%	1329	94,5%	1407	100,0%
LinkedIn * Cause-related	17	1,2%	1390	98,8%	1407	100,0%
LinkedIn * Sales promotion	181	12,9%	1226	87,1%	1407	100,0%

Table 4-2: Frequency of presence of post categories on each social media.

To have a clearer view of the previous table, a graph is shown in Figure 4-12; as it can be seen from the graph, the three most used categories are functional, experiential and educational on Facebook and LinkedIn, while on Instagram they are functional, customer relationship and experiential; so, there are some differences in the types of contents that are published on Facebook or LinkedIn and Instagram. On Instagram in fact, the category ‘customer relationship’ is more used, in relative terms, than on the other two social media; this means that the contents that are published here are more connected to the share of feedbacks coming directly from students; this category of posts has the goal to give information and feedbacks about customers’ needs as well as tell to the users the experience of other customers.

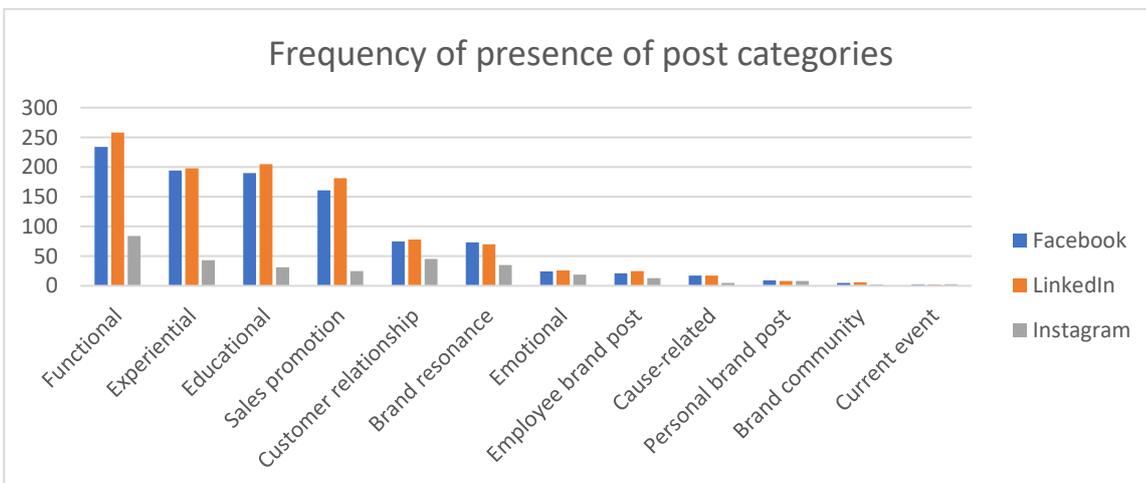


Figure 4-12: Frequency of presence of post categories on each social media.

In Table 4-3 the SPSS output for the frequency of presence of post categories according to the Business School is shown. In this case the frequency does not consider the social media on which the post was published, but what matters is which of the Business Schools considered has shared the post. These data can be useful to understand if master school share different type of contents.

<b>Case processing summary</b>						
	<b>Cases</b>					
	<b>Valid</b>		<b>Missing</b>		<b>Total</b>	
	<b>N</b>	<b>Percentage</b>	<b>N</b>	<b>Percentage</b>	<b>N</b>	<b>Percentage</b>
Luiss Business School * Emotional	1	0,1%	1406	99,9%	1407	100,0%
Luiss Business School * Functional	73	5,2%	1334	94,8%	1407	100,0%
Luiss Business School * Educational	126	9,0%	1281	91,0%	1407	100,0%
Luiss Business School * Brand resonance	9	0,6%	1398	99,4%	1407	100,0%
Luiss Business School * Experiential	103	7,3%	1304	92,7%	1407	100,0%
Luiss Business School * Current event	6	0,4%	1401	99,6%	1407	100,0%
Luiss Business School * Personal brand post	5	0,4%	1402	99,6%	1407	100,0%
Luiss Business School * Employee brand post	3	0,2%	1404	99,8%	1407	100,0%
Luiss Business School * Brand community	3	0,2%	1404	99,8%	1407	100,0%
Luiss Business School * Customer relationship	30	2,1%	1377	97,9%	1407	100,0%
Luiss Business School * cause-related	0	0%	1407	100,0%	1407	100,0%
Luiss Business School * Sales promotion	35	2,5%	1372	97,5%	1407	100,0%
MIP * Emotional	42	3,0%	1365	97,0%	1407	100,0%
MIP * Functional	279	19,8%	1128	80,2%	1407	100,0%
MIP * Educational	139	9,9%	1268	90,1%	1407	100,0%
MIP * Brand resonance	92	6,5%	1315	93,5%	1407	100,0%
MIP * Experiential	246	17,5%	1161	82,5%	1407	100,0%
MIP * Current event	1	0,1%	1406	99,9%	1407	100,0%

MIP * Personal brand post	14	1,0%	1393	99,0%	1407	100,0%
MIP * Employee brand post	45	3,2%	1362	96,8%	1407	100,0%
MIP * Brand community	4	0,3%	1403	99,7%	1407	100,0%
MIP * Customer relationship	103	7,3%	1304	92,7%	1407	100,0%
MIP * Cause-related	22	1,6%	1385	98,4%	1407	100,0%
MIP * Sales promotion	139	9,9%	1268	90,1%	1407	100,0%
SDA Bocconi * Emotional	8	0,6%	1399	99,4%	1407	100,0%
SDA Bocconi * Functional	186	13,2%	1221	86,8%	1407	100,0%
SDA Bocconi * Educational	97	6,9%	1310	93,1%	1407	100,0%
SDA Bocconi * Brand resonance	68	4,8%	1339	95,2%	1407	100,0%
SDA Bocconi * Current event	0	0%	1407	100,0%	1407	100,0%
SDA Bocconi * Experiential	63	4,5%	1344	95,5%	1407	100,0%
SDA Bocconi * Personal brand post	6	0,4%	1401	99,6%	1407	100,0%
SDA Bocconi * Employee brand post	11	0,8%	1396	99,2%	1407	100,0%
SDA Bocconi * Brand community	6	0,4%	1401	99,6%	1407	100,0%
SDA Bocconi * Customer relationship	56	4,0%	1351	96,0%	1407	100,0%
SDA Bocconi * Cause-related	8	0,6%	1399	99,4%	1407	100,0%
SDA Bocconi * Sales promotion	168	11,9%	1239	88,1%	1407	100,0%
Cuo Business School* Emotional	18	1,3%	1389	98,7%	1407	100,0%
Cuo Business School * Functional	38	2,7%	1369	97,3%	1407	100,0%
Cuo Business School * Educational	64	4,5%	1343	95,5%	1407	100,0%
Cuo Business School * Brand resonance	9	0,6%	1398	99,4%	1407	100,0%
Cuo Business School * Experiential	23	1,6%	1384	98,4%	1407	100,0%

Cuo Business School * current event	0	0%	1407	100,0%	1407	100,0%
Cuo Business School * personal brand post	0	0%	1407	100,0%	1407	100,0%
Cuo Business School * employee brand post	0	0%	1407	100,0%	1407	100,0%
Cuo Business School * brand community	0	0%	1407	100,0%	1407	100,0%
Cuo Business School * Customer relationship	9	0,6%	1398	99,4%	1407	100,0%
Cuo Business School * Cause related	9	0,6%	1398	99,4%	1407	100,0%
Cuo Business School * Sales promotion	25	1,8%	1382	98,2%	1407	100,0%

Table 4-3: Frequency of presence of each post category according to Business Schools.

In Figure 4-13 the data displayed in the previous table are shown in the form of a graph in order to be easier to read. For Luiss Business School and MIP the three most used categories across all social media are:

- Functional
- Experiential
- Educational

While for SDA Bocconi and Cuo Business School the three most used are:

- Functional
- Sales promotion
- Educational

Therefore, there are some differences in the contents published by Business Schools on social media. All of them share posts that fall under the categories functional and educational. The former is focused on the highlighting of the attributes of the products offered by the firm, so, in the case of schools of master, this category of posts is used in order to show the benefits that the masters offered by the School give to its students and all the possible opportunities that can be opened to them after the course is over; in addition, functional posts are used also to highlight the network of contacts of the school. The latter category, educational, is used when Business Schools want to educate their followers on different subjects, they mainly share articles about companies, economy, technology and, during the Covid-19 pandemic, about smart-working.

The difference that was found in these data is that MIP and Luiss Business School publish many experiential posts, while SDA Bocconi and Cuo Business School are more focused on sales promotion. Experiential posts are connected to activities and events organized by the school; it is a way to share with the followers of the social page what the school organizes and to show pictures and videos of the events, such as seminars, conferences and companies visits by the students. Sales promotion posts instead are used to push followers towards the school website in order to check how to subscribe to a master and what its requirements are;

these posts in fact contain links to the website where you can get additional information or directly apply for the course.

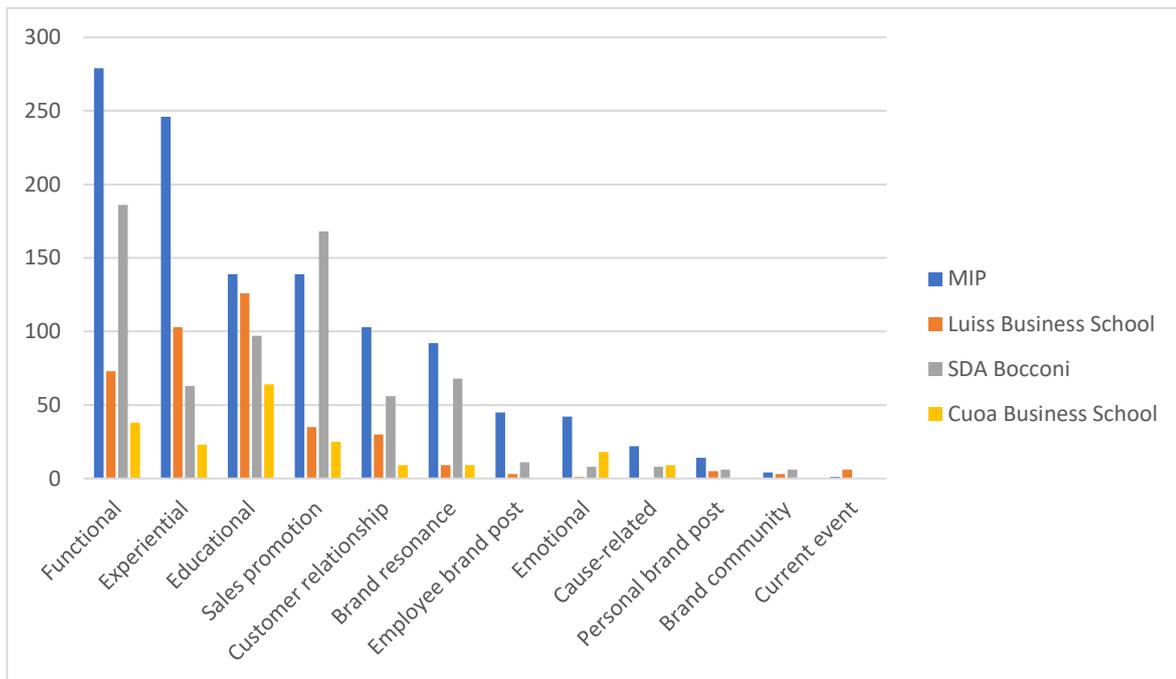


Figure 4-13: Frequency of presence of each post category according to Business Schools.

#### 4.2.4 Linear Regression model

The following step, after the creation and analysis of descriptive statistics, was the creation of a linear regression model in order to verify if there is correlation among the data collected. Linear regression in fact is used to model the relationship between a dependent variable and one, or more, independent variables. Also in this case, the software used was SPSS, in particular the tool ‘linear regression’ in the section ‘Analyze’.

The dependent variables that were used during this phase of the analysis are the metrics previously listed, in particular:

- Number of likes
- Number of comments
- Number of reshares
- Number of video views.

For each dependent variable a linear regression model was created.

Before applying linear regression models to the variables, a set of assumptions was checked, in order to be sure that the model could have been applied to the data and that the result was consistent. The set of assumptions is summarized in Table 4-4.

<b>Assumption</b>	
<b>1</b>	The dependent variable should be measured on a continuous scale (i.e., it is either an interval or ratio variable).
<b>2</b>	Independent variables can be two or more, and they can be either continuous (i.e., an interval or ratio variable) or categorical (i.e., an ordinal or nominal variable).
<b>3</b>	There should be independence of observations (i.e., independence of residuals), which can be easily checked using the Durbin-Watson statistic.
<b>4</b>	There needs to be a linear relationship between (a) the dependent variable and each of your independent variables, and (b) the dependent variable and the independent variables collectively.
<b>5</b>	Data needs to show homoscedasticity, which is where the variances along the line of best fit remain similar as you move along the line.
<b>6</b>	Data must not show multicollinearity, which occurs when you have two or more independent variables that are highly correlated with each other. This leads to problems with understanding which independent variable contributes to the variance explained in the dependent variable, as well as technical issues in calculating a multiple regression model.
<b>7</b>	There should be no significant outliers, high leverage points or highly influential points. Outliers, leverage and influential points are different terms used to represent observations in your data set that are in some way unusual when you wish to perform a multiple regression analysis. These different classifications of unusual points reflect the different impact they have on the regression line. An observation can be classified as more than one type of unusual point. However, all these points can have a very negative effect on the regression equation that is used to predict the value of the dependent variable based on the independent variables.
<b>8</b>	Finally, it must be checked that the residuals (errors) are approximately normally distributed

Table 4-4: Summary of the linear regression model assumptions

#### 4.2.4.1 Linear regression model 1

The first model was created for the dependent variable ‘likes’; the independent variables that were used are the following:

- Social media type (Facebook, LinkedIn, Instagram)
- Language (Italian, English, English-Italian)
- Type of post (photo, video, written post, event, share of a link from the school website, share of a link from another website)
- Number of hashtags
- Post length
- Post category (see Table 4-1)

The goal of this model was to see if the number of likes of a post was correlated with one, or more than one, independent variables and to see if this correlation was positive or negative.

The variable likes, before using it into the model, was converted into a logarithmic scale. This was done in order to have a variable with residuals closer to a normal distribution. In Figure 4-14 the histogram and the probability-probability plot for the residuals of the variable 'likes' are shown, while in

Figure 4-15 the same graphs are shown for the residuals of the variable likes on a logarithmic scale. The variable 'Log\_likes' has a histogram that is much more similar to the bell-shaped curve of a normal distribution, and in the P-P plot the points are almost perfectly aligned to the diagonal. So, the variable 'Log\_likes' was used in the model as its residuals have a distribution which is a better approximation of a normal, so, the last assumption, regarding normally distributed errors, is respected. This assumption is necessary in order to take the result of the p-value, which will be analyzed later, as valid.

