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Impression management techniques in crowdfunding: An analysis of Kickstarter videos using artificial intelligence

Pawel Korzynski [a, b, *], Michael Haenlein [c], Mika Rautiainen [d]

[a] Associate Professor in HRM Department at Kozminski University, Jagiellonska 57, 03-301 Warsaw, Poland
[b] Visiting Scholar at INSEAD Business School, Boulevard de Constance, 77300 Fontainebleau, France
[c] Professor in the Marketing Group at ESCP Europe, 79 Avenue de La République, 75011, Paris, France
[d] CEO/CTO at Valossa Labs Ltd., Paavo Havaksen Tie 5E, 90570, Oulu, Finland

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ABSTRACT

Crowdfunding entrepreneurs increasingly use videos to present their venture and themselves to potential investors. To do this effectively, they consciously or unconsciously use several impression management techniques. Based on human and automated (AI-based analysis) of technology-related videos, we determine which impression management techniques help crowdfunding creators to attract a higher number of backers and meet their financial targets. Our results indicate that self-presentation and exemplification techniques are positively associated with crowdfunding success, while intimidation is negatively related to crowdfunding success. Our findings show that automated analysis of videos using advanced AI can replace human coding since measures based on human coding become insignificant when AI-based measures are included in the analysis. This illustrates the insights companies can create through the large scale automated analysis of video content using AI, including outside of a crowdfunding context.

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Pawel Korzynski a, b, *, Michael Haenlein c, Mika Rautiainen d

a Associate Professor in HRM Department at Kozminski University, Jagiellonska 57, 03-301 Warsaw, Poland
b Visiting Scholar at INSEAD Business School, Boulevard de Constance, 77300 Fontainebleau, France
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1. Introduction

Start-up founders often complain about the dif?culty of accessing necessary ?nancing, especially at the earliest and, therefore, more risky stages of their ventures. Hence, it is not sur- prising that crowdfunding platforms are gaining popularity among many entrepreneurs and disrupt traditional models for start-up ?nancing (Dimov & Murray, 2008). Crowdfunding, a particular form of crowdsourcing, can be de?ned as outsourcing various organizational activities to strategically speci?ed actors who have responded to an open call on an online platform (Assenova et al., 2016). Like crowdsourcing, crowdfunding uses an open call directed to actors who could fund a new venture in exchange for some material or non-material bene?ts such as pre-orders of the product, donation, or equity purchase (Belle?amme, Lambert, & Schwienbacher, 2014).

Previous research has analyzed crowdfunding campaigns and identi?ed various factors in?uencing their success, such as the types of rewards and conditions to get them (Thürridl & Kamleitner, 2016), the importance of prototypes and previous experience (Mollick & Robb, 2016); the need to post updates by start-ups (Block, Hornuf, & Moritz, 2018); the size of founders' social networks (Vismara, 2016; Zheng, Li, Wu, & Xu, 2014); the amount of money requested (Mollick, 2014); the start-up location (Agrawal, Catalini, & Goldfarb, 2015); as well as the use of impression management (Lins, Fietkiewicz, & Lutz, 2016). Furthermore, practitioner literature has recognized videos as a critical success factor for crowdfunding platforms (Austin, 2018; Thorpe, 2018) since video content can increase organic traf?c by 157% and outperform all other content in terms of conversion rate (Ahmad, 2018). According to statistics of the most popular crowd- funding

* Corresponding author. Associate Professor in HRM Department at Kozminski University, Jagiellonska 57, 03-301 Warsaw, Poland.
E-mail addresses: pawel.korzynski@insead.edu, pawel.korzynski@insead.edu (P. Korzynski), haenlein@escpeurope.eu (M. Haenlein), mika@valossa.com (M. Rautiainen).

platform, Kickstarter, projects that include videos in their postings are 85% more likely to meet their ?nancial goals (Tarcomnicu, 2016). Nevertheless, research on the use of videos for

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crowdfunding campaigns is somewhat limited.

As online video content is proliferating, scholars have undertaken an increasing number of studies evaluating videos. Prior research has analyzed attitudes towards YouTube advertising, the likeability of online video advertisements (Liu, Shi, Teixeira, & Wedel, 2018), and online video advertising characteristics in?uencing purchase intention (Dehghani, Niaki, Ramezani, & Sali, 2016). However, despite the growing importance of video content on platforms, such as Kickstarter, YouTube, Instagram, and TikTok, video analysis is still in its infancy and most researchers use human coding to extract video characteristics (Jain, Rakesh, & Chaturvedi, 2018). This is problematic since human coding for video analysis is time-consuming and expensive, especially if many videos are involved.

To respond to these problems, scholars can apply Arti?cial Intelligence (AI) to evaluate online videos. Arti?cial Intelligence can be de?ned as "a system's ability to interpret external data correctly, to learn from such data, and to use those learnings to achieve speci?c goals and tasks through ?exible adaptation" (Kaplan & Haenlein, 2019). Although AI is not new and was established as an academic discipline in the 1950s, it was neglected for decades due to a lack of computing power and only recently reappeared as a topic for practitioners and researchers (Haenlein & Kaplan, 2019). In the case of video analysis, we can apply analytical AI (i.e., image, sounds, and voice recognition) and human-inspired AI (i.e., emotion recognition, O. Ahmed, 2018). Today, it is possible to create computer software that can describe the semantic content of a video with broad audiovisual vocabularies. Before, it was only possible to do so using completely manual, time-consuming work. Today, computers use arti?cial perception to mark down what is seen and heard in the video, with a speed that vastly outperforms humans and their manual analysis work. This opens up new opportunities to infer and understand the signi?cance of individual semantics in video data for new data-driven insight and applications.

