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The influence of sustainability on earned media publicity at small beer breweries in the Netherlands

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Abstract

Sustainability has become an important theme in the present-day society. Sustainable production of goods occurs in almost every sector, including the beer industry. Apart from a brewer's own fundamental belief in the importance of sustainability, it is not yet very clear what the advantage of sustainable brewing is for the brewery itself. This thesis aims to find a possible explanation of why it is beneficial for small beer breweries to brew in a sustainable way. With the use of quantitative data from 20 small beer breweries in the Netherlands, it is examined whether small sustainable beer breweries benefit from more earned social and traditional media than non-sustainable beer breweries. In addition, it is tested if there is a difference between earned social media and earned traditional media regarding the influence of sustainability.

1. Introduction

The Dutch beer industry is doing well. In the last ten years, the number of beer breweries in the Netherlands has more than quadrupled. It rose from 90 in 2007 to 370 in 2017. This increase is mainly caused by microbreweries that have entered the market. The number of one-man breweries increased six fold, from 40 in 2007 to 270 in 2017. The number of beer breweries where two to five people work also grew, but less hard, from 20 to 60 breweries (Centraal Bureau voor de Statistiek, 2017).

Because of the increase in breweries, it is important to stand out in the crowd. A good marketing strategy is necessary to create brand awareness. Media can help with this. Previous research has demonstrated that traditional media publicity affects marketing outcomes (Trusov et al., 2009). Another research demonstrated that online consumer-generated content such as online reviews affects sales (Chevalier & Mayzlin, 2006).

Researchers distinguish three types of media: paid, owned, and earned media. Paid media is known as advertising and refers to media activity a company pays for, for instance a commercial in a YouTube clip. Owned media refers to media activities a company creates in channels it controls, for example brochures on its own website. Earned media is the media activity that is not generated by the company itself, but by customers or journalists (Stephen & Galak, 2012).

There are two types of earned media, traditional and social media. Traditional media is generated by journalists or professional media organizations, such as an article in a newspaper. Social earned media is company related media activity generated through consumers social online interactions, such as posts on Twitter or Facebook. Research from Stephen and Galak (2012), shows that both traditional and social earned media affect sales positively.

From this research by Stephen and Galak, one can conclude that earned media is an effective way to generate more sales and brand awareness. A company has to do something to gain free publicity. Examples of ways to gain free publicity are encouraging customer feedback, collaborate with other companies or organise special events (Forbes, 2017). In this study it is examined if free publicity can arise from sustainable business. Corporate social responsibility and sustainability have become a hot topic in the media. Journalists often provide free publicity of a company's commitment to CSR (Voinea & Fratostiteanu, 2019). This free publicity helps enlarging public awareness of CSR and thus influences demand for CSR products (McWilliams & Siegel, 2001).

Dutch consumers are increasingly conscious about sustainability (Kassa, 2017).

72% of the customers believe that companies should make a positive contribution to society. Nearly half of the Dutch customers (48%) even take sustainability in consideration when buying products (Dossier Duurzaam, 2017). According to the definition of sustainable beer from 'Rank a Brand', not only organic hops and barley or raw materials from sustainable agriculture are taken into account. Energy consumption, green energy and water consumption in the production process are also taken into consideration when evaluating a company on sustainability.

In the Netherlands, the beer sector is leading when it comes to sustainability. Dutch brewers belong to the 10% most energy and water efficient beer brewers of the world. This may sound positive, but not a single major Dutch brewer ends up in one of the two highest categories regarding sustainability (Rank a Brand, 2016).

It is clear that the Dutch beer industry is working on sustainability. Besides this, customers are becoming more aware of the importance of sustainability. At this moment, it is not yet clear why it is beneficial for micro-breweries to brew sustainably. Therefore, in this study, it is examined whether sustainability in small beer breweries (1 to 5 working employees) leads to more free publicity, compared to small beer breweries that do not brew and express themselves in a sustainable way.

1.1 Problem statement

Does sustainability at small beer breweries lead to more earned publicity, and is there a difference between the effect of sustainability on earned social media publicity compared to traditional earned media publicity?

Sub-questions:

- What exactly is sustainable brewing?
- Which small beer breweries in the Netherlands belong to the category of sustainable brewers?
- What is earned publicity and what triggers earned media publicity?
- What is the effect of sustainability on earned social media publicity?
- What is the effect of sustainability on earned traditional media publicity?
- Is there a difference between the effect of sustainable brewing on earned social media publicity compared to earned traditional media publicity?

1.2 Scientific relevance

Several studies have researched sustainability and financial performance. Small to medium enterprises which operate social responsible (CSR) perform financially better than non-CSR companies (Torugsa et al., 2012). Other research indicates that high sustainability companies significantly outperform their counterparts over the long term in accounting performance. Multiple reasons for the outperformance are mentioned: high-sustainability companies paid particular attention to their relationship with stakeholders, external communications are more long-term oriented, high-sustainability enterprises have more long-term investors, they have more committed employees and have more loyal customers (Eccles et al., 2014). This study examines another possible explanation for the success of sustainable companies, which makes it academically relevant.