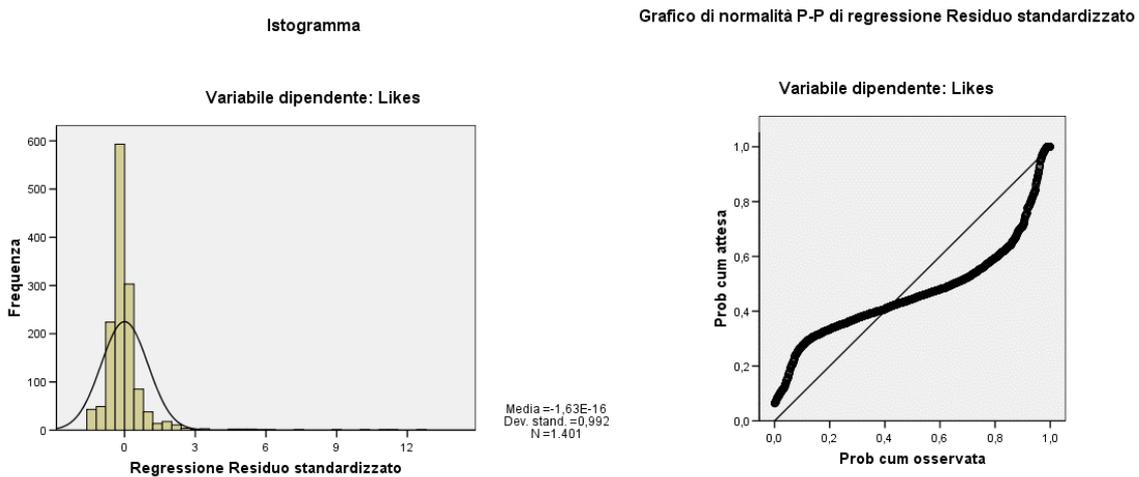


Figure 4-14: Graphs for the variable 'likes'

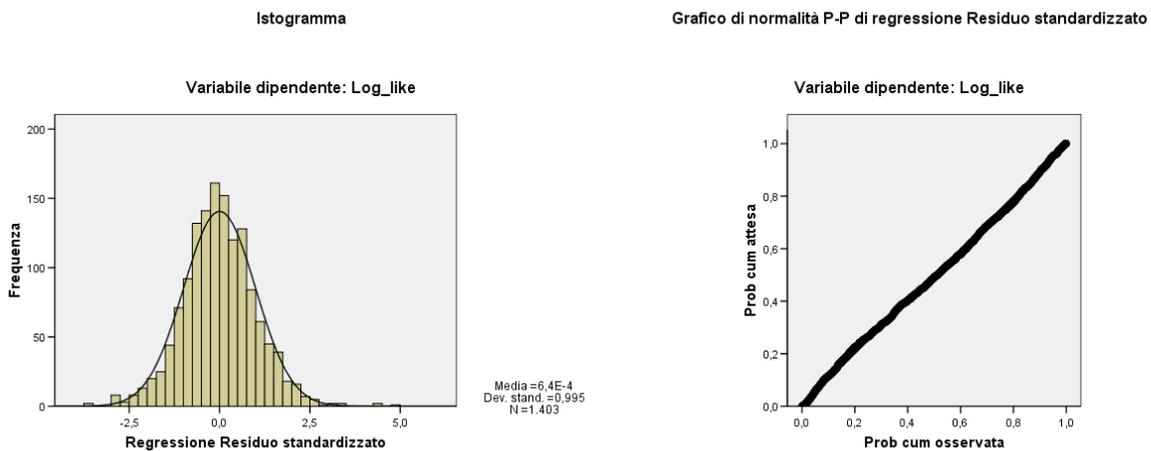


Figure 4-15: Graph for the variable 'Log\_likes'

The first assumption for this model is respected; the dependent variable should be measured on a continuous scale (i.e. interval or ratio variables) and the dependent variable likes used

in this model in continuous, in particular it is a ratio variable, as the zero is absolute and corresponds to the absence of likes and units are of equal magnitude.

The second assumption concerns independent variables, which should be measured on a continuous scale or a categorical scale (i.e. ordinal or nominal variables). The independent variables post length and number of hashtags are ratio variables, while all the remaining ones are represented by binary values, so they are nominal variables.

The third assumption, independence of observations, can be checked by looking at the Durbin-Watson statistic; the value of this statistic should be close to 2 and the value for the model is 1.713, so the assumption is respected. Therefore, there is no correlation between the residuals, so they can be considered independent.

To check assumption number four the graph displayed in Figure 4-16 was used. The goal is to verify that points do not show a non-linear behavior. In this case, as it can be seen by looking at the total fit curve, points follow a straight line, so there is linearity; this means that the relationship between the dependent variable and the independent variables collectively is linear, as requested. Linearity is a really crucial assumption in order to be able to apply a linear regression model; if violated it creates problems and the model cannot be considered reliable. The same graph was used also to verify assumption number five, concerning homoskedasticity; the points do not show a pattern, either increasing or decreasing, but they are positioned at a constant distance from the center line, thus the assumption is respected. Homoscedasticity implies that the variability of each post in the sample is the same, so the error is constant across all the values of the independent variables. The opposite situation, defined as heteroskedasticity, happens when the error term differs across values of an independent variable.

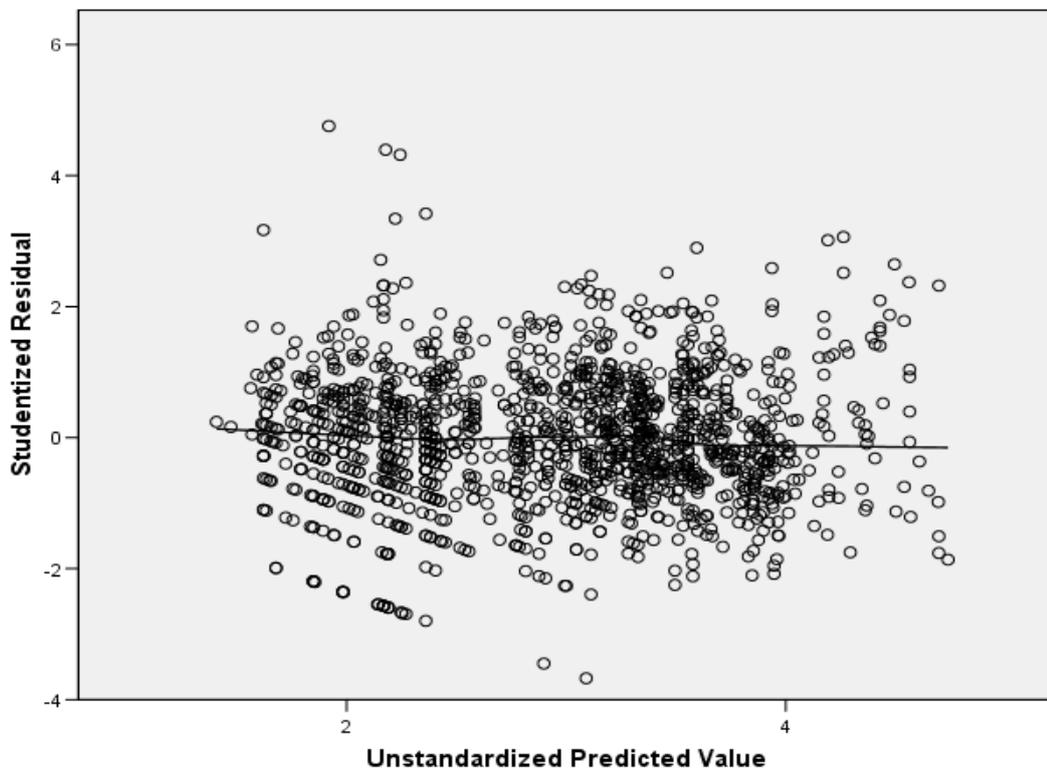


Figure 4-16: Scatter plot for model 1

The sixth assumption can be checked by looking at the correlation values that were created in the output of the model, specifically the ‘correlation’ table that can be found in Attachment III. The correlation values in order to be acceptable must be below 0,7, and in the model all the value respect the threshold. Another way to verify this assumption is to look at the values summarized in Figure 4-17. Tolerance values should be above 0,1 and VIF values should not be greater than 10. Tolerance is used as an indication of the percentage of the variance of the variable which cannot be accounted for by other predictors; if this value is too low, it means that the variable is redundant and thus unnecessary. VIF stands for variance inflation factor, and it is the inverse of tolerance ( $1/\text{tolerance}$ ). As it can be seen, the values of the model respect the threshold, so there is no problem of multicollinearity; multicollinearity could cause problems in the estimation of the coefficients of the regression model as it implies that independent variables are highly correlated with one another and not only to the dependent variable.

Modello		Statistiche di collinearità	
		Tolleranza	VIF
12	(Costante)		
	Facebook	,840	1,191
	Instagram	,575	1,739
	Hashtags	,627	1,596
	Eng	,960	1,041
	Filmato	,933	1,071
	Written_post	,974	1,027
	School_website	,862	1,160
	External_link_reshare	,886	1,128
	Functional	,748	1,337
	Brand_resonance	,916	1,091
	Employee_post	,966	1,035
	Sales_promotion	,709	1,411

a. Variabile dipendente: Log\_like

Figure 4-17: Statistics of collinearity model 1

Assumption number seven can be verified by looking at the table in Figure 4-18; the points with a standardized residual greater than 3, or smaller than -3, are considered outliers; outliers in fact can be defined as points with large residuals, and so with a high difference between the predicted and actual score. In this case there are some outliers, but they can represent a problem only if they are many; the number of outliers is almost negligible considering the total sample, they are only 9 out of 1407 observations. Moreover, their values have been checked and they do not represent a mistake, so they were kept in the sample. To check the presence of high leverage points, the leverage values were considered; no point has a value over 0,2 so there are none. Leverage points have a value of the predictor which significantly differs from the mean of the predictor.

To check the presence of highly influential points, the values for the Cook's distance were analyzed; this statistic combines information of residuals and leverage. Since no values above 1 were found, there are none. Influence points are observations with high leverage, and which are extreme outliers; they are called influence as they can highly influence the value of the final coefficients, if they are not included the final values can be drastically different.

**Diagnostiche per casi<sup>a</sup>**

Numero di caso	Residuo std.	Log_like	Valore atteso	Residuo
2	3,135	6,84	4,1774	2,66311
8	4,804	5,92	1,8377	4,08117
12	4,280	5,88	2,2445	3,63603
17	4,352	5,88	2,1833	3,69724
68	3,447	5,25	2,3187	2,92834
87	3,311	5,04	2,2241	2,81285
263	3,154	4,29	1,6110	2,67947
344	-3,561	,00	3,0256	-3,02556
818	-3,537	,00	3,0052	-3,00516

a. Variabile dipendente: Log\_like

Figure 4-18: Outliers of model 1

In the creation of the model on SPSS, the independent variable 'LinkedIn' was not included, it was left outside in order to keep it as a baseline, to verify if the average number of likes was higher or lower on Facebook and Instagram with respect to the average number of likes that a post receives on LinkedIn.

Concerning the language, the independent variable 'Italian' was left outside the model, to keep it as a baseline in order to see if the fact that a post is written in English or in both English and Italian has an impact on the number of likes with respect to posts written in Italian.

The resulting equation for the first model is the following:

$$\begin{aligned}
 \text{Likes} = & \beta_0 + \beta_1 \text{Facebook} + \beta_2 \text{Instagram} + \beta_3 \text{English} + \beta_4 \text{English. Italian} \\
 & + \beta_5 \text{Photo} + \beta_6 \text{Video} + \beta_7 \text{Written post} + \beta_8 \text{Link school website} \\
 & + \beta_9 \text{External link} + \beta_{10} \text{Hashtags} + \beta_{11} \text{Post length} + \beta_{12} \text{Emotional} \\
 & + \beta_{13} \text{Functional} + \beta_{14} \text{Educational} + \beta_{15} \text{Brand resonance} \\
 & + \beta_{16} \text{Experiential} + \beta_{17} \text{Current event} + \beta_{18} \text{Personal brand} \\
 & + \beta_{19} \text{Employee brand post} + \beta_{20} \text{Brand community} \\
 & + \beta_{21} \text{Customer relationship} + \beta_{22} \text{Cause.related} \\
 & + \beta_{23} \text{Sales promotion} + \mu
 \end{aligned}$$

Equation 1: Linear regression model 1

#### 4.2.4.2 Linear regression model 2

The second linear regression model has as dependent variable the number of comments that a post receives. The independent variables used were the same of the first model, specifically:

- Social media type (Facebook, LinkedIn, Instagram)
- Language (Italian, English, English-Italian)
- Type of post (photo, video, written post, event, share of a link from the school website, share of a link from another website)
- Number of hashtags
- Post length
- Post category (see Table 4-1)

As for the variable 'likes' of the first linear regression model, also for the dependent variable 'comments' its transformation into a logarithmic scale has residuals with a distribution closer to a normal. In Figure 4-19 the histogram and P-P plot for the residuals of the variable 'comments' are shown, while in Figure-20 the same graphs are shown for its logarithmic transformation. Even though also the logarithmic variable does not perfectly resemble a normal distribution, the points in the P-P plot are closer to the diagonal, so it is a better approximation. In any case the linear regression analysis is fairly robust to non-normality. Assumption number eight, concerning the normality of residuals is respected.