Modern video analysis is based on a type of machine learning known as deep learning and implemented with arti?cial neural networks (ANNs). ANNs are computing systems that learn to conduct tasks, especially pattern recognition, by generalizing spe- ci?c cases based on training data. The internal structure of an ANN can extract the most critical recurring features from the training dataset and save these features in the complex internal structure of a neural network. For example, for video recognition, ANNs can identify images that contain people by examining images that have been labeled as "people" vs. "no people." This labeling process, often a manual task, is known as an annotation. Great care must be taken to select and annotate the source material to avoid bias in the functioning of the

resulting ANN. An ANN for analyzing (recog- nizing) the content of a new piece of media, which was not included in the training media set, is called inference. By complex combinations of ANN models for different video modalities, com- puters can look into unstructured video data and recognize se- mantic entities that describe a video scene.

When founders present their venture and themselves to po- tential Kickstarter backers via a video, they consciously or uncon- sciously use a wide range of impression management techniques. Although research on impression management techniques used by entrepreneurs has appeared as a topic of prior scholarly work, we know little about impression management in crowdfunding. Spe- ci?cally, the relationship between impression management tech- niques in crowdfunding videos and crowdfunding success has not been studied yet. A unique example is a study by Li, Chen, Kotha, and Fisher (2017), who examined entrepreneurs displaying pas- sion in crowdfunding videos. However, these authors only focused on one impression management technique (i.e., exempli?cation illustrated by the display of passion) and relied on human coding.

Unlike their work, our study analyzes a spectrum of ?ve techniques and combines human coding with features extracted from videos using Arti?cial Intelligence.

2. Literature review

2.1. Video analysis

Interest in online videos has recently grown enormously. In 2019, more than 250 million hours of videos were watched daily on YouTube (Hale, 2019). Not surprisingly, video analysis increasingly often appears on the research agenda. The ?rst video analyses took place in the 1960s and 1970s when mass television started to produce marketing commercials (Schneider & Schneider, 1979). Early television research examined, for example, the trends in gender appearances in television commercials or the in?uence of the length of television commercials on their effectiveness (Wheatley, 1968). Later studies (until the 1990s) were more so- phisticated and time and resource-consuming and investigated length, type (e.g., informational vs. emotional), and repetition of commercials (Singh & Cole, 1993). All of these studies relied on humans to code video content.

The rise of the Internet, social media and introduced three main changes to the research method. First, researchers started to analyze not only video content or attributes but also statistics associated with video audiences such as the number of views, ratings, and comments (E. M. Morgan, Snelson, & Elison-Bowers,
2010). Second, to collect these statistics, metadata related to each video were processed in XML, extensive markup language, which provides a set of rules for encoding documents in the machine and human-readable format (Xie, Natsev, Kender, Hill, & Smith, 2011). More recently, JSON (Javascript object notation) has become a popular alternative to XML because it requires less coding, is more intuitive, and consumes less

memory space. Third, scholars started to use software that allowed to code behaviors of people appearing in the video and compare the coding done by different coders (Gupta, Wilderom, & Hillegersberg, 2009). Although this software enables more straightforward data analysis and ef?cient pattern tracking, it still demands substantial human engagement.

A more recent approach towards video analysis is the applica- tion of AI, based on a technique termed as deep learning. Deep learning serves as an umbrella phrase for arti?cial neural networks (an application that functions similarly to the brain's natural neural network). These networks need to be taught differences in various facial attributes through an analysis of millions of videos. They allow separate individuals from each other (e.g., women from men or adults from children) and can be trained for recognition by comparing facial characteristics identi?ed in the video with faces in a prede?ned database. Similarly, deep learning may be applied to recognize scenes, objects, settings, styles, sounds, and micro- expressions, de?ned as very short and subtle facial expressions that last from 0.04 to 0.50 s and are hardly visible to human eyes (Ekman, 2003). Researchers showed that deep learning methods related to micro-expression analysis signi?cantly outperformed human evaluation (Li et al., 2017).

2.2. Impression management techniques

Sociologists and social psychologists have conducted impression management (IM) studies over the past decades, mostly related to the process of in?uencing perceptions of other individuals about people or situations (Goffman, 1959; Schlenker, 1980). IM scholars generally focused on speci?c tactics one may apply to create or maintain a desired image in the eyes of others (M. C. Bolino, Kacmar, Turnley, & Gilstrap, 2008). One of the most widely used typologies in this context is the one proposed by Jones and Pittman (1982), who classify IM techniques into ?ve categories:

self-promotion (i.e., boasting, showing skills and experience to be seen as competent)
ingratiation (i.e., favors, compliments to be seen as likable)
exempli?cation (i.e., appearing hard-working and busy to be seen as dedicated)
intimidation (i.e., using threats to be seen as menacing), and
supplication (i.e., showing a lack of resources to be seen as needy).