1.3 Practical relevance

The practical relevance and main purpose of this thesis applies to small starting beer breweries in the Netherlands. If the results of this study show that sustainable brewers gain more free publicity than other non-sustainable brewers, than this could be the turning point for small breweries to focus more on sustainability.

2. Literature review

The main goal of this study is to research the relationship between sustainability and earned media publicity. Therefore these two concepts are explained in this section. It is also explained why it is expected that sustainable companies generate more earned media publicity.

All information in this section is gathered via scientific databases Scopus, Web of Science and Google Scholar.

2.1 Sustainability

A first step in the public recognition of the concept of sustainability was made with the report of the Club of Rome. This report predicted an impending doom, because many natural resources needed for human survival would be exhausted within one or two generations (Meadows et al., 1972). In response to the Club of Rome rapport, the UN World Commission on Environment and Development published another report which illustrated how to prevent this doomed situation. This report, better known as the Brundtland report, describes the concept of sustainability that is still used today.

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987). In this definition there is a focus on inter-generational equity. We should take care of the environment in order to leave a viable world to future generations. In the two following years approximately 140 alternative definitions of sustainability have been added. In 2007 the number of definitions was even estimated at 300 (Johnston et al., 2007). One can say that there is no single fixed meaning of the concept of sustainability.

According to the Brundtland report, two concerns should be reconciled: the environment and development. This definition can also be seen as needs versus resources or short versus long term. Diverse comprehensions of sustainability exist, but one development in the concept of sustainability still dominates the view on sustainability: the triple bottom line. The triple bottom line theory states that there should be an integration between the environmental, economic and social dimension in an organisation (Elkington, 1997).

The Triple Bottom Line theory has not been developed without reason. As Elkington described in his book: *“We felt that the social and economic dimensions of the agenda – which had already been flagged in 1987’s Brundtland Report (UNWCED, 1987) – would have to be addressed in a more integrated way if real environmental progress was to be made. Because sustainability mainly works, by choice, with business, we felt that the language would have to resonate with business brains.”*

The Triple Bottom Line theory is still the best-known guideline for corporate sustainability.

Although the Triple Bottom Line theory predominates, there are also researchers who have a slightly different view on the concept. Jiménez and Céspedes Lorente (2001) define sustainability differently. An organisation’s performance is, according to the traditional approach evaluated based on four pillars: quality, cost, time and service. Including environmental performance as an operations objective could be the first step towards an environmentally sustainable corporate strategy. Environmental performance is defined as the minimisation of the negative consequences on the natural environment that arise from the productive activities of a company.

Dyllick & Hockerts (2002) are, unlike Jimenez and his colleague, larger supporters of the Triple Bottom Line theory. In addition to the Triple Bottom Line, eco-efficiency is often used as a synonym for business sustainability. *“Eco-efficiency is achieved by the delivery of competitively-priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life-cycle to a level at least in line with the earth’s carrying capacity”* (DeSimone and Popoff, 1997).

Indicators to measure eco-efficiency include energy, water and resource efficiency, as well as the amount of waste or pollution. (Verfaillie & Bidwell, 2000). Eco-efficiency is a valuable part of corporate strategies, but this study of Dyllick & Hockerts (2002) demonstrates that it is only one part of corporate sustainability criteria.

In their view, corporate sustainability consist of three key elements.

- Integrating the economic, ecological and social aspects. They should be satisfied simultaneously;
- Integrate the short-term and long-term aspects. Firms should not focus only on short-term gains, because it is contrary to the spirit of sustainability;
- Manage not only economic capital, but also manage natural and social capital in order to achieve long-term sustainability.

Kuhlman & Farrington (2010) are not content with the development in the concept of corporate sustainability. As mentioned above, the first commonly used theory was developed in the Brundtland report. Today, however, sustainability is covered by the Triple Bottom Line theory. The change in the definition obscures the real contradiction between long-term sustainability and short-term welfare, it risks a decreasing importance of the environmental dimension and the triple bottom line theory makes a distinction between the social and economic dimension, which in reality are similar.

In short, they state that the difference between the three pillars is conceptually fuzzy.

The social and economic dimensions should be considered as ‘well-being’. The environmental dimension is the only part that should be considered when measuring corporate sustainability, because it is more precise and complete than the concept that is used at present.

Dyllick and Muff (2016) have gone a step further in defining corporate sustainability. In a recent review on business sustainability research, it is concluded that no standardized definition or method the measure business sustainability exists (Montiel & Delgado-Ceballos, 2014).

Currently, more and more companies claim to operate sustainable. It is necessary to distinguish between those that actually contribute to sustainability and those that are not sustainable.