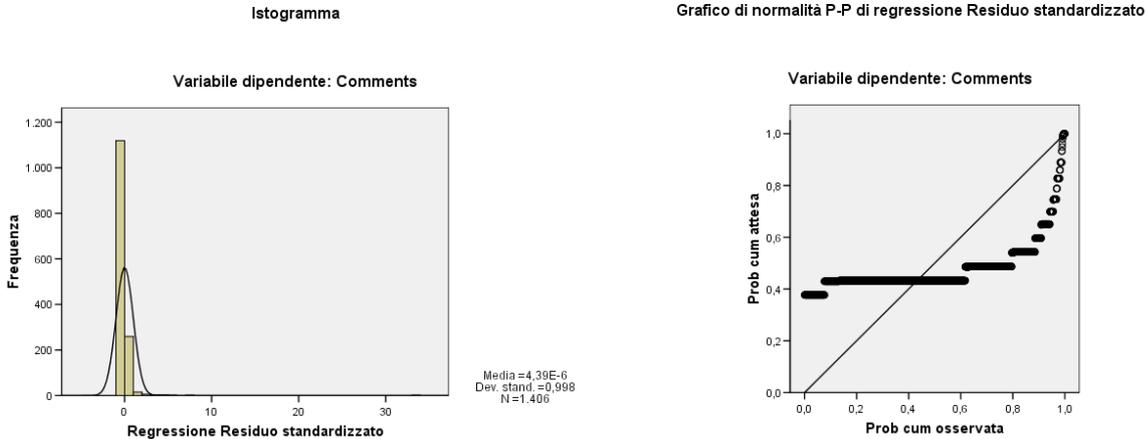


Figure 4-19: Graphs for the variable 'comments'

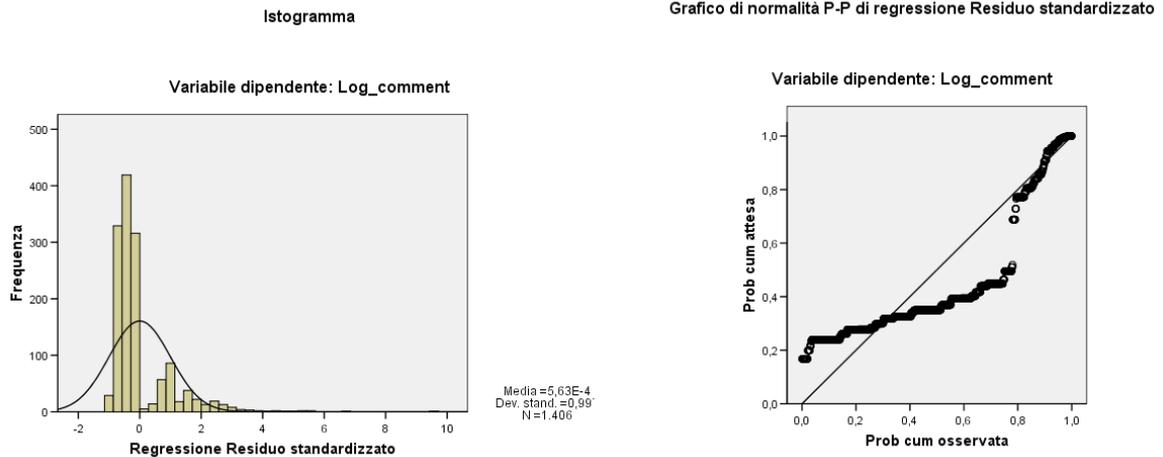


Figure 4-20: Graphs for the variable ‘Log\_comments’

The first and second assumption are respected; the dependent variable ‘comments’ is measured on a continuous scale, as required, and the independent variables are measured on a ratio scale, in case of hashtags and post length, and on a nominal scale all the remaining ones, which have only two values.

The third assumption states that there should be independence of observations and it can be checked by looking at the Durbin-Watson statistic, which for this model is 1,86, really close to 2, so there is no correlation between residuals; observations can be considered independent.

Figure 4-21 represents the scatter plot for the second linear regression model and it was used to verify assumption number four and five. To be compliant with the former, the points should exhibit a linear relationship, and it can be verified by looking at the total fit line, which is almost straight; to respect the latter points do not have to show a pattern, either increasing or decreasing, and, in this case, they are almost all at the same distance from the middle line, so the assumption is respected. It can be said that between the dependent variable and the independent variables collectively there is a linear relationship and that data show homoskedasticity.

Moving on to the following assumptions, the correlation between independent variables has to be checked. To verify this, the table ‘correlations’ that can be found in Attachment IV is needed. All the correlation values are lower than 0,7 so all the values are fine; another way to verify this is to look at the table in Figure 4-22. Tolerances values should be greater than 0,1 and VIF values lower than 10; all thresholds are respected so there is no problem of multicollinearity.

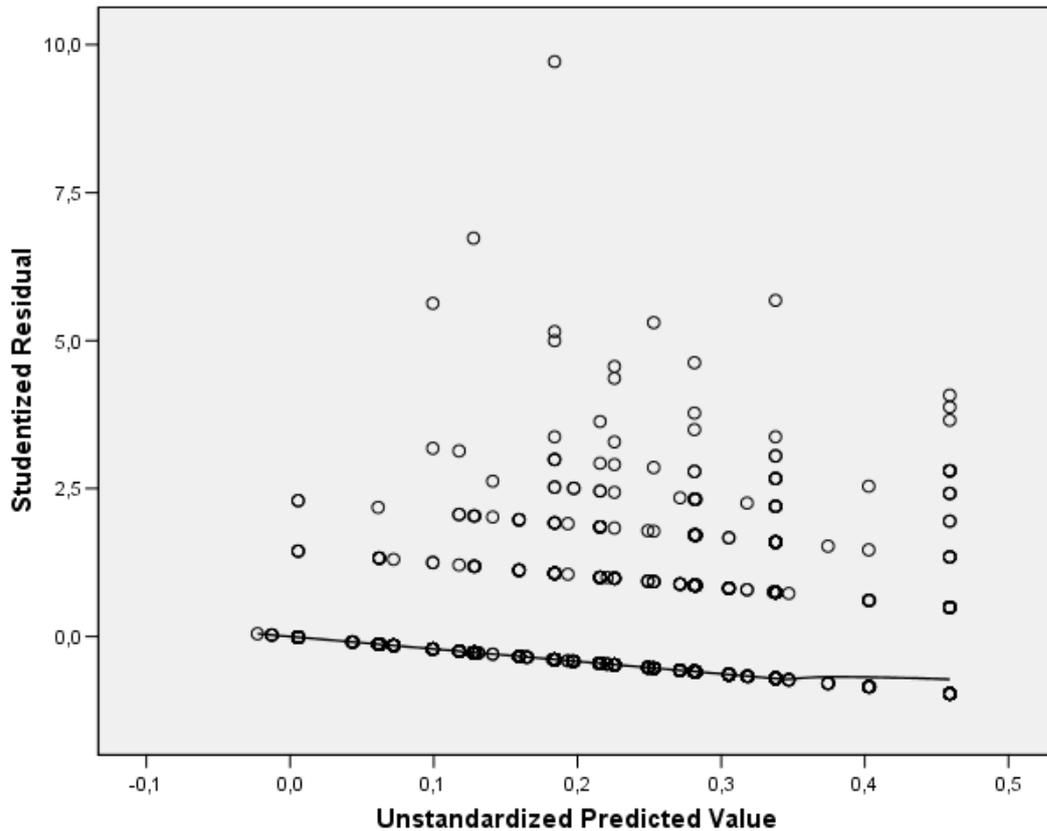


Figure 4-21: Scatter plot for model 2

Modello		Statistiche di collinearità	
		Tolleranza	VIF
18	(Costante)		
	Facebook	,997	1,003
	Eng	,973	1,027
	External_link_reshare	,967	1,034
	Functional	,758	1,319
	Brand_resonance	,947	1,056
	Sales_promotion	,762	1,312

Figure 4-22: Statistics of multicollinearity model 2

The outliers of the model can be seen in Figure 4-23. As for the first model, they have been checked and they are not the result of mistakes, so they have been kept in the model and, since they are only a small percentage over the total, they do not represent a problem. Concerning the presence of high leverage points and highly influential points the values of

leverage and Cook's distance were analyzed; the values respect the thresholds, so there are no high leverage points or highly influential points in the sample.

**Diagnostiche per casi<sup>a</sup>**

Numero di caso	Residuo std.	Log_ comment	Valore atteso	Residuo
3	5,603	2,77	,0994	2,67322
5	9,700	4,81	,1841	4,62811
8	5,145	2,64	,1841	2,45499
17	4,064	2,40	,4591	1,93884
31	3,864	2,30	,4591	1,84353
51	4,990	2,56	,1841	2,38088
117	3,165	1,61	,0994	1,51006
134	5,281	2,77	,2531	2,51951
142	4,553	2,40	,2258	2,17213
178	6,716	3,33	,1277	3,20451
208	3,769	2,08	,2814	1,79803
213	4,618	2,48	,2814	2,20350
227	3,371	1,95	,3378	1,60813
277	3,047	1,79	,3378	1,45398
294	3,370	1,79	,1841	1,60769
383	5,673	3,04	,3378	2,70674
430	3,626	1,95	,2157	1,73018
539	3,047	1,79	,3378	1,45398
564	3,489	1,95	,2814	1,66450
830	3,282	1,79	,2258	1,56600
844	3,127	1,61	,1177	1,49177
1202	4,353	2,30	,2258	2,07682
1364	3,643	2,20	,4591	1,73817

a. Variabile dipendente: Log\_comment

Figure 4-23: Outliers of model 2

As in the first model for the dependent variable likes, the independent variables 'LinkedIn' and 'Italian' were not included in the model in order to keep them as a baseline. The resulting equation is the following:

$$\begin{aligned}
 \text{Comments} = & \beta_0 + \beta_1 \text{Facebook} + \beta_2 \text{Instagram} + \beta_3 \text{English} + \beta_4 \text{English. Italian} \\
 & + \beta_5 \text{Photo} + \beta_6 \text{Video} + \beta_7 \text{Written post} + \beta_8 \text{Link school website} \\
 & + \beta_9 \text{External link} + \beta_{10} \text{Hashtags} + \beta_{11} \text{Post length} + \beta_{12} \text{Emotional} \\
 & + \beta_{13} \text{Functional} + \beta_{14} \text{Educational} + \beta_{15} \text{Brand resonance} \\
 & + \beta_{16} \text{Experiential} + \beta_{17} \text{Current event} + \beta_{18} \text{Personal brand} \\
 & + \beta_{19} \text{Employee brand post} + \beta_{20} \text{Brand community} \\
 & + \beta_{21} \text{Customer relationship} + \beta_{22} \text{Cause.related} \\
 & + \beta_{23} \text{Sales promotion} + \mu
 \end{aligned}$$

Equation 2: Linear regression model 2

#### 4.2.4.3 Linear regression model 3

The third linear regression model has as dependent variable the number of reshares of a post; as previously mentioned, the number of times that a post is reshared by other users can be seen only on Facebook, so, for this reason, the independent variable social media was not included. The independent variables that were used in the model are:

- Language (Italian, English, English-Italian)
- Type of post (photo, video, written post, event, share of a link from the school website, share of a link from another website)
- Number of hashtags
- Post length
- Post category (see Table 4-1)

Before creating the linear regression model for the dependent variable ‘reshares’, the variable itself was compared to its logarithmic transformation. The histogram for the standardized residuals of the variable and for its transformation are represented in Figure 4-24 and Figure 4-25 respectively. The difference can be noticed especially by looking at the P-P plot, for the variable ‘Log\_reshares’ the points are much closer to the diagonal, so, it was chosen as dependent variables as its residuals have a distribution that better resembles a normal distribution, thus respecting the last assumption.

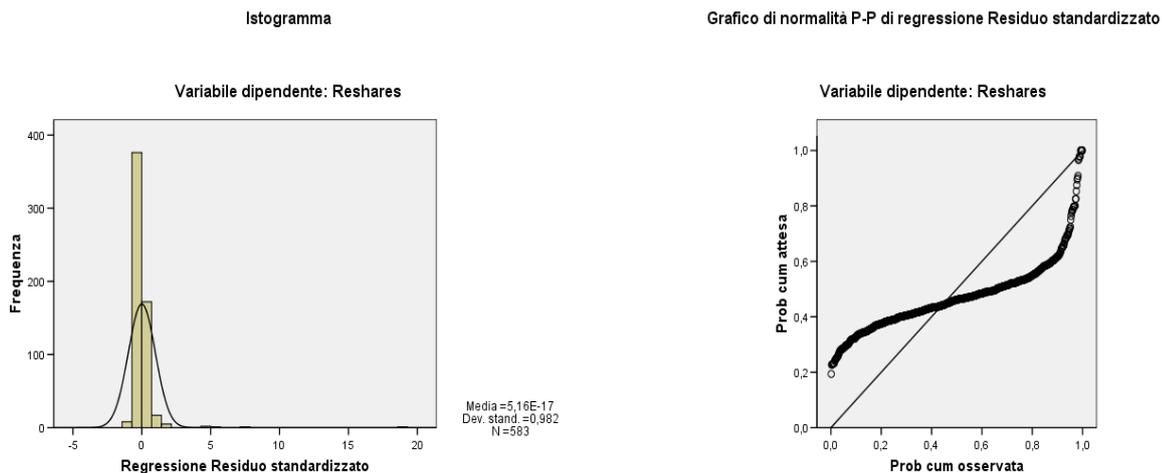


Figure 4-24: Graphs for the variable ‘Reshares’

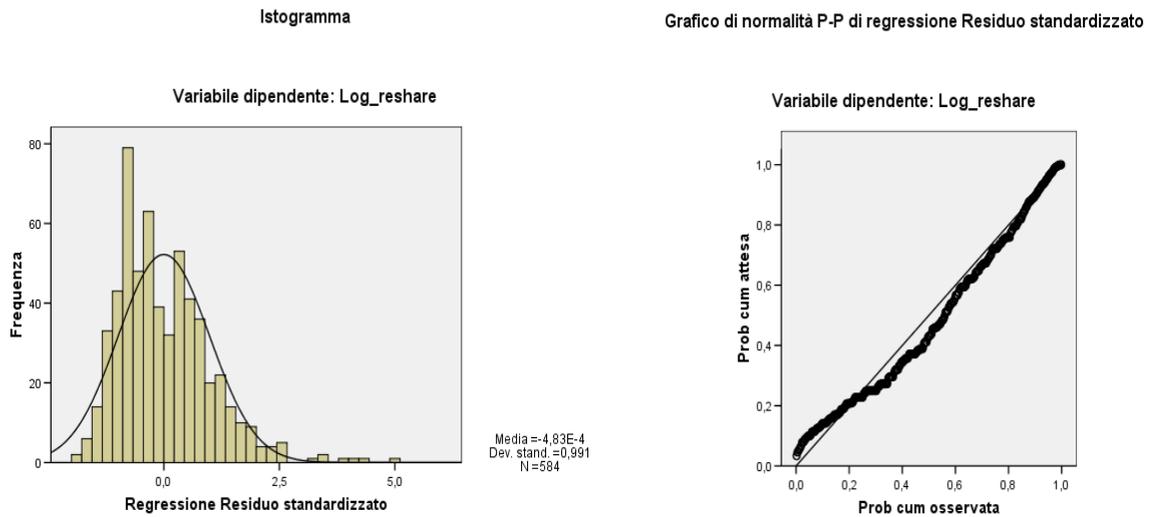


Figure 4-25: Graphs for the variable ‘Log\_reshares’

The first and second assumptions are respected; The dependent variable is measured on a continuous scale, and the independent variables are either ratio or nominal variables, in particular post length and number of hashtags are measured on a ratio scale, while the other independent variables have only two values, 0 or 1, so they are measured on a nominal scale. For the third assumption the Durbin-Watson statistic was considered; in the model under analysis its value is 1,771, quite close to 2, so there is no correlation between the residuals, so observations can be said to be independent.

The graph in Figure 4-26 was used to verify the linear relationship between the dependent variable and the independent variables collectively, as well as homoskedasticity. The points represented in the scatter plot show a linear relationship, as the total fit line is almost straight, and no increasing or decreasing pattern, so both assumptions are respected.