In general, IM techniques can be categorized as assertive (initiated by the author) and tactical (short-term horizon) in contrast to defensive (applied to respond to a crisis or a bad image) and strategic (long-term horizon) (Tedeschi & Melburg, 1984). Re- searchers have focused mainly on assertive and tactical impression management techniques that include ?ve techniques developed by Jones and Pittman (M. Bolino, Long, & Turnley, 2016).Moreover, entrepreneurship scholars argue that these techniques (i.e., asser- tive

and tactical) may help founders create a better image of themselves to gain funding from potential investors (Parhankangas & Ehrlich, 2014). Because of the short-term nature of crowdfunding projects (i.e., founders have a speci?ed time to obtain funding) as well as how each project is initiated (i.e., founders choose the best moment to publish the project of the crowdfunding platform), assertive and tactical impression management techniques should match well with entrepreneurs willing to obtain funding from the online crowd.

The growth of online environments and social media platforms, in particular, expanded the research on online IM (Kra€mer & Winter 2008). Many studies suggest that making a good impres- sion in online settings brings some outcomes concerning hiring decisions (Chiang & Suen, 2015), respect (Batenburg & Bartels, 2017), and crowdfunding outcomes (Cox et al., 2018). In the case of the use of impression management in crowdfunding projects, previous studies dealt with the language applied to describe the project (Lins et al., 2016), supplication-related behaviors (Murray, Hallen, & Kotha, 2018), and funders' self-presentation (Cox et al., 2018).

2.3. Self-promotion in crowdfunding videos and crowdfunding success

Self-promotion is related to highlighting achievements and showing positive outcomes (Bande, Jaramillo, Ferna ndez-Ferrín, & Varela, 2019). Previous research has shown that self-promotion usually brings advantages, although, when overused, self-promoters may create a negative image of themselves (Barasch, Levine, Berman, & Small, 2014). It has been shown that during job interviews, when self-promotional behavior is expected, over- use of the tactic is rather inef?cient (Barrick, Shaffer, & DeGrassi, 2009). Similarly, in Kickstarter videos, founders are expected to show expertise and skills in a speci?c ?eld. Additionally, crowd- funding entrepreneurs present their venture in front of the audi- ence who operates in online settings and is used to self- promotional activities, which are very popular on social media platforms (Kim, 2018). Some research conducted on video-sharing platforms indicated the effectiveness of self-promotion. Kennedy (2016) indicated that a YouTube celebrity's self-promotion activ- ities enabled her to create a community willing to actively engage in her make-up movement. The study conducted by Chan (2019) showed how successful Uber drivers use self-promotion in their YouTube videos while presenting their expertise and know-how. Thus, we formulated the following hypothesis:

H1: Self-promotion in crowdfunding videos is positively related to crowdfunding success.

2.4. Ingratiation in crowdfunding videos and crowdfunding success

Ingratiation means undertaking actions to make oneself more likable such as complimenting or ?attering (Amaral, Powell, & Ho, 2019). IM scholars indicate that ingratiation is also related to opinion conformity or favor doing (Sibunruang, Garcia, & Tolentino,

2016). Although some studies claim that the effectiveness of ingratiation in terms of work outcomes happens to be limited (Higgins, Judge, & Ferris, 2003), there is a substantial number of publications con?rming a positive role of ingratiation during job interviews (Vivian Chen, Lee, & Yvonne Yeh, 2008) and supervisor-employee interactions (Long, 2019). Looking at investment decisions, researchers also con?rm that likeability belongs to invest- ment criteria (White & Dumay, 2020). During traditional pitches, entrepreneurs may show similar values and preferences of poten- tial investors. On a crowdfunding platform, the online audience is more challenging to de?ne than in an of?ine setting. However, founders may appeal to commonly held values of a speci?c in- dustry. A study conducted by Gürbüz (2019) refers to the role of ingratiation used in videos uploaded on YouTube and other web- sites for touristic purposes and explains how this technique may help convince the audience to visit some speci?c locations. Therefore.

H2: Ingratiation in crowdfunding videos is positively related to crowdfunding success.

2.5. Exempli?cation in crowdfunding videos and crowdfunding success

Exempli?cation emphasizes an individual's dedication and self-sacri?cial activities that exceed the scope of duties (Bonner, Greenbaum, & Quade, 2017). Employees may exemplify themselves while showing others that they are busy, coming early to their of?ce, and working long hours (K. J. Harris, Gallagher, & Rossi, 2013; L. Harris & Rae, 2011). From the observer perspective, exempli?cation has much in common with proactive work behaviors, which, according to many studies, serve as a proxy for career outcomes (Cha, Kim, Beck, & Knutson, 2017). Exempli?cation might also be bene?cial for entrepreneurs because when seen as hard- working and dedicated, they can improve their reputation in the eyes of their stakeholders and investors. The effect of exempli?- cation in video content has not been studied yet, but some studies related to video were conducted in other domains, such as recruitment and selection. Amaral et al. (2019) collected data on impression management techniques based on audio recordings of job interviews and showed a positive relationship between exem- pli?cation and interview ratings. Uen, Teng, and Wu (2019) analyzed exempli?cation in video resumes and found a positive impact on the recruitment attitude. Based on the above discussion, the following hypothesis is established:

H3: Exempli?cation in crowdfunding videos is positively related to crowdfunding success.