Sustainability has different perspectives. Sustainable development mainly takes place at the macro level, and focuses on the economy, society and the world. Business sustainability is concerned with microeconomics in organizations. The concept of sustainability has been largely debated on political or societal level, like the reports from the club of Rome in 1972. More of a business approach was introduced by using ‘eco-efficiency’ as a business sustainability measurement. In addition to eco-efficiency, a number of other measurement instruments were used, but they were not as popular as eco-efficiency. Multiple researchers concluded that the focus of organizational sustainability is usually on how the organization can profit from business sustainability while the consideration for the environment or society is less important (Dyllick & Muff, 2016).

Dyllick and Muff (2016) conclude that the concepts of business sustainability (micro-level) and sustainable development need to be interlinked in order to contribute to improving the global situation. Many organisations have started to consider long-term, social and environmental aspects in their company. However, they are rarely concerned with what their contribution to resolving sustainability problems on a regional or global scale is (Dyllick & Muff, 2016). This is the point where it goes wrong, because a positive contribution to the planet is the core of a truly sustainable business.

Based on this reasoning, Dyllick and Muff (2016) have developed a model to determine which companies are not sustainable and which companies can be considered as truly sustainable. Three elements of the business process model are relevant when assessing sustainability: the relevant concerns considered, the values created and the organizational perspectives applied. Companies can be placed in one of four categories, from least sustainable to truly sustainable.

Business-as-usual: producing economic value in the form of profit, market value or shareholder value is the main goal of these companies. The business and its objectives are the starting point for all action and environmental issues are not considered in any decision.

Business sustainability 1.0: this is the first step in introducing sustainability into a company. Environmental and social concerns are remarked by media, government or NGO's and result in new market challenges. These challenges are picked up and integrated in existing processes without changing the core of the business. Sustainability concerns are considered in decision making, but business objectives remain especially focused on creating shareholder value. They use sustainability to increase reputation, to be attractive for new or existing human talents, to respond to new customer demand and to reduce costs. They recognize the need to respond to social and environmental concerns, in addition to economic concerns.

Business sustainability 2.0: companies in this category pursue the well-known triple bottom line approach. The value creation includes social and environmental values, not only economic value. Programs are created on specific sustainability issues and performance is measured and reported.

Transparent procedures are implemented to reduce greenhouse gasses, energy, water use and waste from manufacturing. The environmental footprint is minimized. The underlying objective of these companies is to produce and report within well-defined sustainable areas while doing this in an economically profitable manner.

Business sustainability 3.0: in this category, the main goal is not only to minimize its negative impacts. Truly sustainable companies try to understand how they can create a significant positive impact in critical and relevant areas. Examples of activities from these companies are: fighting food waste, fighting overconsumption and obesity, supporting smallholder farmers and securing the availability of water. Ultimate sustainable companies have an outside-in perspective, they start with analysing pressing sustainability issues and then they engage in developing new business models that overcome them.

This sustainability model developed by Dyllick and Muff (2016) will be used in this research, since the triple bottom line is incorporated and it is a very clear model to distinguish whether or not a company is truly sustainable.

2.2 Earned media publicity

Media has changed a lot in the past decade. Traditional media outlets, such as newspapers and television advertisements, are now supplemented by social media outlets. Examples of social media outlets are blogs, online discussion forums or Facebook pages. Previously, social media was considered as the domain of young consumers, but nowadays almost everyone is active online (Bernoff et al., 2008). When firms develop a marketing communication strategy, it is important to consider all types of media. There are three types of media: paid, owned and earned media (Corcoran, 2009).

Paid media is generated by the company or its agents. Examples of paid media are traditional advertising, sponsorships or social network advertising. Owned media is also generated by the company itself, but through channels it controls. Examples of owned media are company press releases, their own website or Facebook page. Earned media, which will be the focus of this study, is media activity that is not directly generated by the company itself. Marketing actions can help to generate earned media, but a company has no direct influence on it. Earned media is generated by customers or journalists. Examples of earned media are reviews on products, consumer-to-consumer word of mouth (WOM), or posts on social networks (Stephen & Galak, 2012). Recent research shows that 70% of American consumers trust reviews posted online of people they do not know personally (Nielsen, 2012). Besides this, 19% of all tweets by Twitter users are brand related (Jansen et al., 2009).

In the concept of earned media, it is important to make a distinction between traditional and social earned media. Social media is media activity that is generated through social online and offline interactions. Traditional media is generated by professional media outlets. (Stephen & Galak, 2012).

Much research has been done on the effects of all different types of media. A study on the different roles of owned and earned media shows that earned social media engagement volume affects brand awareness and purchase intention, but it does not affect customer satisfaction. The degree to which an earned social media activity is negative or positive has a large effect on customer satisfaction (Colicev et al., 2018).

Lovett and Staelin (2016) did research on the effects of paid, earned and owned media in building entertainment brands and they found that earned media is more impactful than paid and owned media per exposure. But, paid media has more exposures which causes paid media to dominate owned and earned media.