Assumption number five can be verified by looking at the correlation values in the table ‘correlations’ in Attachment V or by looking at the table in Figure 4-27. The correlation values should not be greater than 0,7 and in the correlation table no value exceeds this threshold. Tolerances values in the table represented should not be lower than 0,1 and VIF values should not be greater than 10. As it can be checked in the following figure, the assumption holds.

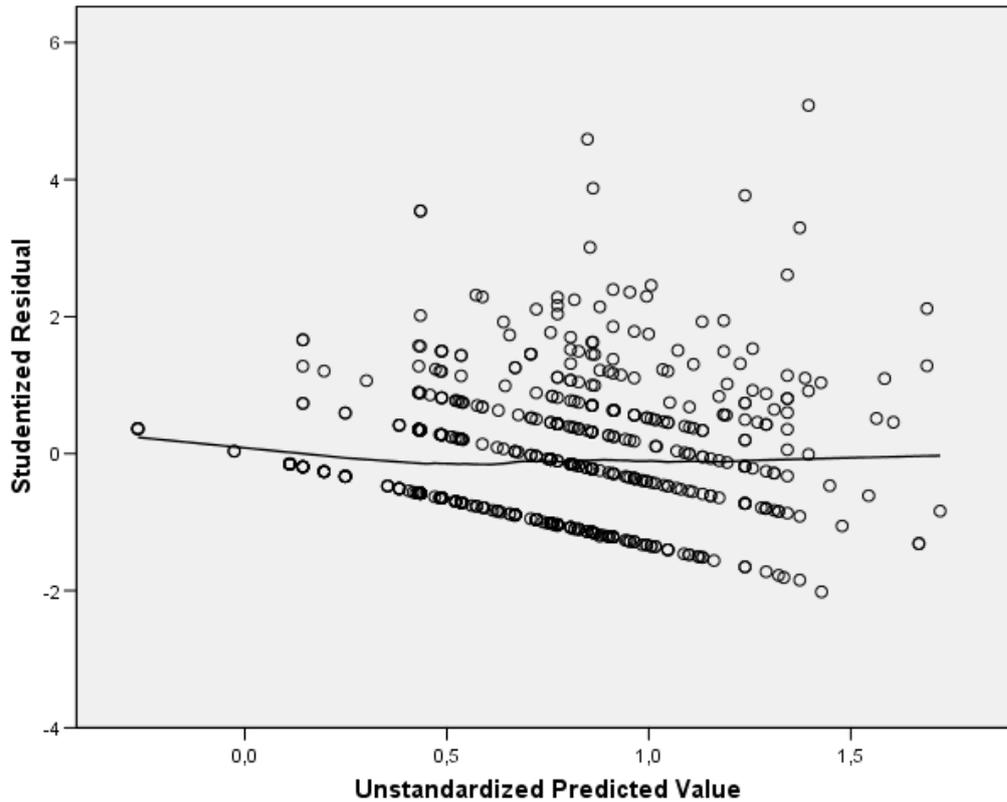


Figure 4-26: Scatter plot for model 3

Modello		Statistiche di collinearità	
		Tolleranza	VIF
14	(Costante)		
	Hashtags	,961	1,041
	Eng	,863	1,159
	Photo	,699	1,430
	Event	,884	1,132
	External_link_reshare	,766	1,305
	Educational	,712	1,405
	Brand_resonance	,911	1,097
	Sales_promotion	,763	1,311

Figure 4-27: Statistics of multicollinearity model 3

Assumption number seven looks at outliers, leverage points and highly influential points. Outliers can be seen in Figure 4-28; these points were checked one by one in order to verify that their values were not the result of a mistake. Since the values were correct, they were kept in the sample. To check the presence of leverage points, the leverage values were considered, and they were all below the 0,2 threshold; while for the presence of highly

influential points Cook's distance was considered, and all the values were below 1. Therefore, in the sample there are no leverage points or highly influential points.

**Diagnostiche per casi<sup>a</sup>**

Numero di caso	Residuo std.	Log_reshare	Valore atteso	Residuo
3	4,536	4,26	,8481	3,41461
5	5,052	5,20	1,3954	3,80314
8	3,750	4,06	1,2379	2,82253
97	3,852	3,76	,8619	2,89931
136	3,261	3,83	1,3736	2,45506
137	3,529	3,09	,4346	2,65647
138	3,529	3,09	,4346	2,65647

a. Variabile dipendente: Log\_reshare

Figure 4-28: Outliers of model 3

For the creation of the model, the independent variable 'Italian' was kept as a baseline, so it was not included in order to see if the fact that a post is written in English or in both English and Italian has some influence on the number of reshares that the post receives with respect to a post written in Italian. The resulting equation for the model was the following:

$$\begin{aligned}
 \text{Reshares} = & \beta_0 + \beta_1 \text{English} + \beta_2 \text{English. Italian} + \beta_3 \text{Photo} + \beta_4 \text{Video} \\
 & + \beta_5 \text{Written post} + \beta_6 \text{Link school website} + \beta_7 \text{External link} \\
 & + \beta_8 \text{Hashtags} + \beta_9 \text{Post length} + \beta_{10} \text{Emotional} + \beta_{11} \text{Functional} \\
 & + \beta_{12} \text{Educational} + \beta_{13} \text{Brand resonance} + \beta_{14} \text{Experiential} \\
 & + \beta_{15} \text{Current event} + \beta_{16} \text{Personal brand} \\
 & + \beta_{17} \text{Employee brand post} + \beta_{18} \text{Brand community} \\
 & + \beta_{19} \text{Customer relationship} + \beta_{20} \text{Cause.related} \\
 & + \beta_{21} \text{Sales promotion} + \mu
 \end{aligned}$$

Equation 3: Linear regression model 3

#### 4.2.4.4 Linear regression model 4

The fourth and last regression model has as dependent variable the number of video views; this type of data has sense only for the post type 'video', so in this model the independent variable 'type of post' was not included. The independent variables used in the model are:

- Social media type (Facebook, LinkedIn, Instagram)
- Language (Italian, English, English-Italian)
- Number of hashtags
- Post length
- Post category (see Table 4-1)

As for the previous models, also for the video views the logarithmic transformation is a better approximation of a normal distribution for the residuals. In Figure 4-29 the histogram and P-P plot for the residuals of video views are displayed, while in Figure 4-30 the same graphs

are shown for the logarithmic transformation. As it can be seen, the histogram for the logarithmic variable is more similar to the classic bell-shaped curve of a normal distribution and in the P-P plot the points are closer to the diagonal. For these reasons, the variable ‘Log\_views’ was used in the model and so assumption number eight, concerning the normality of residuals, was respected.

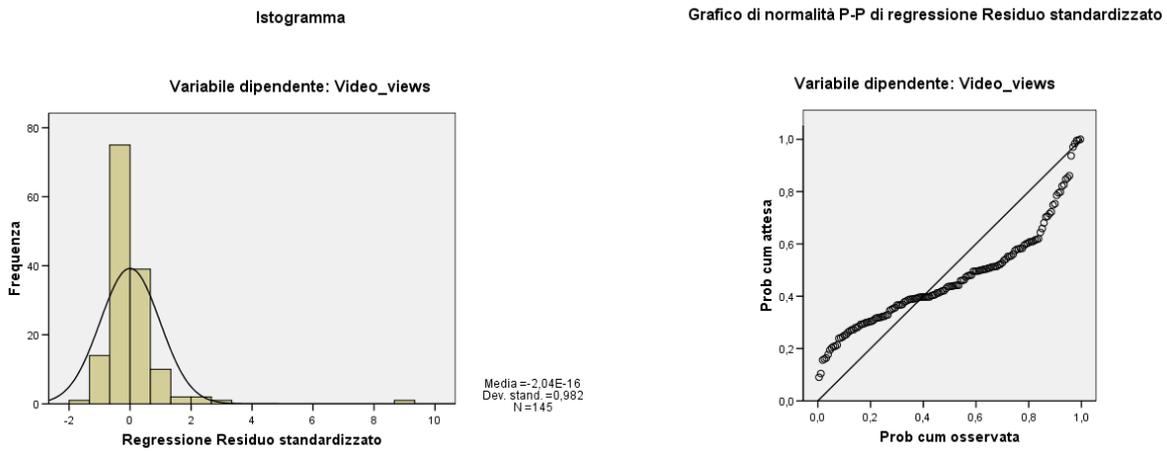


Figure 4-29: Graphs for the variable ‘video views’

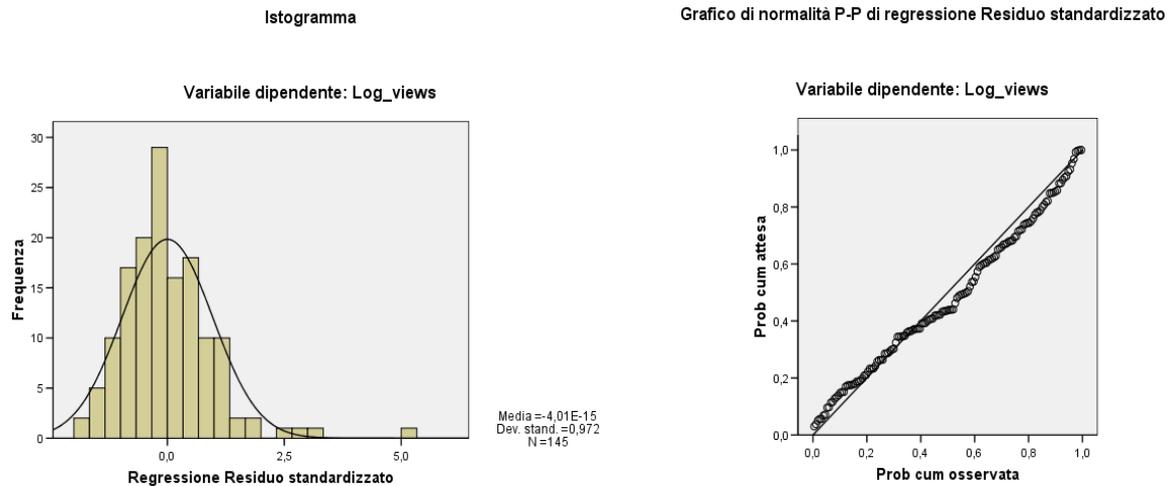


Figure 4-30: Graphs for the variable ‘Log\_views’

Assumption number one and two concern the scale of dependent and independent variables. The dependent variable is measured on a continuous scale while the independent variables ‘hashtags’ and ‘post length’ are measured on a ratio scale, and the remaining variables are all nominal. So, these two assumptions are respected.

The third assumption can be checked by looking at the Durbin-Watson statistics, whose value is 2,023. Its value should be close to 2, as in this case, so the assumption holds.

In Figure 4-31 assumptions number four and five can be checked. The points show an almost linear relationship between dependent variable and independent variables collectively, as suggested by the total fit line, which shows only a bit of non-linearity in the middle, but it

does not represent a big variation from linearity; moreover, points do not show any pattern, so also the assumption of homoskedasticity is respected.

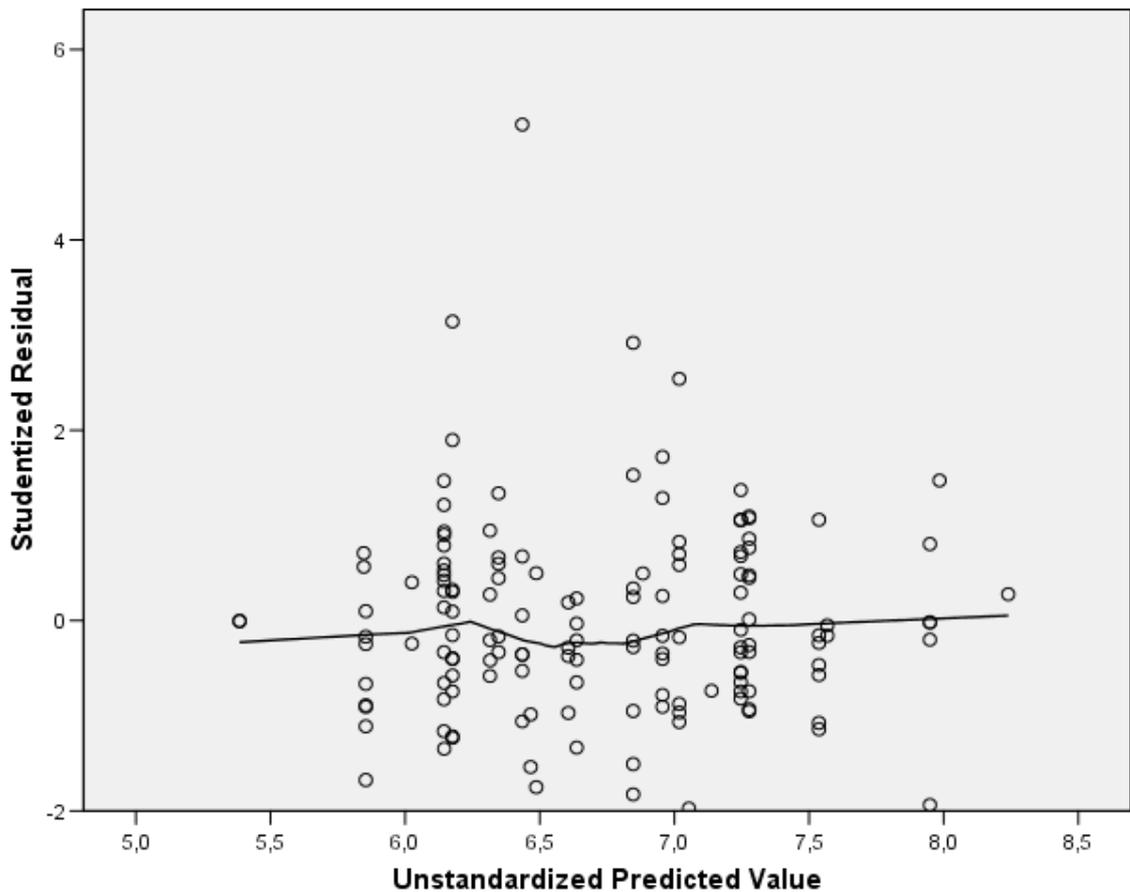


Figure 4-31: Scatter plot model 4

For the assessment of assumption six, the table 'correlations' in the Attachment IV has to be considered. In this table the values should all be lower than 0,7 in order not to show multicollinearity. In the sample the values respect the assumption, but to have another point of view data in Figure 4-32 can be considered. Tolerances values should be greater than 0,1 and VIF values lower than 10, as in this case.

Outliers can be identified by looking at Figure 4-33. The number of outliers is just two over a total of 147 videos included in the sample, so the percentage is negligible. Moreover, they were checked in order to be sure that they do not result from a mistake.