2.6. Intimidation in crowdfunding videos and crowdfunding success

Intimidation is an impression management tactic associated with threats and forceful behavior used to increase a target's compliance with the intimidator's demands (Gwal, 2015). Individuals using intimidation may appear as powerful and aggres- sive, which can also get the job done (Parhankangas & Ehrlich,

2014). However, the majority of studies show adverse effects of intimidation, such as the increased perception of job tension

(Coleman Gallagher, Harris, & Valle, 2008), negative performance evaluation (Kimura, Bande, & Ferna ndez-Ferrín, 2018), or decreased sympathy (Jones & Pittman, 1982). Therefore, it is very likely that potential investors are unwilling to fund ventures developed by intimidating entrepreneurs because of investors' concerns about tensions within the entrepreneurial team and in- vestors' reduced likeability towards founders. Research on intimi- dation in video settings was conducted by Mancini, Biancardi, Dermouche, Lerner, and Pelachaud (2019) who analyzed virtual guide behaviors and users' perceptions. They found lower user satisfaction for the guide's intimidation behaviors. These argu- ments lead to the following hypothesis:

H4: Intimidation in crowdfunding videos is negatively related to crowdfunding success.

2.7. Supplication in crowdfunding videos and crowdfunding success

Supplication indicates that people or companies cannot perform a task or achieve a goal without the help of others. This makes supplication different from self-promotion, exempli?cation, or ingratiation, which presents an individual or organization in a favorable light. Individuals who use supplication tactics appear to be needy and vulnerable (Chuang, Shih, Chen, Lin, & Teng, 2018). Previous research shows that employees use this tactic to point at others' social responsibility and get their help or obtain some ad- vantages (Tedeschi & Melburg, 1984). In the case of entrepreneurs who seek funding, some negative consequences of supplication may be visible because potential investors can dislike internal weaknesses or inabilities. However, users of crowdfunding plat- forms often serve as donators for new ventures (Cason & Zubrickas,
2019), and they may feel more obliged to help while observing needy creators. Although some studies examined supplication ac- tivities in different social media platforms, including video-sharing ones (A. A.-A. M. Ahmed, 2020), the signi?cant relationship be- tween supplication applied in videos and positive outcomes have not been found. Therefore.

H5: Supplication in crowdfunding videos is neither positively nor negatively related to crowdfunding success.

3. Method

3.1. Data collection and measures

We collected our data on technology-related projects uploaded on Kickstarter, one of the most popular crowdfunding platforms. Technology-related start-ups are a subject of interest among scholars and practitioners and are often related to business ven- tures with a long term view (Bustamante, 2019; Wouters, Anderson, & Kirchberger, 2018). We collected data from various technology-related categories such as 3D printing,

app develop- ment, camera equipment, DIY electronics, fabrication tools, ?ight, gadgets, hardware, maker spaces, robots, software, sound, space exploration, wearables, and the web, similar to prior research (Li et al., 2017). We collected data on all successful technology pro- jects in 12 months (556 projects in total) plus 110 randomly selected unsuccessful projects. This resulted in a ?nal sample of
666. Out of these, 257 projects had videos in which the creator appeared and formed the basis of our analysis. Among those 257 projects, 227 were successful (88%) and 30 unsuccessful (12%).

For each of these projects, we collected four pieces of informa- tion: First, we collected outcome data (i.e., money pledged, ?nan- cial goal, and the number of backers) through a web crawler. We then divided the money pledged by the ?nancial goal to calculate the goal completion rate the project achieved. Based on this, we measured crowdfunding success as a (formative) variable

consisting of goal completion rate and the number of backers (Diamantopoulos & Winklhofer, 2001). The descriptive statistics on the collected dataset are illustrated in Table 1.

Second, we obtained information on the ?ve impression man- agement tactics using human coders. We de?ned four items for each tactic as follows (M. C. Bolino et al., 2008): perceived self-promotion: the project creator (1) shows proudly his/her experi- ence; (2) makes others aware of his/her talents or quali?cations; (3) lets others know that he or she has knowledge about speci?c in- dustry or discipline; (4) makes other users aware of his/her ac- complishments and positive outcomes; perceived ingratiation: the project creator (1) talks about others and their situation respect- fully; (2) shows your interest in others' lives, their situation; (3) describes or shows others as someone important for him/her; (4) mentions or shows others in a positive context; perceived exem- pli?cation: the project creator tries to (1) appear hard-working; (2) appear to spend a lot of time on her/his project; (3) look dedicated; (4) look as he/she put a lot of effort in the project; perceived intimidation: the project creator (1) is intimidating with others to help funding; (2) deals forcefully by describing the situation as very serious and frightening to achieve goals (to get funding); (3) asks strongly for support; (4) underlines urgency strongly to get fund- ing; perceived supplication: the project creator (1) tries to gain support from others by appearing needy; (2) asks gently for sup- port from others; (3) tells about need of support in a gentle way; (4) appreciates the support from others.

We used two individuals with previous backing experience who evaluated the IM techniques used by the creators in their videos. One of them was an active online and of?ine investor with more than ?fteen years of experience; the other one had three years of business experience, including crowdfunding participation as a backer. Each of them assessed each item for each video on a 5-point Likert scale from 1 ¼ strongly disagree to 5 ¼ strongly agree. To ensure reliability, we used proportional reduction in loss (PRL) (Rust & Cooil, 1994), which allows us to estimate what proportion of agreement among the two raters is needed to obtain an adequate level of reliability. We calculated the proportional reduction in loss and removed all items

for which PRL was below 0.70. In this context, we removed three items: one for perceived ingratiation ("mentions or shows others in a positive context"), one for perceived exempli?cation ("tries to look dedicated"), and one for perceived supplication ("tries to gain support from others by appearing needy"). Using only the remaining items with suf?cient reliability, we created ?ve constructs to measure each of the ?ve IM tactics.