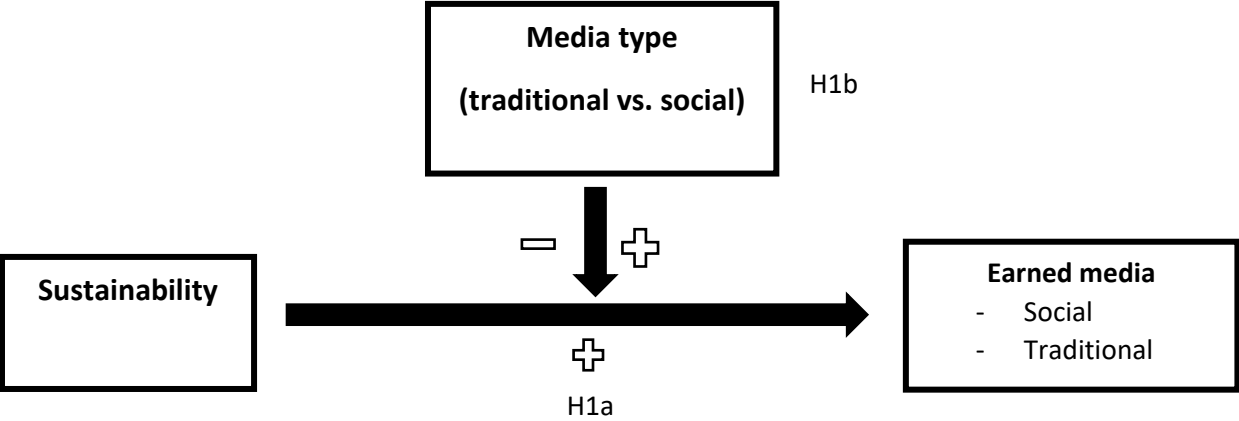
Trusov, Bucklin and Pauwels (2009) did research on the effects of word of mouth versus traditional marketing outlets on member growth at an internal social networking site. The results show that social earned media could have a greater impact on consumer actions, such as website sign-ups, than both paid media and traditional earned media.

Stephen and Galak (2012) studied the effects of traditional and social earned media on sales. They found that traditional as well as social earned media affects sales. The per-event sales effect of traditional earned media is larger than for social earned media, this means that an extra unit of media publicity from a traditional media outlet generates more new or repeated sales. This does not come as a surprise, since traditional media outlets have a greater reach. But, the frequency of social earned media activity is much greater which causes the social media sales elasticity to be significantly greater than traditional earned media. The last result they found was that social earned media appears to drive traditional earned media activities.

From these studies, one can conclude that earned media has an impact on brand awareness, purchase intention, sales and customer satisfaction. Thus, earned media is an effective marketing communication strategy. But, since companies have no direct influence on earned media, it is important to try to understand what causes earned media activity.

As mentioned in the introduction, consumers are more and more aware of sustainability (Kassa, 2017). Besides this, corporate social responsibility has become a hot topic in the media (Voinea & Fratostiteanu, 2019). In addition, media write massively about issues around the climate (Reformatorisch Dagblad, 2019). Because of these findings it is expected that sustainable beer brewing is a positive influence on the earned media activities of a small beer brewery. Therefore the hypotheses of this study are as follows:

- H1a:** Sustainability has a positive influence on the earned media activities of a small beer brewery.
- H1b:** There is a difference between the influence of sustainability in small beer breweries on earned social media vs. earned traditional media.



3. Method

To study the research question, a quantitative research method was used.

The research units of this research are small beer breweries (one to five employees) in the Netherlands. Ten sustainable and ten non-sustainable small beer breweries were gathered. Breweries were marked as sustainable whenever they claimed that sustainability is a part of their business vision. Their concerns about sustainability had to be visible on their website. Since there are many interpretations of the concept of sustainability, companies were only included in the research if their definition of sustainability corresponds with, at least, sustainability 1.0 from the Dyllick & Muff (2016) model. According to business sustainability 1.0, business objectives remain focussed on economic goals, but sustainability concerns are considered in decision making.

The twenty breweries were selected using a random sample. Online, a list of all active beer breweries, brewery tenants, brewery rentals and workshop breweries in the Netherlands is presented (Nederlandse biercultuur, 2018). The list is ranked based on year of establishment. Every single brewery was ranked from 0 to 656. By using a random number generator a number was picked. It was checked whether the brewery met the requirements of a small beer brewery. If it did, the brewery was placed in one of the two categories: sustainable or non-sustainable. This process was repeated until both categories consisted of nine or ten breweries. Table 1 shows the twenty breweries that were used in this study.