To verify the presence of leverage points and highly influential points the leverage values and values of the Cook's distance were considered. In the sample there are some points whose leverage value exceeds the 0,2 threshold but they do not constitute highly influential points, as no observation has a value of the Cook's distance greater than 1.

Modello		Statistiche di collinearità	
		Tolleranza	VIF
8	(Costante)		
	Facebook	,792	1,263
	Instagram	,737	1,358
	Brand_resonance	,748	1,336
	Experiential	,804	1,244
	Personal_Brand_post	,942	1,062
	Employee_post	,899	1,112
	Costumer_relationship	,647	1,547
	Sales_promotion	,692	1,445

Figure 4-32: Statistics of multicollinearity model 4

**Diagnostiche per casi<sup>a</sup>**

Numero di caso	Residuo std.	Log_views	Valore atteso	Residuo
6	3,081	8,00	6,1756	1,82609
39	5,079	9,45	6,4349	3,01081

a. Variabile dipendente: Log\_views

Figure 4-33: Outliers model 4

As for the first and the second model, the variables ‘LinkedIn’ and ‘Italian’ were not included in the analysis of this linear regression model, as they were kept as baseline. The resulting equation for the model is the following:

$$\begin{aligned}
 \text{Video views} = & \beta_0 + \beta_1 \text{Facebook} + \beta_2 \text{Instagram} + \beta_3 \text{English} + \beta_4 \text{English. Italian} \\
 & + \beta_5 \text{Hashtags} + \beta_6 \text{Post length} + \beta_7 \text{Emotional} + \beta_8 \text{Functional} \\
 & + \beta_9 \text{Educational} + \beta_{10} \text{Brand resonance} + \beta_{11} \text{Experiential} \\
 & + \beta_{12} \text{Current event} + \beta_{13} \text{Personal brand} \\
 & + \beta_{14} \text{Employee brand post} + \beta_{15} \text{Brand community} \\
 & + \beta_{16} \text{Customer relationship} + \beta_{17} \text{Cause.related} \\
 & + \beta_{18} \text{Sales promotion} + \mu
 \end{aligned}$$

Equation 4: Linear regression model 4

## 5. Results

### 5.1 *Expected results*

This paragraph is dedicated to understanding what the results of the linear regression analysis could be, in order to later compare them with the actual results obtained.

#### 5.1.1 *Social media expected results*

First of all, it can be interesting to understand which social media is expected to perform better in relation to the metrics considered. In Figure 3-1, the number of followers of each Business School on Facebook, Instagram, LinkedIn and YouTube were compared; the social media with the highest number of followers was LinkedIn for all the schools considered, so, it was the one performing better in brand awareness. LinkedIn is also the social media with the highest amount of posts per week for each Business School considered and the highest number of video views.

Concerning the number of likes, from the data collected, Instagram is the social media with the highest average, while for the number of comments results are not equal for all the schools considered; in particular for Luiss Business School the highest number of comments can be found on Facebook, for SDA Bocconi on Instagram and for MIP and Cuoia Business School on LinkedIn.

However, it must be said that, according to Figure 2-2, the social media with the highest user base world-wide is Facebook.

So, in the end, it could be expected that, in the results of the linear regression models run on SPSS, the correlation between the metrics number of likes and number of video views with the social media LinkedIn is found to be positive; being it the channel with the highest number of followers, it is expected to receive a higher number of likes and video views with respect to the other social pages. Similarly, regarding comments, a positive correlation is expected with LinkedIn, as the number of comments is a measure of brand engagement, as the number of likes.

***H1:*** LinkedIn is positively correlated with number of likes, comments and video views.

#### 5.1.2 *Language expected results*

Luiss Business School, MIP and SDA Bocconi offer masters and executive programs not only in Italian but in many cases also in English; this opens the possibility to foreign students to study there. Obviously, having non-Italian speaking students, the schools publish on their social media pages posts also in English in order to reach also them, and in some case, posts are written in both languages so that everyone can understand the description of the post. Cuoia Business School, instead, has only master programs offered in Italian, with the possibility in some cases to have some modules taught in English, but the main language remains Italian. For this reason, on its social pages, all posts are written only in this language.

The fact that a post is written in both Italian and English, allows the schools to make both students from foreign countries and Italian students who do not know English well, to clearly understand the post description. This means that the post in this way can be read by more people, so the expected result is a positive correlation between the independent variable English-Italian and the metrics likes, comments and reshares. Concerning video views, the

language of the description is not expected to have an influence on this metric, as, in this case, what matters is the language of the video and not of its description.

**H2:** Posts written in both English and Italian are positively correlate with number of likes, of comments and reshares.

#### *5.1.3 Type of post expected results*

According to Lisette de Vries et Al. (22), the vividness of a post is the extent to which it stimulates the different senses of the user and it is positively correlated to the number of likes of the post itself. This characteristic can be associated to the type of post ‘video’, being it the most vivid one, but also to pictures.

A study by Kwok & Yu (55) showed that the post types photos and status update, that in this analysis corresponds to the post type written post, received a higher amount of likes and of comments with respect to the other types of posts considered, in particular videos and links. Posts which contain links are found to have a lower level of engagement as well as posts concerning events (56). Events are found to have a negative impact on the number of likes also in the study by Carsten D. Schultz (57).

So, concerning the type of posts, the results that are expected are a positive correlation between the number of likes and the post types photos, videos and written post, a positive correlation between the number of comments and photos, and written posts, a negative correlation between the number of likes, the number of comments and the post types event and reshare of link (both from the school website and from other websites).

**H3:** The variables photos, video and written post are positively correlated with the number of likes.

**H4:** The variables photo and written post are positively correlated with the number of comments.

**H5:** The variables event and link reshare are negatively correlated with the variables number of likes and with the number of comments.

#### *5.1.4 Hashtag expected results*

By helping to codify a post in reference to some generally accepted categories and themes, hashtags are helpful to reach a higher number of users; instrumentally, by clicking on a hashtag it is possible to see all the posts that used it in their description. The higher the number of hashtags used, the higher is the possible reach of the post, and so the higher should be the response of users to the post. This is confirmed by Carsten D. Schultz (57); in his study a positive relation was found between the hashtags and the number of likes and comments.

**H6:** The number of hashtags is positively correlated with the variables likes and comments.

#### *5.1.5 Post length expected results*

The use of mobile phones is always increasing, and they have changed the behavior of people with respect to computers. As previously mentioned in paragraph 2.1.3, people are less inclined to read for long periods, also due to the length of phone screens. For this reason, it

can be expected that the post length is negatively related to the number of likes of the post (57), since people do not pay much attention to long texts.

However, the length of a post can also be positively correlated with the number of comments, since the users that are willing to read the entire post description are interested in the subject and they may also be willing to share their point of view on it, by writing a comment or by resharing the post on their own social pages.

**H7:** The post length is negatively correlated with the variable likes, and it is positively correlated with the variables comments and reshares.

### 5.1.6 Post categories expected results

In Table 2-2 the correlation between metrics and post characteristics suggested by literature are summarized; in this table some of the results that can be expected from the analysis are contained. In order to be easier to see, the relevant parts are reported in Table 5-1.

	Informational content	Emotional content
Number of likes	+	
Number of comments	+	-
Number of shares		+

Table 5-1: post characteristics and metrics

The post characteristic ‘Informational content’ is defined as a post containing useful, functional or practical information about the company or its products (21), (22) (23); this characteristic can be associated to the post category ‘functional’, as it is the category used to share the attributes of the products offered by the firm, and, in the case of Business Schools, it is used to share information about the master and how it will be carried out. According to literature, this characteristic should be positively related to the number of likes and comments.

The post characteristic ‘Emotional content’ stimulates strong emotions in the user reading the post, both negative and positive feelings (23) (24); it can be associated to the post category ‘emotional’ as it has the same goal. In this case, it is expected a negative relationship with the number of comments and a positive one with the number of reshares of the post.

According to the research conducted by Peruta & Shields (56), who conducted a study on the Facebook posts of top U.S. colleges and universities, some post categories are positively related to the engagement; in particular, the study revealed that the categories news-related, school spirit and promotion increase engagement. In the article engagement was defined as the sum of likes, comments and reshares.

Among the categories mentioned, news-related can be seen as the category ‘educational’, which is used to educate and inform the readers of the post about many different fields. The category school spirit instead can be associated to ‘brand resonance’ as the goal of this category is to highlight the identity of the brand, and in the case of Business School, it is used to show the history and importance of the school. Promotion can be connected to the ‘sales promotion’ category, used to promote educational programs. These three categories are expected to be positively related to the metrics likes, comments and reshares.

In the same study, negative correlation was found between engagement and the categories campus events and academic events. Campus and academic events can fall under the category ‘experiential’ which is dedicated to events and activities organized by the school; this category is thus expected to have a negative influence on the dependent variables likes, comments and reshares.

The study by Carsten D. Schultz (57) analyzed also the impact of post categories on the metrics likes, comments and shares. The results show that the metrics likes, and comments are negatively correlated to the category charity, which is used to provide information about charity events. According to the categories considered for the analysis presented in this thesis, it can be easily associated to the category ‘cause-related’, used to support social causes.

The same research found that the number of shares of a post is positively related to the category holiday, that in our sample is called ‘current event’ and is dedicated to cultural events, holidays, weather or seasons.

**H8:** The post category functional is positively correlated with likes and comments.

**H9:** The post category emotional is negatively correlated with comments but positively related to the number of reshares.

**H10:** The post categories educational, brand resonance and sales promotion are positively related to the number of likes, comments and reshares.

**H11:** The post category experiential is negatively correlated with likes, comments and reshares.

**H12:** The post category cause-related is negatively correlated with the number of likes and of comments.

**H13:** The post category current event is positively correlated with the number of reshares.

In the following table a summary of the results that are expected from the linear regression analysis is presented.

Variable	Correlation with Likes	Correlation with comments	Correlation with reshares	Correlation with video views
Facebook				
LinkedIn	+	+	Not applicable	+
Instagram			Not applicable	
English				
Italian				
English-Italian	+	+	+	

Photos	+	+		Not applicable
Videos	+			
Written Post	+	+		Not applicable
Event	-	-		Not applicable
Link school website	-	-		Not applicable
External link reshare	-	-		Not applicable
Hashtags	+	+		
Post length	-	+	+	
Emotional brand posts		-	+	
Functional brand posts	+	+		
Educational brand posts	+	+	+	
Brand resonance	+	+	+	
Experiential brand posts	-	-	-	
Current event			+	
Personal brand posts				
Employee brand posts				
Brand community				
Customer relationship				
Cause-related brand post	-	-		
Sales promotion	+	+	+	

Table 5-2: Summary of expected results

## 5.2 Results obtained

### 5.2.1 Linear regression model 1 results

The first linear regression model was created in order to understand what are the independent variables which have an influence on the dependent variable likes, either positive or negative. In Figure 5-1 some important values are summarized. The value of the statistic R is used to see the fit of the model; it goes from 0 to 1, values close to 1 represent a good fit of the model. In the model considered in this paragraph the value is 0,652, so the fit is quite

good. The  $R^2$  for this model is 42,5%, which means that the model explains 42,5% of the variability of the dependent variable.

**Riepilogo del modello<sup>m</sup>**

Modello	R	R-quadrato	R-quadrato corretto	Errore std. della stima	Durbin-Watson
1	,654 <sup>a</sup>	,428	,419	,85091	
2	,654 <sup>b</sup>	,428	,419	,85060	
3	,654 <sup>c</sup>	,428	,419	,85030	
4	,654 <sup>d</sup>	,428	,420	,85001	
5	,654 <sup>e</sup>	,428	,420	,84974	
6	,654 <sup>f</sup>	,428	,421	,84950	
7	,654 <sup>g</sup>	,428	,421	,84925	
8	,654 <sup>h</sup>	,428	,421	,84905	
9	,654 <sup>i</sup>	,428	,421	,84887	
10	,653 <sup>j</sup>	,427	,421	,84899	
11	,653 <sup>k</sup>	,426	,421	,84916	
12	,652 <sup>l</sup>	,425	,420	,84959	1,713

Figure 5-1: Summary of linear regression model 1

In Figure 5-2 the statistical significance of the model can be assessed. The p-value (Sig.) of the model is used to verify whether the model is statistically significant or not; to be significant it should be lower than 0,05, so, being it 0, it means that the model is statistically significant. Since the p-value is low, the null hypothesis (there is no correlation between the dependent and independent variables) is rejected, and it can be said that there is correlation.

**ANOVA<sup>m</sup>**

Modello		Somma dei quadrati	df	Media dei quadrati	F	Sig.
12	Regressione	741,696	12	61,808	85,629	,000 <sup>l</sup>
	Residuo	1001,873	1388	,722		
	Totale	1743,569	1400			

Figure 5-2: ANOVA model 1

In Figure 5-3, the coefficients of the model are summarized. The coefficient 'Constant' represents the value of the dependent variable when all the independent variables are zero, in this case it is the number of likes of a post on LinkedIn written in Italian. The values of the variables 'Facebook' and 'Instagram' represent the increase or decrease in the number of likes of a post published on that social media instead of LinkedIn. The same for the variable 'English', which represents the decrease in the likes with respect to posts written in Italian. For the nominal variables 'video', 'written post', 'reshare of a link from the school website', 'reshare of an external link', 'functional', 'brand resonance', 'employee brand post' and 'sales promotion', the coefficients represent the change in the value of the variable likes between the two values of the independent variables. So, they represent the increase or

decrease in the likes when a post belongs to that category and so the independent variable is 1 and not 0.

The coefficient of the variable ‘hashtags’ represents the increase in the number of likes that is associated to the increase of one unit in the independent variable hashtags.

In the same Table (Figure 5-3), another important value that has to be considered is the column ‘Sig.’, which stands for significance level and it corresponds to the p-value. It is used in order to understand the statistical significance of the correlation coefficients and whether to accept or reject the null hypothesis. The null hypothesis, H0, proposes that there is no correlation between the dependent variable and the independent variables; it is rejected if the p-value is lower than a threshold while if it greater H0 can’t be rejected. The threshold in this case was set at 0,1 so for values lower than this the null hypothesis is rejected and it can be said that there is a correlation between the dependent variable and the independent variable that corresponds to that specific p-value. In the Table all the values in the Sig. column are below 0,1 so they all respect the condition for the rejection of the null hypothesis; thus, there is correlation between the dependent variable likes and the independent variables that are listed in the table.

The p-value can be used also to understand the statistical significance of the correlations; if it lower than 0,05 it can be said that there is high statistical significance, if its value is between 0,05 and 0,01 that there is statistical significance and if it is higher than 0,1 that there is no statistical significance. In the table all the values suggest that there is statistical significance, and, in some cases, a high level.