Third, we used Valossa AI, a software platform that uses human- like perception to analyze and describe a video scene (Valossa, 2020). Speci?cally, it detects and recognizes faces and face- related attributes such as emotions and gender. It tags activities, places, objects, and various types of explicit content such as nudity or violence. It recognizes time-bound elements of video structure, such as shot boundaries and speech and sounds. It also creates useful combinations of the recognitions from the various modal- ities and provides summaries that help in pro?ling video content. These combinations can be, for example, automatic overviews of

Table 1
Descriptive statistics.

	Mean	Std. Dev.	Min	Max
Goal (in US$)	42,278.02	122,931.90	10	1,500,000
Goal completion rate	3.67	8.90	0	106.68
Amount pledged (in US$)	125,245	436,601.80	1	5,333,793
Number of backers	759.72	2486.34	0	26,828
Video duration (in sec.)	182.90	88.39	53	742

the topics of the video, automatically generated trailer-like sum- marization videos (Autopreview), or automatically assigned con- tent categories using the standard classi?cation system of Interactive Advertising Bureau (IAB).

We identi?ed proxies for each IM technique: actual self-pro- motion: number of occurrences of the words experience, knowl- edge, quality, success, and team; actual ingratiation: percentage of happiness emotion, expressed by smiling, since smiling often helps in increasing likeability; actual exempli?cation: number of occur- rences of the words passion, mission and time, since during exempli?cation creators show their passion to the project and often indicate that they sacri?ce a lot of their time; actual intimidation: percentage of fear emotion, since while intimidating creators show serious and frightening situations and their faces re?ected fear emotion; actual supplication: number of occurrences of the words support and help.

Fourth, we collected two control variables that may be related to crowdfunding success in addition to the impression management tactics: information on Kickstarter staff picks coded as 1 if the project was a Kickstarter staff pick and 0 otherwise (Kickstarter staff members select "we love" projects based on the clearly expressed idea, compelling project image, well-described rewards, and previous experience); and data on the founders' social media presence on Twitter, LinkedIn, and YouTube and coded a project as 1 if its creator has a social media account and 0 if its creator does not. Fig. 1 illustrates the model with the main variable categories.

3.2. Data analysis

We used variance-based structural equation modeling (SEM), i.e., partial least-squares (PLS) SEM, to analyze the data in this study due to the presence of formative variables (Richter, Cepeda, Roldan, & Ringle, 2016). Composite reliability is greater than 0.70, con- ?rming internal consistency. Cronbach alpha exceeds 0.70, sup- porting the reliability of perceived impression management measures (see Table 2). We examined the heterotraitemonotrait ratio of correlations (HTMT) to evaluate discriminant validity. If the value of the HTMT is not greater than 0.90, discriminant validity is supported. To con?rm convergent validity, we checked if the average variance extracted (AVE) exceeds 0.50.

4. Results and discussion

Table 3 shows the relationship between actual and perceived impression management techniques and crowdfunding success.

Fig. 1. Impression management techniques in crowdfunding videos.

Table 2
Composite reliability, AVE, and Cronbach's alpha.

	Composite reliability	AVE	Cronbach's alpha
Perceived self-promotion	0.973	0.901	0.963
Perceived ingratiation	0.979	0.939	0.967
Perceived exempli?cation	0.984	0.953	0.975
Perceived intimidation	0.893	0.677	0.841
Perceived supplication	0.920	0.793	0.871

The relevant model is Model 2 in the middle column (highlighted in grey), including all relevant variables. Four ?ndings are of particular interest:

First, we see that actual self-promotion, self-exempli?cation, and intimidation are all signi?cantly related to crowdfunding suc- cess (p-values of 0.10 or lower). Self-promotion and exempli?cation hereby increase crowdfunding success while intimidation de- creases success. Second, none of the perceived impression man- agement techniques is related to crowdfunding success. This implies that measures based on human coding become insigni?- cant when measures based on machine (AI) coding are considered and indicates the superior quality of AI-based versus human-based measures for video analysis. Third, all machine-based (actual) measures are signi?cantly related to human-based measures (p- values of 0.05 or lower), which indicates that our AI-based mea- sures cover the essence of the impression management techniques well. The only exception is intimidation, where this relationship is not signi?cant. This implies that the use of the fear emotion may not be perfect for measuring the presence of intimidation. Finally, we see that the presence on social media is associated with crowdfunding success.

To test the robustness of these ?ndings, we also tested two alternative models in which we include only either perceived or actual measures (Models 1 and 2, respectively). These models show that our main ?ndings regarding impression management tech- niques hold in both models. In Model 1, the perceived measures of self-promotion, exempli?cation, and intimidation are signi?cantly related to crowdfunding success (p-values lower than 0.10), and their signs are consistent with the effects in Model 2. Similarly, the actual measures of self-promotion, exempli?cation, and intimida- tion in Model 3 are related to crowdfunding success (p-values lower than 0.05), equally with consistent signs. Social media presence is signi?cant in all models.

4.1. Results regarding self-promotion

Previous studies indicate that self-promotion is likely to in- crease one’s chances of getting funding because it helps founders signal their competence and responsibility (Roulin, Bangerter, & Levashina, 2014). Our results show that self-promotion is posi- tively related to crowdfunding success, as measured by the number of backers and goal completion rates. Thus, we can state that hy- pothesis H1 is supported. We calculated the means for each impression management tactic for illustrative purposes and coded them as “high” if the mean was greater than 4. For videos with a high assessment of self-promotion, the average goal completion rate was 6.04, and the number of backers was 1469. For videos with a low assessment of self-promotion, the goal completion rate was two times lower (2.24), and the number of backers was almost four times lower (330).