Table 1.
Breweries with their corresponding sample number

Sustainable	Non-sustainable
212: Brouwerij Pronck (2014)	425: Rakker Bierbrouwerij (2016)
181: Stadsbrouwerij Wageningen (2013)	332: Penose Brouwerij (2015)
331: Oproer brouwerij (2015)	199: Antonius Brouwerij (2014)
218: Bruut bier (2014)	343: Toebes Brabantbier (2015)
584: Bierkout (2018)	573: Batjes bier (2018)
51: Brouwerij de fontein (2003)	161: De volle maat (2013)
78: Ramses Bier (2007)	537: Heeren van Borculo (2017)
483: De Groene Glazenmaker (2017)	595: Brouwerij Bûsdoek (2018)
346: Vet & Lazy (2015)	164: Het roze varken (2013)
96: Wispe brouwerij (2009)	258: Het brouwdok (2014)

As mentioned before, earned media consists of two parts: traditional earned media and social earned media. Traditional earned media are mentions of the firm in all official Dutch news sources. Traditional earned media was measured using the database LexisNexis. The search term that was used, is the name of the brewery in combination with "brouwerij". An example of a search page in LexisNexis can be found in appendix 1. The publication date filter was set at 'previous five years until now'. A traditional media mention was counted whenever the company was mentioned in the title, in the article text or in both. If the brewery was mentioned more than one time in an article, it was still counted as one mention. For every mention, it was checked whether it actually referred to the relevant brewery.

Social earned media mentions can be found on many different platforms. Due to time restrictions of this study, social earned media mentions were only analysed on the social media platforms Twitter and Facebook. The search terms that were used are the exact names of the breweries (appendix 2). Every tweet or Facebook post from the previous five years until now was counted. Posts or tweets from the brewery itself were left out of consideration.

3.1 Data analysis

The data are quantitative discrete variables and the dependent variables are ratio scaled in SPSS. The independent variable is nominal scaled. Multiple variables were coded in SPSS:

- unsustainable or sustainable (independent variable);
- year of establishment (independent variable);
- the number of mentions in traditional media (dependent variable);
- the number of mentions on Twitter (dependent variable);
- the number of people that have rated the brewery on Facebook (dependent variable);
- the number of written reviews on Facebook (dependent variable);
- the number of posts on Facebook in which the brewery is mentioned (dependent variable).

To analyse if there is a significant influence of sustainability on earned media mentions (H1a) it was first tested if there is a difference between social media and traditional media regarding the influence of sustainability on these variables (H1b). To do this, the four social media variables (Twitter, Facebook 1, Facebook 2 and Facebook 3) were converted into one “social media” variable. Then, a multiple regression analysis was done on both the dependent variables “social earned media” and “traditional earned media”. The predictors in this regression are “sustainability” and “year of establishment”. After the multiple regression analysis, a regression analysis with interaction effect was used to test if there is an influence of sustainability on earned media mentions, and if so, if there is a difference between social and traditional media. To be able to test the interaction effect, the dataset had to be restructured. With the use of VARSTOCASES the data was restructured so that there are 2 observations per beer brewery: “earned traditional media mentions” and “earned social media mentions”.

Besides the regression with interaction effect, a multiple regression analysis is applied on every individual variable to research which specific media types are influenced by sustainability. In the same regression it is tested if another independent factor influences the number of earned media mentions. “Sustainability” and “year of establishment” are added into the regression analysis as independent variables. Multicollinearity has been checked to show correlations between the two predictors. VIF has a value of 1.169, so this is not problematic.

To guarantee validity and reliability, the same database (LexisNexis) was used to check appearances in traditional media for every beer brewery. When collecting data on social media, the same search method was used for every single brewery, as described above.

4. Results

First the results of the multiple regression analysis on earned social and traditional media will be presented to get a general overview of the difference between these two variables. To strengthen the results, a regression with interaction effect will be presented in order to test if there is a significant interaction effect between sustainability and media type.

H1b: There is a difference between the influence of sustainability in small beer breweries on social earned media compared to traditional earned media.

4.1. Multiple regression analysis on earned traditional media and social media

The results in table 2 show that “year of establishment” and “sustainability” explain a significant part of the variance in “the number of earned traditional media mentions” (*adjusted R² = .683; F (2,17) = 21.487; p < .001*). The regression analysis shows that “year of establishment” is a significant predictor of the number of earned traditional media mentions (*B = -3.639; t (17) = -5.307; p < .001*). Normally, this is interpreted as: if year of establishment increases with 1, the number of traditional media mentions decreases with 3.639. But, the data is gathered from the previous five years until now and some beer breweries do not even exist five years so this *B*-value must be interpreted with caution. What can be said is that “year of establishment” has influence on the number of earned traditional media mentions.

“Sustainability” does not appear to be a significant predictor of the number of earned traditional media mentions (*B = 7.811; t (17) = 1.545; p = .071*).

For the dependent variable “earned social media mentions” the results in table 2 show that “Year of establishment” and “sustainability” explain a significant part of the variance in ‘*the number of earned social media mentions*’ (*adjusted R² = .286; F (2,17) = 4.797; p = .022*). The regression analysis shows that “year of establishment” is not a significant predictor of the number of earned social media mentions. (*B = 8.575; t (17) = 1.712; p = .052*).