Modello	Coefficienti non standardizzati		Coefficienti standardizzati	t	Sig.
	B	Errore std.	Beta		
12 (Costante)	3,466	,057		61,103	,000
Facebook	-1,147	,050	-,507	-22,825	,000
Instagram	,227	,085	,071	2,662	,008
Hashtags	,020	,008	,067	2,595	,010
Eng	-,092	,050	-,038	-1,830	,067
Filmato	,182	,076	,050	2,377	,018
Written_post	,570	,305	,038	1,867	,062
School_website	-,176	,066	-,059	-2,684	,007
External_link_reshare	-,389	,085	-,099	-4,603	,000
Functional	-,171	,053	-,076	-3,215	,001
Brand_resonance	,589	,071	,176	8,257	,000
Employee_post	,221	,115	,040	1,924	,055
Sales_promotion	-,360	,061	-,142	-5,860	,000

Figure 5-3: Coefficients model 1

### 5.2.2 Linear regression model 2 results

The second linear regression model has the aim to find the correlation between the number of comments of a post and the characteristics included in the analysis. In Figure 5-4 the summary of the model is shown. The R is 0,22, it is not very close to 1, so the fit of the

model is not very good; The variability of the dependent variable explained by the model is only the 4,8%.

**Riepilogo del modello<sup>5</sup>**

Modello	R	R-quadrato	R-quadrato corretto	Errore std. della stima	Durbin-Watson
1	,235 <sup>a</sup>	,055	,039	,47835	
2	,235 <sup>b</sup>	,055	,040	,47817	
3	,235 <sup>c</sup>	,055	,041	,47800	
4	,235 <sup>d</sup>	,055	,041	,47783	
5	,235 <sup>e</sup>	,055	,042	,47766	
6	,234 <sup>f</sup>	,055	,043	,47749	
7	,234 <sup>g</sup>	,055	,043	,47734	
8	,234 <sup>h</sup>	,055	,044	,47720	
9	,234 <sup>i</sup>	,055	,044	,47705	
10	,234 <sup>j</sup>	,055	,045	,47691	
11	,233 <sup>k</sup>	,054	,046	,47678	
12	,232 <sup>l</sup>	,054	,046	,47671	
13	,231 <sup>m</sup>	,053	,046	,47671	
14	,230 <sup>n</sup>	,053	,046	,47667	
15	,228 <sup>o</sup>	,052	,046	,47672	
16	,226 <sup>p</sup>	,051	,045	,47681	
17	,223 <sup>q</sup>	,050	,045	,47693	
18	,220 <sup>r</sup>	,048	,044	,47711	1,860

Figure 5-4: Summary of linear regression model 2

Even though, the fit of the model and the variability explained are not really good values, as it can be seen in Figure 5-5, the p-value of the model is zero, so it is statistically significant.

**ANOVA<sup>5</sup>**

Modello		Somma dei quadrati	df	Media dei quadrati	F	Sig.
18	Regressione	16,110	6	2,685	11,795	,000 <sup>r</sup>
	Residuo	317,554	1395	,228		
	Totale	333,664	1401			

Figure 5-5: ANOVA model 2

The coefficients that result from the second linear regression model are summarized in Figure 5-6. The first coefficient (constant) represents the value of the dependent variable comments when all the independent variables have a value of zero, so it is the number of comments for a post published on LinkedIn and written in Italian. The coefficients of the variables ‘Facebook’ and ‘English’ suggest that a post on Facebook receives a lower amount of comments with respect to a post on LinkedIn, and that a post written in English is less effective with respect to a post written in Italian.

Posts which are a reshare of an external link have a negative influence, as posts that belong to the category ‘functional’. The only positive influence is given by the category ‘brand resonance’, which stimulates comments from the users and visitors of the social media page.

The Sig. column in the table suggests that, since the p-values are all below the 0,1 threshold, so there is statistical significance and that the null hypothesis, which suggests that there is no correlation between the dependent variable and the independent ones, can be rejected.

Modello	Coefficienti non standardizzati		Coefficienti standardizzati	t	Sig.
	B	Errore std.	Beta		
18 (Costante)	,338	,023		14,414	,000
Facebook	-,154	,026	-,155	-5,940	,000
Eng	-,056	,028	-,054	-2,024	,043
External_link_reshare	-,085	,045	-,050	-1,869	,062
Functional	-,056	,030	-,056	-1,871	,062
Brand_resonance	,121	,039	,083	3,077	,002
Sales_promotion	-,066	,033	-,060	-1,996	,046

a. Variabile dipendente: Log\_comment

Figure 5-6: Coefficients model 2

### 5.2.3 Linear regression model 3 results

The purpose of the third linear regression model is to find a correlation between the reshares of a post on Facebook and the characteristics of the post, such as language, type of post, length of its description and the category. In Figure 5-7 the summary of the model is shown; the model fit can be assessed by looking at the R statistic, which goes from 0 to 1, in this case its value is 0,415 so the fit is not too bad. The R<sup>2</sup> statistics is used to see the percentage of the variability of the dependent variable that is explained by the model; this model explains 17,2% of the variability of the reshares of a post.

**Riepilogo del modello<sup>a</sup>**

Modello	R	R-quadrato	R-quadrato corretto	Errore std. della stima	Durbin-Watson
1	,430 <sup>a</sup>	,185	,154	,75547	
2	,430 <sup>b</sup>	,185	,156	,75480	
3	,430 <sup>c</sup>	,185	,157	,75414	
4	,430 <sup>d</sup>	,185	,159	,75352	
5	,430 <sup>e</sup>	,185	,160	,75292	
6	,429 <sup>f</sup>	,184	,161	,75236	
7	,429 <sup>g</sup>	,184	,163	,75180	
8	,429 <sup>h</sup>	,184	,164	,75137	
9	,427 <sup>i</sup>	,182	,164	,75127	
10	,426 <sup>j</sup>	,181	,164	,75111	
11	,425 <sup>k</sup>	,180	,164	,75099	
12	,422 <sup>l</sup>	,178	,164	,75134	
13	,418 <sup>m</sup>	,175	,162	,75203	
14	,415 <sup>n</sup>	,172	,160	,75276	1,753

Figure 5-7: Summary of linear regression model 3

The p-value of the model, in the column Sig. in Figure 5-8, suggests that there is statistical significance and that there is correlation between the variable 'reshares' and the independent variables, thus rejecting the null hypothesis.

ANOVA<sup>a</sup>

Modello		Somma dei quadrati	df	Media dei quadrati	F	Sig.
14	Regressione	67,578	8	8,447	14,907	,000 <sup>n</sup>
	Residuo	325,260	574	,567		
	Totale	392,838	582			

Figure 5-8: ANOVA model 3

Figure 5-9 summarizes the resulting coefficients of the model. As for the other models, the first coefficient represents the value of the dependent variable when all the independent ones have a value of zero. What positively influences the reshares on Facebook are the hashtags, each increase of one hashtag increases of 0,052 the reshares, in addition to the categories 'brand resonance' and 'educational'. The variables that have a negative impact are the English language, the post type 'photo', 'event', 'external link reshare', and the category 'sales promotion'; when these variables have a value of 1 they negatively impact the reshares with respect to the cases in which their value is 0.

The p-values in the table show statistical significance of the coefficients and that the null hypothesis can be rejected.

Modello		Coefficienti non standardizzati		Coefficienti standardizzati	t	Sig.
		B	Errore std.	Beta		
14	(Costante)	,995	,096		10,419	,000
	Hashtags	,052	,014	,142	3,661	,000
	Eng	-,287	,073	-,160	-3,903	,000
	Photo	-,327	,078	-,190	-4,187	,000
	Event	-1,022	,203	-,203	-5,033	,000
	External_link_reshare	-,285	,127	-,097	-2,240	,025
	Educational	,137	,079	,078	1,742	,082
	Brand_resonance	,273	,099	,109	2,752	,006
	Sales_promotion	-,239	,080	-,130	-2,988	,003

a. Variabile dipendente: Log\_reshare

Figure 5-9: Coefficients model 3

#### 5.2.4 Linear regression model 4 results

Linear regression model 4 has the goal to find what are the elements that positively or negatively influence the views of a video. The elements considered were the social media, the language, the number of hashtags, post length and the category of the post. As it can be seen in Figure 5-10, the R statistic is 0,717, quite close to 1, meaning that the fit of the model is good; moreover, the model explains 51,4% of the variability of the dependent variable, as suggested by the R<sup>2</sup> statistic.

Riepilogo del modello<sup>i</sup>

Modello	R	R-quadrato	R-quadrato corretto	Errore std. della stima	Durbin-Watson
1	,730 <sup>a</sup>	,533	,479	,59646	
2	,730 <sup>b</sup>	,533	,483	,59420	
3	,730 <sup>c</sup>	,533	,486	,59234	
4	,730 <sup>d</sup>	,532	,490	,59024	
5	,728 <sup>e</sup>	,531	,492	,58907	
6	,727 <sup>f</sup>	,529	,494	,58785	
7	,723 <sup>g</sup>	,523	,491	,58941	
8	,717 <sup>h</sup>	,514	,485	,59274	2,023

Figure 5-10: Summary of linear regression model 4

The output of the Anova analysis, displayed in Figure 5-11, shows that p-value is zero, thus demonstrating that the model is statistically significant. Moreover, it can be said that there is correlation between video views and the independent variables, rejecting the null hypothesis.

ANOVA<sup>i</sup>

Modello		Somma dei quadrati	df	Media dei quadrati	F	Sig.
8	Regressione	50,539	8	6,317	17,981	,000 <sup>h</sup>
	Residuo	47,783	136	,351		
	Totale	98,322	144			

Figure 5-11: ANOVA model 4

Figure 5-12 shows the final coefficients of the model. When all the independent variables have a value of zero, the dependent variable ‘video views’ is expected to have the value corresponding to the row constant in the table. The views are positively impacted by the categories ‘brand resonance’, ‘experiential’, ‘personal brand post’ and ‘customer relationship’, while a negative impact is associated to the social media Facebook and Instagram, and to the categories ‘employee post’ and ‘sales promotion’.

In the same figure, the last column, named Sig., is used to verify the statistical significance of the correlation coefficients; all the p-values are below 0,1 so there is statistical significance, and in some cases the value is even lower than 0,05 showing a high significance. Moreover, the p-values are used also to reject the null hypothesis, so it can be said that the hypothesis that there is no correlation between video views and the independent variables is not true.

Modello		Coefficienti non standardizzati		Coefficienti standardizzati	t	Sig.
		B	Errore std.	Beta		
8	(Costante)	7,246	,118		61,240	,000
	Facebook	-1,102	,113	-,656	-9,757	,000
	Instagram	-,931	,135	-,479	-6,877	,000
	Brand_resonance	,703	,153	,317	4,591	,000
	Experiential	,291	,137	,141	2,121	,036
	Personal_Brand_post	,739	,356	,128	2,073	,040
	Employee_post	-,469	,261	-,113	-1,799	,074
	Costumer_relationship	,322	,137	,175	2,350	,020
	Sales_promotion	-,290	,120	-,174	-2,421	,017

Figure 5-12: Coefficients model 4

### 5.2.5 Summary of linear regression results

In Table 5-3 the results of the four linear regression models are summarized. The symbol ‘+’ indicates a positive correlation, while the symbol ‘-’ shows a negative correlation between the dependent variable and the independent one. The cells that are left empty show that there is no significant correlation between the variables.

<b>Independent Variable</b>	<b>Dependent variable Likes</b>	<b>Dependent variable comments</b>	<b>Dependent variable reshares</b>	<b>Dependent variable video views</b>
Facebook	-	-		-
Instagram	+		Not applicable	-
English	-	-	-	
English-Italian				
Photos			-	Not applicable
Videos	+			
Written Post	+			Not applicable
Event			-	Not applicable
Link school website	-			Not applicable
External link reshare	-	-	-	Not applicable
Hashtags	+		+	
Post length				

Emotional brand posts				
Functional brand posts	-	-		
Educational brand posts			+	
Brand resonance	+	+	+	+
Experiential brand posts				+
Current event				
Personal brand posts				+
Employee brand posts	+			-
Brand community				
Customer relationship				+
Cause-related brand post				
Sales promotion	-	-	-	-

Table 5-3: Summary of results

In the following table, Table 5-4, the p-values of the independent variables are summarized. Values lower than 0,05 show high statistical significance, values between 0,051 and 0,01 statistical significance, while values higher than 0,1 show no statistical significance.

<b>Independent Variable</b>	<b>Dependent variable Likes</b>	<b>Dependent variable comments</b>	<b>Dependent variable reshares</b>	<b>Dependent variable video views</b>
Facebook	0,00	0,00		0,00
Instagram	0,008		Not applicable	0,00
English	0,067	0,043	0,00	
English-Italian				
Photos			0,00	Not applicable
Videos	0,018			
Written Post	0,062			Not applicable

Event			0,00	Not applicable
Link school website	0,007			Not applicable
External link reshare	0,00	0,062	0,025	Not applicable
Hashtags	0,010		0,00	
Post length				
Emotional brand posts				
Functional brand posts	0,001	0,062		
Educational brand posts			0,082	
Brand resonance	0,00	0,002	0,006	0,00
Experiential brand posts				0,036
Current event				
Personal brand posts				0,040
Employee brand posts	0,055			0,074
Brand community				
Customer relationship				0,020
Cause-related brand post				
Sales promotion	0,00	0,046	0,003	0,017

Table 5-4: Summary of the p-values

## 6. Discussion

### *6.1 Social media*

The first hypothesis was related to the social media on which the post is published, and it was hypothesised that the social media positively correlated with number of likes, comments and video views was LinkedIn. According to the results of the first linear regression model, the number of likes is increased when the post is published on Instagram and decreased when on Facebook, with respect to LinkedIn. So, the social media that receives more likes is Instagram, as already highlighted in paragraph 4.2.1.

The second model, with dependent variable comments, showed a negative correlation with Facebook and no correlation with Instagram; with respect to LinkedIn, the fact that a post is published on Facebook, has a negative impact on the number of comments that users give. The last model revealed that video views are negatively correlated with both Facebook and Instagram, thus partially supporting the first hypothesis.

In the end, it can be said that even though LinkedIn is the channel with the highest number of followers for all the schools, it has a positive impact only on the number of video views, as more people will have the video appearing on their home page. Regarding the number of likes, the social media that has a more active fan base is Instagram, as it is positively correlated with the number of likes, but it is negatively related to the views of videos, probably due to the lower number of followers of the social pages of the schools on this channel. Facebook, instead, has a negative influence on the number of likes, comments and video views, suggesting that it is not the most efficient mean of communication among the ones analysed, even if it is the one with the highest user base worldwide.