In 2017, two hybrid smartwatches, the MyKronoz ZeTime and the Nowa Shaper, which combine mechanical hands with smart functionalities, appeared on Kickstarter. The ZeTime offered better functionality features and started at $119 US for early backers. The Shaper had a nicer, more fashionable design and was available for

Table 3
PLS-SEM path coef?cients and p-values.

Model 1 (Perceived Impression Management Techniques)							
Model 2 (Perceived and Actual Impression Management Techniques)							
Model 3 (Actual Impression Management Techniques)							
Parameter	Estimate	p-value		Parameter	Estimate	p-value	
Parameter	Estimate	p-value					
Actual self-promotion			- > Crowdfunding success				
0.284			0.024		0.304		
0.009							
Actual ingratiation			- > Crowdfunding success				
0.033			0.547		0.046		
0.428							
Actual exempli?cation			- > Crowdfunding success				
0.256			0.028		0.275		
0.011							
Actual intimidation			- > Crowdfunding success				
0.059			0.096		0.069		
0.025							
Actual supplication			- > Crowdfunding success				
0.041			0.571		0.091		
0.333							
Perceived self-promotion			- > Crowdfunding success				
0.121			0.078		0.071		
0.328							
Perceived ingratiation			- > Crowdfunding success				
0.078			0.238		0.034		
0.632							
Perceived exempli?cation			- > Crowdfunding success				
0.147			0.092		0.120		
0.132							
Perceived intimidation			- > Crowdfunding success				
0.060			0.037		0.044		
0.152							
Perceived supplication			- > Crowdfunding success				
0.012			0.877		0.147		
0.287							
Actual self-promotion			- > Perceived self-promotion				
0.138			0.035				
Actual ingratiation			- > Perceived ingratiation				
0.135			0.011				
Actual exempli?cation			- > Perceived exempli?cation				
0.123			0.025				

Actual intimidation - > Perceived intimidation
0.047 0.466
Actual supplication - > Perceived supplication
0.193 0.002

Project description - > Crowdfunding success
0.039 0.554 0.070
0.226 0.047 0.427
Social media presence - > Crowdfunding success
0.138 0.051 0.147
0.017 0.188 0.002

an early-bird price of $99 US (Gartenberg, 2017). Both projects successfully achieved their crowdfunding goals, but their results differed. The ZeTime secured US $5,333,792 from 26,828 backers (on average $198 per backer) (MyKronoz Switzerland, 2017) and the Shaper received US $65,898 from 480 backers (on average $137 per backer) (NOWAWATCH, 2017). For ZeTime, MyKronoz CEO Boris Brault and CPO Fred Boutin showed their expertise in the watch industry in their video. Moreover, they effectively used nonverbal communication, i.e., open hand gestures and facial expressions, to present themselves in a better light. In contrast with the Nowa Shaper, they did not use a narrator in their videos; thus, the audi- ence got to know the executives to a greater extent.

Another excellent example of self-presentation is the work of Ryan Stout, the founder of Arsenal. Stout developed an application that helps control the mirrorless camera from a smartphone. His project received $2,650,310 from 1576 backers (Stout, 2017). In his promotion video, he introduces himself as an engineer with a background in arti?cial intelligence. Moreover, he appears in different spots, with his camera showing his experience as a photographer. The combination of engineering and photographing experience and skills makes Ryan more convincing to potential backers.

Interestingly, young entrepreneurs who did not have substantial experience in the domain of their projects were able to score high in self-presentation thanks to their creativity. Raul Onaida, one of the founders of Magpie, creator of smart GPS technology (Magpie, 2017), showed his former innovative products, such as a car built out of Lego blocks, a bicycle with a jet engine, or a launchable space rocket toy. These products are not directly related to his current product, but their innovativeness, quality, and originality easily capture the attention of the crowdfunding audience.

4.2. Results regarding exempli?cation

Through exempli?cation, individuals present their willingness to perform better than necessary and show dedication and passion to their duties (Long, 2017). Investors seek these characteristics to make their investment decisions (Davis, Hmieleski, Webb, & Coombs, 2017). Our ?ndings indicate that exempli?cation is posi- tively linked to crowdfunding success (hypothesis H3 is con?rmed).

For videos with a high assessment of exempli?cation, the average goal completion rate was 6.08, and the number of backers was 1624. For videos with a low assessment of exempli?cation, the goal completion rate was two times lower (2.91), and the number of backers was three times lower (485).

Nowa's video did a respectable job in the case of exempli?cation, as it informed viewers of the time the team devoted to the project and showed the creators at work. However, MyKronoz performed even better. In the MyKronoz video, the executives said, "We spent countless hours with our engineering team," and viewers could then see the team discussing, coding, and analyzing different documents. The video also showed more interactions and brainstorming than in the case of Nowa, all of which creates a positive impression of a dedicated, innovative, and hard-working team.

Another example of projects in which the founders exemplify themselves is Shonin, a wearable camera created by the Shonin Inc. Project. It was backed by 1731 funders and collected US $317,135 (Shonin Inc., 2017). The founders point out that, during recent years, they shipped millions of electronic products and also worked very hard to develop Shonin. They underline that they came a long way and made a great effort. In the video, viewers can observe the creators working together and testing their products.