“Sustainability” appears to be a significant predictor of the number of earned social media mentions (*B = 64.189; t (17) = 1.738; p = .050*). This result indicates that if a beer brewery changes from non-sustainable to sustainable, the number of earned social media mentions will increase with 64.189 mentions.

Table 2.
Multiple regression analysis

	Traditional media		social media	
	Year of establishment	sustainability	Year of establishment	sustainability
<i>B</i>	-3.639	7.811	8.575	64.189
<i>T (17)</i>	-5.307	1.545	1.712	1.738
Sig. 1-tailed	< .001	.071	.052	.050
<i>N</i>	20	20	20	20
<i>R²</i>	.683		.286	
<i>F</i>	21.487		4.797	

4.2 Regression analysis with interaction effect

To be able to test the interaction effect, the dataset had to be restructured. With the use of VARSTOCASES the data was restructured so that there are 2 observations per beer brewery: "earned traditional media mentions" and "earned social media mentions".

The results show that "year of establishment", "sustainability", "media type" and "sustainabilityxmediatype" explain a significant part of the variance in "the number of earned media mentions" (*adjusted R*² = .429; *F* (4,35) = 8.321; *p* = < .001).

Based on the results from the regression with interaction effect (table 3), it can be stated that for all traditional media 0.900 is the estimated difference due to sustainability (*B* = .900; *t* (35) = .035; *p* = .972). This result is not significant, which means that "sustainability" does not have a significant influence on the number of earned traditional media mentions.

The interaction effect in table 3 also shows that 70.200 is the estimated difference that is obtained by the combination of "sustainable" and "social media". Based on this, it can be stated that sustainability has a significant influence on social earned media (*B* = 70.200; *t* (35) = 2.037; *p* = .049). With these results, hypothesis H1b can be accepted: there is a difference between the influence of sustainability in small beer breweries on earned social media compared to earned traditional media.

Table 3.
Multiple regression analysis with interaction effect

	sustainability	Year of establishment	Media type	Sustainability x media type
<i>B</i>	.900	6.107	28.900	70.200
<i>T</i> (35)	.035	2.417	1.186	2.037
<i>N</i>	40	40	40	40
<i>F</i>	8.321	*	*	*
<i>R</i> ²	.429	*	*	*
Sig. 2-tailed	.972	.021	.244	.049

Dependent variable: total number of earned media mentions

4.3 Regression analysis on the individual social media variables

Twitter mentions

“Year of establishment” and “sustainability” explain a significant part of the variance in ‘*the number of mentions on Twitter*’ (*adjusted R2 = .401; F (2,17) = 7.362; p = .005*).

A multiple regression analysis (table 4) shows that “year of establishment” is a significant predictor of the number of Twitter mentions (*B = -3.970; t (17) = -2.129; p = .024*).

Normally this means that if the year of establishment increases with 1, the number of Twitter mentions decreases with 3.970. But, as mentioned before, the data is gathered from the previous five years until now and some beer breweries do not even exist five years. So, this *B*-value must be interpreted with caution. What can be said is that “year of establishment” is a significant influence on the number of Twitter mentions.

“Sustainability” is also a significant predictor of the number of Twitter mentions (*B = 29.484; t (17) = 2.145; p = .024*). This means that a sustainable small beer brewery is expected to have 29.484 more Twitter mentions than a non-sustainable small beer brewery.

Table 4.
Regression analysis Twitter mentions

		B	T (17)	Sig. 1 tailed	R2	F
Twitter mentions	Year of establishment	-3.970	-2.129	.024	.401	7.362
	Sustainability	29.484	2.145	.024		

Ratings on Facebook

“Year of establishment” and “sustainability” do not explain a significant part of the variance in ‘*the number of ratings on Facebook*’ (*adjusted R2 = .115; F (2,17) = 2.237; p = .137*).

A multiple regression analysis (table 5) shows that “year of establishment” is not a significant predictor of the number of people that rate the brewery on Facebook (*B = -2.227; t (17) = -.945; p = .179*). “Sustainability” does not appear to be a significant predictor of the number of people who rate the brewery on Facebook (*B = 24.164; t (17) = 1.391; p = .091*).

Table 5.
Regression analysis Facebook ratings

		B	T (17)	Sig. 1 tailed	R2	F
Facebook ratings	Year of establishment	-2.227	-.945	.179	.115	2.237
	Sustainability	24.164	1.391	.091		

Written reviews on Facebook

“Year of establishment” and “sustainability” do not explain a significant part of the variance in ‘*the number of written reviews on Facebook*’ (*adjusted R2 = .167; F (2,17) = 2.904; p = .082*).

A multiple regression analysis (table 6) shows that “year of establishment” is not a significant predictor of the number of written reviews on the brewery’s Facebook page (*B = -1.626; t (17) = -1.317; p = .103*). “Sustainability” does not appear to be a significant predictor of the number of written reviews on the brewery’s Facebook page (*B = 12.447; t (17) = 1.367; p = .095*).