### *6.2 Language*

Concerning the language that is used to write the description of the post, it was expected that posts written in both English and Italian were positively correlated with likes, comments and reshares, as they are easy to understand for both Italian and foreign students of the Business Schools. The linear regression models with dependent variable likes, comments and reshares all found a negative relationship with the independent variable English; thus, it can be said that, with respect to posts written in Italian, English posts receive a lower amount of likes, comments and reshares. Therefore, the second hypothesis was rejected.

The fact that the Business Schools considered are all located in Italy can be the reason why posts written in English have a lower level of engagement and word of mouth. The social media pages of the schools may have a higher percentage of Italian followers rather than foreign ones. Unfortunately, this data cannot be verified as this type of statistic can be seen only by the owner of the social page.

However, this assumption can be reasonable as the independent variable 'English' is negatively correlated only with likes, comments and reshares and not with video views. In fact, as already hypothesized in paragraph 5.1.2, the language of the post description does not have any influence on the views of videos.

### *6.3 Type of post*

The type of posts that, from the linear regression analysis results, have a positive impact are videos and written posts, while the ones with a negative impact are photos, event, links from the school website and external link reshare.

Videos and written posts are positively correlated with the dependent variable likes. In particular, the high vividness of videos is able to capture the attention of the users, who will be induced to leave a like to this kind of posts; while written posts are made only of a text and they are generally used to give announcements or more dense communications, so, social media users are encouraged to give a like as a way to show to the post owner that they have read it or that they agree with its content.

The post types 'photo' and 'event' are negatively correlated with the dependent variable reshares. Facebook users are not pushed to reshare on their social page these types of post. Concerning events, it can be due to the fact that when an event appears on your home page, you are interested in seeing when it will take place, where, at what time and what is planned. So, you may read the description, decide whether you want to take part or not, and click on the button 'participate' in case you are interested. Then, when you go back to your home page you may forget to reshare the event in order to invite also your 'friends'.

Photos may not be frequently reshared by the followers of Business Schools as in many cases they are used to promote masters and educational programs or to show events that took place. In case the photos are used to show conferences, events or graduation days, they will be reshared mainly by those who were there, so only a small number of people with respect to the followers of the page.

Both links coming from the school website and links coming from other websites have a negative impact. When a link appears on the social network home page, if you are interested in its title, you click on it in order to open the website and see its content. When you have read it, you go back to the social media or directly close it, so you may forget to give it a like, a comment or reshare it. In particular, links coming from the website of the Business School generate a lower number of likes, while links coming from other websites generate not only a lower number of likes, but also a lower number of comments and of reshares.

In the end, hypothesis number three is only partially confirmed, as only videos and written posts have a positive relationship with likes while photos have no correlation; hypothesis four is not verified as neither videos nor written posts have an influence on the number of comments; the fifth hypothesis stated that event and links are negatively correlated with likes and comments, and it is only partially true: events are not related to likes and comments, but only to reshares, while links coming from the school website negatively influence likes but not comments and links from other websites not only are negatively correlated with likes and comments, but also reshares.

### *6.4 Hashtags*

By helping to codify a post in reference to some generally accepted categories and themes, hashtags are helpful to reach a higher number of users; Instrumentally, by clicking on a hashtag it is possible to see all the posts that used it in their description. Hypothesis number six was related to the expected positive relationship of hashtags with both likes and comments. It was only partially confirmed by the output of the linear regression analysis, as

hashtags resulted to have a positive influence on likes and reshares, but no relationship with comments.

Hashtags are used more frequently on Instagram; in the sample considered the average number of hashtags was higher on this social media than on the other ones for all the Business Schools considered; this can also be an explanation for the positive correlation found between Instagram and the number of likes.

### *6.5 Post length*

In paragraph 5.1.5, the post length was expected to have a negative relationship with likes and a positive one with comments and reshares. In none of the four models created on SPSS a correlation with the length of the post was found. The number of characters used in the description of the post has no influence on the number of likes, of comments, of reshares and of video views; what matters is the content of the post and not how long its description is.

### *6.6 Post categories*

The first category considered is emotional; it was expected to have a negative correlation with the dependent variable comments and a positive one with the dependent variable reshares. The results of the linear regression analysis, however, show correlation with none of dependent variables considered in the models. So, hypothesis nine is not confirmed, and it can be said that emotional content in a post does not influence in any way the engagement or word of mouth.

The post category functional, according to hypothesis eight, was expected to be positively correlated with the metrics of engagement, likes and comments, but the relationship turned out to be negative. This category of posts is used by Business Schools to highlight the benefits of the masters offered, the job opportunities that they can open or to emphasize the network of partners and companies of the school; it can be seen, by those who read the post, as a way to convince them to study there, thus resulting in the opposite outcome, with a lower amount of likes and comments.

In hypothesis number ten, the expectation was to have a positive relationship between the metrics likes, comments, reshares and the post categories educational, brand resonance and sales promotion. However, educational brand posts have a positive correlation only with reshares and no correlation with the other dependent variables; Brand resonance has a positive connection with all the variables, so not only likes, comments and reshares but also video views; sales promotion posts instead have a negative coefficient in all the models. The hypothesis is only partially confirmed.

Educational posts are among the most common posts for Business Schools, which publish many articles and links that discuss about many topics, from companies and economy to smart working and online teaching. This type of posts is frequently reshared by the followers or visitors of the social pages; this can be mainly due to the fact that articles published by Universities are considered reliable, as they come from a source that can be trusted, so, people are willing to share it with their network without having to worry about fake news. Brand resonance posts highlight the history and importance of the School, its rankings, the results of researches conducted in the University and they are also used in order to show the

campus. This category of posts revealed to be effective in relation to all the metrics considered as it has a positive influence on all of them.

Sales promotion posts were expected to have a positive correlation, but it revealed to be negative in relation to all the metrics considered in the analysis. This can be due to the fact that social media users do not want advertising and do not trust advertising, as expressed in an article by Eric Clemons (58). On the internet, people are able to find all the information they need, when they need it and in the sources they trust the most, they do not want to be target of advertising on social media. For this reason, posts that are used to promote masters and educational programs receive a lower number of likes, of comments, of reshares and of video views.

In paragraph 5.1.6, the post category experiential was hypothesized to be in a negative relationship with likes, comments and reshares. This hypothesis, number eleven, was not confirmed by the results of the analysis, which showed that this category has no correlation with likes, comments and reshares, but only a positive one with video views. Videos which show event, activities and conferences that took place receive a higher amount of views; many of these videos show guest speakers who took a speech at some conferences or events organized by the Business Schools. The followers of their social pages seem interested in seeing and listening to these important people sharing their experience, giving advices or discussing the topic of the event. It is also a way to understand how it feels like to be a student in that University.

Hypothesis twelve and thirteen were not confirmed by the linear regression model results. The former assumed that the post category cause-related was negatively related to likes and comments, while the latter that the category current event was positively correlated with the number of reshares. However, both categories had no correlation with the dependent variables in the analysis.

Cause-related posts are used by Business Schools to support social causes, to provide links to make donations or create awareness about social issues. Current events posts, instead, discuss about holidays, and themes like seasons or weather. Both categories do not catch the attention of users nor have negative influence on brand engagement and word of mouth.

Concerning the categories not yet discussed, no articles or literature was found, so no hypothesis was formulated; the results of the linear regression model will be examined.

Personal brand posts had a positive coefficient only in the fourth model, which has as dependent variable the video views; thus, it has a positive influence only on this metric and no influence on the other ones considered. Videos which describe the personal life of students, their experience at the school and what they have been able to achieve after the completion of a master or an executive program generate the interest of the viewers, who will dedicate some time to see the full video.

Employee brand posts, in the posts of Business Schools, talk about the success of the professors who teach in the School and the awards they have received. This category was found to be positively correlated with the number of likes, but negatively correlated to the number of video views.

The brand community category, in the results, had no correlation with the dependent variables. This type of post is used to make alumni know each other, by creating events or pushing the use of online communities; however, in the sample considered, only 13 posts

out of 1407 fall under this category, so this can be a reason why no correlation was found. The last category to be discussed is customer relationship, which has a positive influence on the views of videos. These posts share the experience of students, who talk about their experience at the Business School, how classes are organized and what are the themes touched during the carrying out of the course. The fact that a post falls under this category has a positive impact on the views, and this can be explained by the interest of prospective students in understanding how it feels like to be a student in a specific Business School and there is no better way to understand it than directly hearing it from the students themselves.

### *6.7 Examples from the Polito Master School's Facebook page*

In order to understand what elements of a post on social media have a positive effect on the metrics considered and which ones have a negative effect, it can be interesting to take some examples from the Facebook social page of the Specializing Master's Programmes and Lifelong Learning School of the Polytechnic of Turin.

In Figure 6-1 the first example is shown. The elements of the post are the following:

- Social media: Facebook
- Language: Italian
- Post type: External link reshare
- Hashtags: one
- Post length: 186 characters
- Post categories: Functional and brand resonance.

The social media is Facebook, as it is the only channel in which the Specializing Master's Programmes and Lifelong Learning School has a page; with respect to LinkedIn, which was used as baseline in the linear regression models, Facebook has a negative correlation with likes, comments and video views.

The language used in the description is Italian; since it was used as baseline in the linear regression models, there is no value of correlation between this variable and the dependent ones. Similarly, the post length has no correlation with the metrics, but it is due to the fact that in none of the models considered in the analysis it has shown a correlation with the metrics.

The post is a reshare of a link coming from an external website; as discussed in paragraph 6.6, this type of post has a negative correlation with the metrics likes, comments and reshares. It is perceived by social media users as non-original content and this is reflected in the success of the post.

The hashtag is only one, and it has a positive impact on the metrics likes and reshares. As already mentioned, the hashtags allow the post to obtain a greater reach as the users that search that hashtag will see all the posts that had used it in their description. They can be used to widen the reach of the post; each hashtag used will have a positive effect.

The post in Figure 6-1 can be associated to the categories functional and brand resonance. Brand resonance is the category used to highlight the importance of the school and, in this post, it is done by linking an article that talks about the School and its educational programs offer. By showing that important companies and newspapers had written about it, the brand and the importance of the Master school are emphasized. The post falls also under the

category functional as in the articles the organization of the master and its characteristics are described. The category brand resonance positively impacts likes, comments and reshares, while the functional one has a negative impact on likes and comments.



Figure 6-1: Example 1 from the Facebook page of the Polito Master School

In Table 6-1 the characteristics of the post and their impact on the success of the post are summarized. As it can be seen in the table, the number of likes is positively influenced by the hashtag and by the post category brand resonance, while a negative impact is due to the fact that the post is shared on Facebook, that it is the reshare of an external link and to the post category functional. The number of comments is negatively affected by the social media, the post type and by the category functional; the only element that has a positive impact on the comments is the post category brand resonance. The reshares are positively correlated with hashtags and brand resonance category, while the post type has a negative impact.

Post characteristics		Effect on the metric likes	Effect on the metric comments	Effect on the metric reshares
Social media	Facebook	-1,147	-0,154	Not applicable
Language	Italian	No influence	No influence	No influence
Post type	External link reshare	-0,389	-0,085	-0,285
Hashtags	1	+0,020	No influence	+0,052
Post length	186 characters	No influence	No influence	No influence
Post categories	Functional	-0,171	-0,056	No influence
	Brand resonance	+0,589	+0,121	+0,273

Table 6-1: Summary of example 1

In Figure 6-2 a second example from the Facebook page of the Specializing Master's Programmes and Lifelong Learning School is displayed. Its characteristics are:

- Social media: Facebook
- Language: Italian
- Post type: photo
- Hashtags: one
- Post length: 376 characters
- Post categories: functional and sales promotion.

Concerning social media, language, number of hashtags and post length, they are the same of the first example analyzed. Facebook negatively impacts likes, comments and video views; hashtags have a positive effect on likes and reshares; language and post length have no influence.

The post can be categorized as functional and sales promotion. It is a functional post as it describes the master, the number of hours of atelier it offers, and it points out the fact that it has created high-level professional profiles in the past. It is a sales promotion post as it provides the link to the school website, so that social media users can get additional info and subscribe to the program. Functional posts have a negative correlation with likes and comments, while sales promotion posts not only with likes and comments, but also with the number of reshares.



Figure 6-2: Example 2 from the Facebook page of the Polito Master School

In Table 6-2 the summary of the elements and characteristics of the post and their influence on its success are summarized. The likes of the post are negatively influenced by the categories of the post, functional and sales promotion, and by the social media on which it was shared, Facebook; the only positive impact is due to the presence of a hashtag. The characteristics of the post have only a negative impact on the post. The number of reshares of the post are increased by the hashtag but decreased by the fact that it is a photo and by the category sales promotion.

Post characteristics		Effect on the metric likes	Effect on the metric comments	Effect on the metric reshares
Social media	Facebook	-1,147	-0,154	Not applicable
Language	Italian	No influence	No influence	No influence
Post type	Photo	No influence	No influence	-0,327
Hashtags	1	+0,020	No influence	+0,052
Post length	376 characters	No influence	No influence	No influence
Post categories	Functional	-0,171	-0,056	No influence
	Sales Promotion	-0,360	-0,066	-0,239

Table 6-2: Summary of example 2

The third example is shown in Figure 6-3 and its characteristics are the following:

- Social media: Facebook
- Language: Italian
- Type of post: Photo
- Hashtags: one
- Post length: 165 characters
- Post categories: Functional and customer relationship.

As for the previous examples the social media is Facebook, which has a negative influence on the success of the post; the language, Italian, has no influence, similarly to the post length. The post is a photo, and this post type, according to the results of the linear regression analysis, has a negative impact on the reshares of the post itself.

The post belongs to the categories functional and customer relationship; it is a functional post as it shows the activities that the master offers to its students, so it is a way to let potential students understand what the course can let you learn. As seen for the other examples, this category has a negative correlation with the number of likes and of comments.

The post can also be considered a customer relationship post as it shares the experience of the students. This category has a positive impact on the number of video views, but since the post in this case is a photo, this characteristic does not impact the success of the post.



Figure 6-3: Example 3 from the Facebook page of the Polito Master School

In the following table the characteristics of the post and their impact on its success are summarized. The social media and the post category functional are negatively correlated with the metrics likes and comments; their effect on the number of likes, however, is mitigated by the presence of a hashtag. Concerning the reshares, this metric is negatively influenced by the post type and positively influenced by the hashtag.

Post characteristics		Effect on the metric likes	Effect on the metric comments	Effect on the metric reshares
Social media	Facebook	-1,147	-0,154	Not applicable
Language	Italian	No influence	No influence	No influence
Post type	Photo	No influence	No influence	-0,327
Hashtags	1	+0,020	No influence	+0,052
Post length	165 characters	No influence	No influence	No influence
Post categories	Functional	-0,171	-0,056	No influence
	Customer relationship	No influence	No influence	No influence

Table 6-3: Summary of example 3

By comparing the three examples it can be noticed that the first post considered is the one with the highest number of likes, 9, compared to the other posts; this is due to the fact that the first post has more elements that positively influence the number of likes, in particular the hashtag and the post category brand resonance, while the other posts only have the positive impact of the hashtag. The post in the second example had received 6 likes, while the third 8; this difference can be explained by the fact that example number two has the

social media, the post category functional and the post category sales promotion which negatively influence the number of likes, while example number three only has the social media and the post category functional. The presence of an additional element with negative impact can explain the lower amount of likes of the second post with respect to the third.