4.3. Results regarding intimidation

Intimidation, which has often been considered to be positively related to counterproductive work behaviors (Phipps, Prieto, & Deis, 2015) and socially undesired behaviors (M. C. Bolino et al., 2008) may cause negative feelings among potential investors, especially if they are users of crowdfunding platforms, which support the building of relationships around new ventures (Bouaiss, Maque, & Meric, 2015). Our results suggest that the cre- ators who used intimidation in their videos were not effective in recruiting backers and reaching goal completion (hypothesis H4 is supported). In some videos, creators show dangerous accidents that occur in the absence of their product, which, if used, should minimize such risk. The analysis did not show a positive effect of this technique. Conversely, we note that the crowdfunding success is signi?cantly lower in the case of such a tactic.

Neither MyKronoz's video nor Nowa's video emphasizes the negative consequences of not using their product. Instead, they focus on the advantages of using it. However, some projects on Kickstarter that try to provide the audience with a scary message afterward show the solution to the earlier mentioned situations. However, quite often, viewers of commercial videos switch their attention and not watch the video to the end (Teixeira, 2015). The use of intimidation-related techniques at the beginning of the video may deter potential backers from the video.

4.4. Results regarding ingratiation and supplication

Previous studies con?rm the positive impact of ingratiation on work-related outcomes, such as the supervisor-employee rela- tionship (Foulk & Long, 2016) or job applicant evaluation (Proost, Schreurs, De Witte, & Derous, 2010). Surprisingly, we found no evidence for the interdependence between ingratiation and crowdfunding success (hypothesis H2 is not supported). Several Kickstarter creators attempt to be liked by speci?c groups of in- dividuals (potential backers), but this does not signi?cantly in?u- ence crowdfunding success. There are two possible explanations for this. Either backers may be accustomed to these techniques because many creators use them. Or backers do not seek ?attery in Kickstarter projects, but they want to acquire knowledge about the prospective product users and its creators. Moreover, researchers discovered that some individuals might downplay their friendli- ness (Holoien & Fiske, 2013). That is why using too much ingrati- ation can have a contradictory effect.

Individuals use supplication tactics by creating an impression of neediness to get attention or assistance from others (Bartz & Brink, 2017). Many studies underline that supplication is associated with a risk of a negative impact on individual performance (Kacmar, Andrews, Harris, & Tepper, 2013). We have not found evidence for any signi?cant relationship between supplication and the goal completion rate and the number of backers (hypothesis H5 is supported). Usually, the request for support appears at the end of Kickstarter videos; however, in the case of many videos with high crowdfunding success, the need for ?nancial support is not formulated explicitly. Instead of asking backers to support the project, Boris Brault, MyKronoz CEO, says, "Today we want con- sumers to embrace our amazing journey with ZeTime and be the ?rst to get their hands on this groundbreaking innovation" (MyK- ronoz Switzerland, 2017).

4.5. Results regarding the founder's social media presence

We also found a positive relationship between social media presence (on LinkedIn, Twitter, and YouTube) and crowdfunding success. 31% of project creators established a social media presence on three platforms. For these creators, the average goal completion rate was 6.02, and the number of backers was 1,531, while for other creators, the goal completion rate was two times lower (2.63), and the number of backers was three times lower (414).

5. Recommendations for entrepreneurs on crowdfunding platforms

Our empirical results show that entrepreneurs should pay particular attention to using self-promotion and exempli?cation as impression management techniques in crowdfunding. The way we measured those impression management techniques in our study allows us to provide a series of speci?c recommendations for en- trepreneurs in this respect.

5.1. Self-promotion

Our measures of actual self-promotion show that entrepreneurs should rely on words such as experience, knowledge, quality, suc- cess, and team when designing their video script. Also, since perceived and actual self-promotion are signi?cantly related, they should consider the following four strategies:

First, show your experience proudly: Kickstarter creators should describe what they have done in past years or perform certain ac- tivities related to the project to demonstrate their experience. For example, Mike Vellekamp, creator of V handmade knives, brie?y discusses his previous employers and shows photographs of him- self working with knife-production companies (V Nives, 2017). He provides details of his career, including the names of companies and his supervisors and positions occupied. Moreover, to con?rm his experience, Mike demonstrates some parts of the process of making a knife.

Second, make others aware of your talents and quali?cations: Frequently, Kickstarter creators possess talents or quali?cations that result from their passion for the project. For example, James Fielding, founder of Audeara headphones, draws on his musical talent of playing drums (Fielding, 2017). James' words include music-related vocabulary and explain how his headphones improve the sound and are perfectly tailored to the user's desired sound to facilitate the desired listening experience with one's fa- vorite music.

Third, let others know that you know the speci?cs of your industry or discipline: Statistics on the use of the product, product key fea- tures, analysis of competitors, and future trends are examples of data used by Kickstarter creators to show their industry knowledge. Such a technique is particularly prevalent in electronics-related products. William More, the founder of the Protractor, a prox- imity sensor, explains how his sensor distinguishes itself from other similar products (Moore, 2017). Furthermore, he describes how to uses the sensor using professional engineering language.

Fourth, make other users aware of your accomplishments and positive outcomes: Kickstarter creators often already have a suc- cessful track record on crowdfunding platforms, i.e., their previous projects were backed in the past. Such an accomplishment may serve as a positive signal to the crowdfunding audience. Another positive outcome mentioned in Kickstarter videos relates to the product prototype. If the product is ready, it is much easier to convince viewers of its quality by showing different functionalities in the video. Tony Hannaher, a creator of SB380, an innovative sound system, outlines in the video that his previous sound system project reached almost 500% of its goal on Kickstarter (Hannaher, 2017). He also adds that it was a "nationwide success, reaching the number-two slot on the best-seller list at the country's largest online retailer." Moreover, Tony points out that his product got positive reviews in the Wall Street Journal, Sound & Vision magazine, and CNET. Finally, he brie?y describes his accomplishments related to the development of sound systems in the previous decade.