Table 6.
Regression analysis written reviews Facebook

		B	T (17)	Sig. 1 tailed	R2	F
Facebook written reviews	Year of establishment	-1.626	-1.317	.103	.167	2.904
	Sustainability	12.447	1.367	.095		

Facebook posts

“Year of establishment” and “sustainability” do not explain a significant part of the variance in ‘the number of posts on Facebook’ (*adjusted R2* = .172; $F(2,17) = 2.974$; $p = .078$).

A multiple regression analysis (table 7) shows that “year of establishment” is a significant predictor of the number of Facebook posts in which the brewery is mentioned ($B = -.752$; $t(17) = -2.437$; $p = .013$). Normally this means that if the year of establishment increases with 1, the number of Facebook posts decreases with .752. But, as mentioned before, the data is gathered from the previous five years until now and some beer breweries do not even exist five years. So, this B -value must be interpreted with caution. What can be said is that “year of establishment” has significant influence on the number of Facebook posts in which the brewery is mentioned.

The variable “Sustainability” does not appear to be a significant predictor of the number of Facebook posts in which the brewery is mentioned ($B = -1.907$; $t(17) = -.838$; $p = .207$).

Table 7.
Regression analysis Facebook posts

		B	T (17)	Sig. 1 tailed	R2	F
Facebook posts	Year of establishment	-.752	-2.437	.013	.172	2.974
	Sustainability	-1.907	-.838	.207		

5. Conclusion

The first multiple regression analysis (table 2) and the regression analysis with interaction effect (table 3) were used to test whether sustainability has a significant influence on earned media mentions and if there is a difference between social and traditional earned media.

Based on the first regression, “year of establishment” is a predictor of the number of earned traditional media mentions. “Sustainability” is not a predictor for the number of earned traditional media mentions. Based on the regression on earned social media mentions it is concluded that “sustainability” is a significant predictor of the number of earned social media mentions. “Year of establishment” is not a predictor of the number of social media mentions. These results are somewhat surprising because it was expected that sustainability in small beer breweries would lead to more social and traditional earned media. But, the biggest predictor for earned traditional media is not sustainability but the year of establishment.

The results from the first regression are strengthened by the second regression with interaction effect. Based on the results in this test it is concluded that sustainability interacts with media type. It can be concluded that sustainability in small beer breweries leads to more earned social media publicity. It is not concluded that sustainability in small beer breweries leads to more earned traditional media publicity.

After it was confirmed that sustainability only influences social media, further testing was carried out to determine which social media types are influenced by sustainability. A regression analysis on each individual social media type was done and based on the results it is concluded that sustainability leads to more earned media mentions on Twitter. Sustainability does not lead to more ratings on Facebook, written reviews on Facebook or posts on Facebook in which the brewery is mentioned.

Looking back at the research question (*Does sustainability at small beer breweries lead to more earned publicity, and is there a difference between the effect of sustainability on earned social media publicity compared to traditional earned media publicity?*) and the hypotheses of this study, it can be concluded that sustainability at small beer breweries does lead to more earned media publicity, but only on earned social media. For earned traditional media, the biggest predictor is not sustainability but the year of establishment. In addition it can be concluded that the effect of sustainability on earned social media is only expressed via Twitter and not on Facebook.

6. Discussion

The results of this study complement the existing literature on sustainable beer breweries and earned media publicity, because earlier studies have not provided any conclusions about the benefits for small beer breweries to brew in a sustainable way. There is also no information about the influence sustainability has on traditional earned media compared to social earned media. Based on this study, starting small beer breweries should consider sustainable beer brewing to benefit from more earned media publicity. However, sustainable brewing will only result in more earned social media but not in more earned traditional media mentions.

A possible explanation for the results of this thesis is that sustainable beer breweries are a “new” phenomenon and thus distinguish themselves from breweries that have been known to people for many years. Because of this, people and media may find it interesting to write about these new sustainable beer breweries. This result may also be caused by the fact that the current social climate is strongly environmental- and climate driven (Schulte, 2019), so that sustainable beer breweries get more attention than other non-sustainable beer breweries that do not distinguish themselves in this way.

When considering sustainable beer brewing, it should be borne in mind that whenever more breweries start to brew in a sustainable way, the novelty and originality weakens and the effect of more earned media publicity may disappear.

6.1 Limitations

In this study, research units were collected using a random sample. During the data collection it became clear that the number of unsustainable beer breweries was in the majority. It took much more time to collect 10 suitable sustainable beer breweries than finding 10 non-sustainable beer breweries. Therefore, sustainable beer breweries had a greater chance of being included in the research than non-sustainable breweries. This causes a limited generalizability of the results. In addition, the generalizability is weakened by the small sample size of this study.