Concerning the number of comments, all the examples considered did not receive any comment. Even though the first post has the post category brand resonance, which in the linear regression analysis has a positive correlation with the number of comments, the negative effect caused by the social media Facebook, by the post type external link reshare and by the category functional, prevails. In the other examples considered, the post characteristics only have a negative impact on the number of comments, so this can explain why this value is zero.

The number of reshares of the posts considered are respectively 0 for the first example, 2 for the second and 4 for the third. The first example has two elements positively correlated with the reshares and only one with negative correlation, but it was not reshared by anyone.

The difference in the number of reshares between the second and the third examples is explained by the correlation coefficients; both posts have the positive impact of the hashtag and the negative one due to the post type photo, but the second example has also the post category sales promotion which exercises a negative influence. So, as for the number of likes, the presence of an additional negative element explains the difference.

## 7. Conclusions

This thesis aimed to identify the most effective and efficient tools and communication strategies, used by the Business Schools considered in the analysis, in order to apply them to the Specializing Master's programmes and Lifelong learning School of the Polytechnic of Turin. The conclusions can be divided into what should be done and what should be avoided.

Concerning the actions that should be implemented, the first step would be to work on the social media mix, to inform users and affirm brand resonance. At the moment the Master School of the Polytechnic of Turin has only a Facebook account, so, it should open an Instagram page, as it resulted to be the most effective social media in relation to the number of likes, and a LinkedIn page, being it the one with the highest number of followers for all the Business Schools considered. Regarding the contents published on social media, the most appreciated type of post is videos, while the categories that should be more used are brand resonance, educational, experiential, personal brand and customer relationship. The posts published should give voice to the students, who can share their experience, their feelings and their thoughts about the School; they should show the events, conferences and activities that take place and emphasise the history, importance and academic results of the School. The results of the analysis conducted on the social media posts thus showed that the categories of posts that are positively related to engagement and word of mouth are the ones that are created specifically for the social channels, in particular videos that share the experience of the students and their life at the Campus, the classes and conferences that take place there.

Another important action would be to work and leverage on the brand reputation, trying to strengthen it. Having a strong brand is essential for Business School, so the Specializing Master's programmes and Lifelong learning School of the Polytechnic of Turin should focus on this; brand can be related to both the school and its professors.

What Business Schools and in particular the Specializing Master's programmes and Lifelong learning School of the Polytechnic of Turin should avoid on social media are promotional content and non-original content. As mentioned in chapter 6, social media users do not want to be target of advertising, so the number of posts that promote educational programs and masters should be reduced, as they negatively impact both engagement and word of mouth. Also, non-original contents should be reduced, where non-original content can be the reshare of links coming from the school website and specially from other websites as the followers do not appreciate this type of posts.

Another type of post that should be avoided is 'events'; as highlighted by the results of the analysis this type of post does not have a positive influence on the metrics, so the effort should be on other type of posts.

In conclusion, the results of the analysis conducted in this thesis work allowed to understand how Business Schools use social media, in particular which channels, how often and most importantly the type of contents they publish. Thanks to the analysis a set of actions to be implemented for the Specializing Master's Programmes and Lifelong learning School of the Polytechnic of Turin were identified to improve its communication strategy online.



## References

- (1) Sunil Gupta, Joseph Davin, Digital Marketing, Harvard Business Publishing, 2019.
- (2) Loredana Patrutiu-Baltes, Inbound marketing-the most important digital marketing strategy, Economic Sciences, Volume 9, Issue 2, 2016.
- (3) Chouaib Dakouan, Redouane Benabdelouahed, Hajar Anabir, Inbound Marketing vs. Outbound Marketing: Independent or Complementary Strategies, Expert Journal of Marketing, Volume 7, Issue 1, 2019, Pages 1-6, ISSN 2344-6773.
- (4) Pulizzi, J. and Barrett, N., 2009. Get content. Get customers. NY, USA: McGraw Hill.
- (5) E. S. Soegoto, T. Simbolon, Inbound Marketing as a Strategy in Digital Advertising, IOP Conf. Ser.: Mater. Sci. Eng., 2018.
- (6) Andreas M. Kaplan, Michael Haenlein, Users of the world, unite! The challenges and opportunities of Social Media, Business Horizons, Volume 53, Issue 1, 2010, Pages 59-68, ISSN 0007-6813.
- (7) Miriam J., The timeline of social media, 2017. From <https://www.booksaresocial.com/timeline-social-media-2017/#lightbox/0/>
- (8) Guido Mariani, Storie di social network finite con un fallimento, Lettera43, from <https://www.lettera43.it/social-network-falliti/>
- (9) Simon Kemp, Digital 2020: 3.8 billion people use social media, We are social, 2020, from <https://wearesocial.com/blog/2020/01/digital-2020-3-8-billion-people-use-social-media>
- (10) Alba, J.W. & Lynch, John & Weitz, Barton & Janiszewski, Chris & Lutz, R. & Wood, Stacy, Interactive Home Shopping: Consumer, Retailer, and Manufacturer Incentives to Participate In Electronic Marketplace, Journal of Marketing, Volume 61, Issue 3, 1997, Pages 38-53.
- (11) Maria Teresa Pinheiro Melo Borges Tiago, José Manuel Cristóvão Veríssimo, Digital marketing and social media: Why bother?, Business Horizons, Volume 57, Issue 6, 2014, Pages 703-708, ISSN 0007-6813
- (12) Olivier Toubia, Andrew T. Stephen, Intrinsic vs. Image-related utility in social media: why do people contribute content to Twitter?, Marketing science, Volume 32, Issue 3, 2013, Pages 365-531.
- (13) Mina Seraj, We Create, We Connect, We Respect, Therefore We Are: Intellectual, Social, and Cultural Value in Online Communities, Journal of Interactive Marketing, Volume 26, Issue 4, 2012, Pages 209-222, ISSN 1094-9968.
- (14) Riyad Eid, Hatem El-Gohary, The impact of e-Marketing use on small business enterprises' marketing success, The Service Industry Journal, Volume 33, Issue 1, 2013, Pages 31-50.
- (15) Georgios Tsimonis, Sergios Dimitriadis, Brand Strategies on Social media, Marketing Intelligence & Planning, Volume 32, Issue 3, 2014, ISSN 0263-4503.
- (16) W. Glynn Mangold, David J. Faulds, Social media: The new hybrid element of the promotion mix, Business Horizons, Volume 52, Issue 4, 2009, Pages 357-365, ISSN 0007-6813.
- (17) Jan H. Kietzmann, Kristopher Hermkens, Ian P. McCarthy, Bruno S. Silvestre, Social media? Get serious! Understanding the functional building blocks of social

- media, *Business Horizons*, Volume 54, Issue 3, 2011, Pages 241-251, ISSN 0007-6813.
- (18) Kay Peters, Yubo Chen, Andreas M. Kaplan, Björn Ognibeni, Koen Pauwels, *Social Media Metrics — A Framework and Guidelines for Managing Social Media*, *Journal of Interactive Marketing*, Volume 27, Issue 4, 2013, Pages 281-298, ISSN 1094-9968.
  - (19) Farris, Paul W., Neil T. Bendle, Phillip E. Pfeifer, David J. Reibstein, *Marketing metrics: 50+ Metrics every executive should master*, Upper Saddle River, NJ: Prentice Hall, 2006.
  - (20) Hoffman D.L., Fodor M., *Can you measure the ROI of your social media marketing?*, *MIT Sloan Management Review*, Volume 52, Issue 1, 2010, Pages 41-49.
  - (21) De Vries N.J., Carlson J., *Examining the drivers and brand performance implications of customer engagement with brands in the social media environment*, *Journal of Brand Management*, Volume 21, Issue 6, 2014, Pages 495-515.
  - (22) Lisette de Vries, Sonja Gensler, Peter S.H. Leeflang, *Popularity of Brand Posts on Brand Fan Pages: An Investigation of the Effects of Social Media Marketing*, *Journal of Interactive Marketing*, Volume 26, Issue 2, 2012, Pages 83-91, ISSN 1094-9968.
  - (23) Ashley C., Tuten T., *Creative Strategies in Social Media Marketing: An Exploratory Study of Branded Social Content and Consumer Engagement*, *Psychology and Marketing*, Volume 32, Issue 1, 2015, Pages 15-27.
  - (24) Sonja Gensler, Franziska Völckner, Yuping Liu-Thompkins, Caroline Wiertz, *Managing Brands in the Social Media Environment*, *Journal of Interactive Marketing*, Volume 27, Issue 4, 2013, Pages 242-256, ISSN 1094-9968
  - (25) Jeni Rogers, *How universities use social media for marketing*, Full Fabric Blog, from <https://blog.fullfabric.com/how-universities-use-social-media-for-marketing>
  - (26) Doug Ridley, *How today's colleges and universities are using social media*, Vital, from <https://vtl.design.com/digital-marketing/social-media/how-todays-colleges-and-universities-are-using-social-media/>
  - (27) *Annual relation Ufficio Studi 2019* [Online]. Available at: [https://ho4out7of9.execute-api.eu-west-1.amazonaws.com/prod/sites/default/files/2020-02/8\\_Relazione%20annuale%20US-%202019\\_0.pdf](https://ho4out7of9.execute-api.eu-west-1.amazonaws.com/prod/sites/default/files/2020-02/8_Relazione%20annuale%20US-%202019_0.pdf)
  - (28) *Bocconi in numbers* [Online]. Available at: [https://www.stampa.unibocconi.it/editor/archivio\\_pdf/BocconiCifre171820171127165629.pdf](https://www.stampa.unibocconi.it/editor/archivio_pdf/BocconiCifre171820171127165629.pdf)
  - (29) *School of Management Polytechnic of Milan* [Online]. Available at: <https://www.som.polimi.it/la-scuola/chi-siamo/>
  - (30) *Wikipedia, Fondazione CuoA* [Online]. Available at: [https://it.wikipedia.org/wiki/Fondazione\\_CUOA](https://it.wikipedia.org/wiki/Fondazione_CUOA)
  - (31) *Politecnico at a glance, Polito* [Online]. Available at: <https://www.polito.it/ateneo/colpodocchio/index.php?lang=en>
  - (32) *SDA Bocconi School of Management* [Online]. Available at: <https://www.sdabocconi.it/it/home>

- (33) Politecnico di Milano School of Management [Online]. Available at: <https://www.som.polimi.it/>
- (34) Cuoia Business School [Online]. Available at: <https://www.cuoia.it/ita/>
- (35) Luiss Business School [Online]. Available at: <https://businessschool.luiss.it/>
- (36) Specializing Master's Programmes and Lifelong Learning School of Polytechnic of Turin [Online]. Available at: <https://didattica.polito.it/master/home/en/home>
- (37) Facebook, SDA Bocconi School of Management [Online]. Available at: <https://www.facebook.com/sdabocconi>
- (38) LinkedIn, SDA Bocconi [Online]. Available at: <https://www.linkedin.com/school/sda-bocconi-school-of-management/>
- (39) Instagram, sda\_bocconi [Online]. Available at: [https://www.instagram.com/sda\\_bocconi/channel/](https://www.instagram.com/sda_bocconi/channel/)
- (40) YouTube, SDA Bocconi School of Management [Online]. Available at: <https://www.youtube.com/user/SDABOCCONI>
- (41) Facebook, MIP Politecnico di Milano [Online]. Available at: <https://www.facebook.com/mip.politecnico.milano/>
- (42) LinkedIn, MIP Politecnico di Milano [Online]. Available at: <https://www.linkedin.com/school/mip-politecnico-di-milano/>
- (43) Instagram, mip\_polimi [Online]. Available at: [https://www.instagram.com/mip\\_polimi/](https://www.instagram.com/mip_polimi/)
- (44) YouTube, MIP Politecnico di Milano [Online]. Available at: <https://www.youtube.com/user/MIPPolimi>
- (45) Facebook, Luiss Business School [Online]. Available at: <https://www.facebook.com/LuissBusiness/>
- (46) LinkedIn, Luiss Business School [Online]. Available at: <https://www.linkedin.com/school/luiss-business-school/>
- (47) Instagram, luissbusiness [Online]. Available at: <https://www.instagram.com/luissbusiness/>
- (48) YouTube, Luiss Business School [Online]. Available at: <https://www.youtube.com/user/luissmba>
- (49) Facebook, CUOA Business School [Online]. Available at: <https://www.facebook.com/cuoaxte/>
- (50) LinkedIn, CUOA Business School [Online]. Available at: <https://www.linkedin.com/school/fondazione-cuoia/>
- (51) Instagram, cuoabusinessschool [Online]. Available at: <https://www.instagram.com/cuoabusinessschool/>
- (52) YouTube, Cuoia Business School [Online]. Available at: <https://www.youtube.com/channel/UCt--AVC5SCJrJIST5j9ZOKA>
- (53) Facebook, Scuola di Master e formazione permanente – Polito [Online]. Available at: <https://www.facebook.com/MasterSchoolPoliTO/>
- (54) Tafesse, Wondwesen & Wien, Anders. (2016). A Framework for Categorizing Social Media Posts. 10.13140/RG.2.1.3846.4246.
- (55) Kwok, L., & Yu, B., Spreading social media messages on Facebook: An analysis of restaurant business-to-consumer communications. *Cornell Hospitality Quarterly*. Volume 54, Issue 1, 2013, page 84-94. doi: 10.1177/1938965512458360

- (56) Adam Peruta & Alison B. Shields (2018) Marketing your university on social media: a content analysis of Facebook post types and formats, *Journal of Marketing for Higher Education*, 28:2, 175-191, DOI: 10.1080/08841241.2018.1442896
- (57) Carsten D. Schultz, Proposing to your fans: Which brand post characteristics drive consumer engagement activities on social media brand pages?, *Electronic Commerce Research and Applications*, Volume 26, 2017, Pages 23-34, ISSN 1567-4223
- (58) Eric Clemons, Why advertising is failing on the Internet, 2009, TechCrunch [Online]. Available at: <https://techcrunch.com/2009/03/22/why-advertising-is-failing-on-the-internet/>

## **Attachments**

Attachment I: Posts collected from Facebook, Instagram and LinkedIn.

Attachment II: Posts database.

Attachment III: Linear regression model 1 SPSS output.

Attachment IV: Linear regression model 2 SPSS output.

Attachment V: Linear regression model 3 SPSS output.

Attachment VI: Linear regression model 4 SPSS output.

Attachment VII: SPSS Database.