5.2. Exempli?cation

Founders can indicate exempli?cation by using words such as passion, mission, and time in their video script since this

allows them to show their passion for the project and to indicate that they sacri?ce a lot of their time. Also, the following three strategies are likely to be particularly relevant:

First, give the impression of being hard-working: Some Kickstarter creators show in their videos that they are having a good time while doing their projects. This strategy may work until the crowdfund- ing audience understands that they are not serious and less involved. Creators who appear as hardworking individuals who show how they work are more convincing to potential backers. Albert Gajsak, the founder of MAKERbuino, a DIY console game, produced a substantial part of his video in the of?ce where one can see computer screens, documents hanging on the of?ce walls, and individuals focused on their work (Gajsak, 2017). Albert also mentions some activities he performed to accomplish his project, such as improving product design, writing documentation and tutorials, and collecting feedback from beta testers.

Second, show that you spent a lot of time and effort on your project: Most Kickstarter creators spend a lot of their time on their projects. However, not every creator can convince the crowds of the amount of work involved. One way to create awareness is to mention how many months or years, the founder worked on the project and provided speci?c tasks or milestones. Irina Slavina, the co-founder of a heads-up display for a car called Hudway Cast, describes in her video the many problems her team encountered during the project, such as production delays, quality issues, shipments slow, copy cats, and customs (HUDWAY, 2017). Moreover, in the video, one can observe the team working together, drawing on the board, and discussing details of the project.

Third, look dedicated: Any creator willing to exemplify him- or herself cannot ignore the tactic of showing dedication. Some cre- ators can appear dedicated by using a high tone of voice, while others use hand gestures. Dedication is often visible when creators tell the story of coming up with an idea and introducing it to the world. Shari Eskenas, the founder of Sundae Electronics and in- ventor of SoundBrake, a device that selectively streams outside sounds to headphones, tells about an observation in her of?ce, which had a no-headphones policy with the rationale that em- ployees could potentially be unaware of an emergency (Sundae Electronics, 2017). She then describes her inspiration and her journey of building the device, which solves this problem. Shari talks about her project with great enthusiasm, smiles, and optimism.

5.3. Additional recommendations

Our ?ndings also show that the use of intimidation as an impression management technique should be avoided. This is consistent with the fact that creators who present severe and fearful consequences of not using their products rarely appear on Kickstarter. However, this does not imply that using a problem-solution approach is always ineffective e but the success of such a strategy depends on how creators present the problem. If

it is explained in a too scary way, some negative feelings may appear among backers watching the video.

Finally, our ?ndings show the positive relationship between social media presence (i.e., Twitter, LinkedIn, and YouTube) and crowdfunding success. This ?nding is in line with the most recent studies related to social media and crowdfunding (Datta & Brooks, 2018). An excellent example of the relationship mentioned above is Brent Morgan, a founder of Superscreen, who collected $ 2,542,045 from 18,184 backers (B. Morgan, 2017). Morgan's pro?les can be found on Twitter, LinkedIn, and YouTube. During the Kickstarter campaign, Morgan used Twitter to re-tweet posts uploaded by backers about backing his project. Although regular posts on LinkedIn are not visible, his LinkedIn pro?le was carefully designed. It contained a summary of his previous experience, Morgan's article about arti?cial intelligence in smart devices, description of occu- pational experience, accomplishments (i.e., 54 patents), and in- terests (i.e., followed companies, groups, and schools). His LinkedIn pro?le corresponds with exempli?cation and self-promotion tac- tics used in the video. The Kickstarter video and several other short speeches describing Morgan's project were published on YouTube pro?le. All three of Morgan's pro?les create a consistent image of a

dedicated and hardworking technical entrepreneur.

6. Conclusion

Success in crowdfunding is a complex topic, and there is no one best way to ensure suf?cient funding. However, our study starts a scholarly discussion related to IM in crowdfunding videos and in- dicates that actions related to self-promotion and exempli?cation are likely to be successful in Kickstarter videos. To self-promote themselves, founders can present their employment history, pro- vide statistics and information about the industry, show how they perform particular tasks, explain their background, or describe their previous successful projects. To exemplify themselves, they may present their work and co-workers, refer to the months or years they spent on their project, and use a dedicated tone of voice and words to express their excitement and commitment. However, founders should not use intimidation because some negative feel- ings may appear among backers watching the video.

Moreover, we show that additional bene?ts for crowdfunding success might be achieved by establishing a multi-platform social media presence. Our study shows that it is not enough to use one social media platform. The best effect can be achieved with all three platforms (i.e., Twitter, LinkedIn, and YouTube), which were considered in the study.

This study examines a spectrum of ?ve techniques and com- bines human coding with features extracted from videos using Arti?cial Intelligence. Although there are some limitations, such as using a relatively small amount of data collected through the deep learning platform, to our best knowledge, this is the ?rst analysis of impression management technique based not only on human coding. The Kickstarter Education Team recommends starting a video from the answer to the question: "Who are you?" This advice supports our study

results, which claim that those creators who managed to convey a message about themselves and their experi- ence, knowledge, talents, accomplishments, hard-working nature, the sacri?ce of time, and dedication are more effective in achieving crowdfunding success.

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