Due to time restrictions, only media mentions from the last five years are included in this study. This decision was made, because it was expected that one year would yield too little data and a period of ten years would result in too much data for the available time. That is why five years seemed like a good choice. However, the regression analysis showed that for some variables “year of establishment” appears to be a significant predictor. Therefore it can be possible that studies with a different time span will lead to different results.

In this study, the only social media platforms taken into consideration are Facebook and Twitter. This is limiting because these platforms are becoming less and less popular among the new digital generation. Social media platforms Instagram and Snapchat became more popular in the last years (Oosterveer, 2019). However, it is difficult to collect data from these two platforms.

Another limitation of this study is the fact that this data collection does not include data from an account that is protected. On both Facebook and Twitter, people can set their page to private which makes their messages not accessible to strangers. However, this is not considered very disadvantageous because it affects both the data of the sustainable beer breweries as well as the data of non-sustainable beer breweries.

The last limitation is caused by not recording the data annually. The regression analysis shows that “year of establishment” is a significant predictor of the earned media mentions for three of the five media variables (traditional media, Twitter and Facebook posts). But, the number of media mentions for all the variables are only recorded in total. This causes the problem that the Beta for “year of establishment” in the regression analysis gives a distorted value, because a number of breweries are only a few years old and the data is collected over a time span of 5 years.

6.2 Recommendations

Looking back at the limitations of this study, future studies should have a larger sample size to increase the generalizability and possibly lead to more significant results. Because of the small sample size of only 20 beer breweries it is already surprising that there are some significant outcomes, but if future research is done with more breweries it could possibly lead to more significant results.

Another recommendation for future research is that the year restriction of five years for the available data could be enlarged in order to collect more data and increase generalizability. Furthermore, it is recommended to record every media mention per year during the data collection. By doing this, it is prevented to get regression results for the predictor “year of establishment with distorted B-values which cannot be interpreted in the right way. If this data collection is sorted by year, it is interesting to see what the actual effect of “year of establishment” is.

The results state that sustainable beer breweries have a significant higher number of earned social media mentions than non-sustainable beer breweries. These sustainable breweries were selected based on the Dyllick and Muff model (2016). Breweries with a sustainability level of at least 1.0 were marked as sustainable, but no distinction was made between the gradations in sustainability. For further research it would be interesting to test whether there is a difference between extremely sustainable breweries or mild sustainable beer breweries regarding the influence of sustainability on earned media mentions.

At last, it is recommended to include more and especially other social media platforms in further research. Most adolescents use Twitter not as often as they used to and they have become very active users of the social media platforms Instagram and Snapchat. Facebook also becomes less popular. To increase the representativeness of this study it is important to collect data from people in this age category, and this should be done via the most used media platforms.







7. References

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Appendix

Appendix 1 Search term example in database LexisNexis

Uitgebreid zoeken		 Help Wissen
Het gebruik van deze dienst is gebonden aan Algemene Voorwaarden.		
Soort zoekvraag:	<input checked="" type="radio"/> Booleaanse operatoren <input type="radio"/> Vrij zoeken 	
Zoektermen:	<input type="text" value="de volle maat <u>AND</u> brouwerij"/>	Zoeken
Selecteer datum:	<input type="text" value="Afgelopen 5 jaar"/>	
Indextermen toevoegen:	<input type="text" value="Bedrijf Markt Onderwerp Geografisch Personen"/>	
Selecteer bron(nen):	Op soort bron: <input type="text" value="alle Nederlandstalige bronnen"/>  Op titel: <input type="text"/> Typ de eerste letters van een titel in, bijvoorbeeld Volkscrant » U kunt ook zoeken via Zoek bron of Bladeren in bronnen .	
Zoeken in sectie toevoegen:	Voeg zoektermen toe in een specifieke documentsectie Connector: <input checked="" type="radio"/> En <input type="radio"/> Of Sectie: <input type="text" value="Select a Segment"/> Term(en): <input type="text"/>	 Add to Search

Appendix 2 Search term example on Twitter



The screenshot shows the Twitter search interface with the following elements:

- Top left: A blue 'X' icon and the text "Geavanceerd zoeken".
- Top right: A blue button labeled "Zoeken".
- Section header: "Woorden".
- Option 1: "Al deze woorden" with a light blue background. Below it, a horizontal line and the example text: "Voorbeeld: wat er gebeurt · bevat 'wat', 'er' en 'gebeurt'".
- Option 2: "Exact deze woordgroep" with a light blue background. Below it, the text "Brouwerij de Fontein", a horizontal line, and the example text: "Voorbeeld: happy hour · bevat de exacte woordgroep 'happy hour'".
- Option 3: "Een van deze woorden" with a light blue background. Below it, a horizontal line and the example text: "Voorbeeld: katten honden · bevat ofwel 'katten', ofwel 'honden' (of beide)".
- Option 4: "Geen van deze woorden" with a light blue background. Below it, a horizontal line and the example text: "Voorbeeld: katten honden · bevat niet 'katten' en niet 'honden'".