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Link to original published version: <https://doi.org/10.1016/j.jbusres.2016.01.025>

Citation: Rutter R, Roper S and Lettice F (2016) Social Media Interaction, the University Brand and Recruitment Performance. *Journal of Business Research*. 69: 3096-3104.

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Social Media Interaction, the University Brand and Recruitment Performance

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Abstract

Commentators and academics now refer to Higher Education (HE) as a market and the language of the market frames and describes the sector. Considerable competition for students exists and the marketplace is global as institutions compete for students not just from their own country, but from the lucrative international market. Universities are aware of the importance of their reputations, but to what extent are they utilizing branding activity to deal with such competitive threats? Can institutions with lower reputational capital compete for students by increasing their brand presence?

This study provides evidence from research into social media related branding activity from 56 UK universities and considers the impact of this activity, in particular social media interaction and social media validation, on performance in terms of student recruitment. The results demonstrate a positive effect for the use of social media on brand performance, especially when an institution attracts a large number of Likes on Facebook and a high number of Followers on Twitter. A particularly strong and positive effect results when universities use social media interactively.

Social Media and Higher Education Institution (HEI) Branding

The purpose of this paper is to examine branding activity in relation to social media activity within the university sector. HEIs have adopted the language of the marketplace and the student-as-customer mantra, although not without some resistance (Whisman, 2009). Opponents of higher education (HE) marketing state that the business world morally contradicts the values of education (Hemsley-Brown & Goonawardana, 2007). Nonetheless, universities hold powerful and valuable positions in both society and the economy and few would argue that many universities have long-standing reputations. A growing emphasis on the university's role in the economy leads to the use of increasingly more commercial language and a rise in the uptake of the practices of branding and brand management. But, to what extent is brand related activity useful for a university?

This paper develops the higher education branding literature by considering the use and impact of social media within the university sector. Commercial brands quickly harnessed the benefits of the interactive communication that Twitter and Facebook offer. This paper examines the use of social media by UK universities and the impact that the use of social media has on a specific higher education target, namely student recruitment.

Discussion of the importance of branding in higher education traces back to the 1990s. Researchers now explore more advanced branding concepts within the higher education sector (Ali-Choudhury et al., 2009), such as brand as a logo (Alessandri et al., 2006), image (Chapleo, 2007), brand awareness, brand identity (Lynch, 2006), brand meaning (Teh & Salleh, 2011), brand associations, brand personality (Opoku, 2005) and brand consistency (Alessandri et al., 2006). Mazzarol and Soutar (2012) and Sultan and Wong (2012) discuss the competitive market of higher education and argue for the importance of image and reputation to frame a university's offering, while Curtis et al. (2009) postulate that HEIs feel

these market pressures in many different nations. Casidy (2013) provides empirical evidence to demonstrate that a clear brand orientation works to a university's advantage. Her research reveals that students' perception of a university's brand orientation significantly relates to satisfaction, loyalty and post-enrolment communication behavior.

Social media increasingly represents an important part of a brand's communication strategy (Owyang et al., 2009). Online advertising is relatively inexpensive (Cox, 2010) and recent literature suggests that whereas once social media (wikis, blogs, and other content sharing) was an afterthought to brands (Eyrich et al., 2008), now social media represents a phenomenon which can drastically impact a brand's reputation and in some cases survival (Kietzmann et al., 2011b). This shift in emphasis from traditional brand communication to the use of social media often leads to positive outcomes for the brand, particularly in the case of co-creation of content between consumers and brands, and enables brands to reach new consumers. Although organizations know about the performance benefits of social media adoption and integration, research suggests that brands are unsure of how to manage their social media strategy and in turn achieve positive outcomes (Hanna et al., 2011). The higher education sector is no exception, with confused social media campaigns and misaligned strategies which ultimately hinder the potential for cultivating relationships with potential students (Constantinides & Zinck Stagno, 2011).

Twitter has an inextricable link with brands, and this link makes it a valuable social platform for brand communication measurement. Twitter generally represents an honest and at times brutal feedback system, with offline word of mouth becoming online word of *mouse*, where brands engage with consumers and consumers actively question, challenge and promote brands. Asur and Huberman (2010) postulate that the social media buzz on Twitter can predict future performance outcomes. Such predictive and causal models still need testing

within the higher education sector. Students today are more brand-savvy than previous generations (Whisman, 2009). Students are amongst a demographic that openly affiliates with a variety of consumer brands, showing their support by following organizations and their brands on social media or by becoming members of brand communities. Kurre et al. (2012) consider how social media impacts on the look and feel of higher education and for “creating communities of learners where education and contemporary culture intersect.”(p.237). Kurre et al. (2012) also report that difficult times lie ahead for many institutions, as they have very similar services delivered in very similar ways. Can universities mitigate the threat of increased competition and engender liking and loyalty from the student body (and therefore improve institutional performance) with branding activity?

HEIs as Corporate Brands

Within the higher education sector, studies examine the brand architecture of universities (Hemsley-Brown & Goonawardana, 2007) as well as the rebranding of universities to better position themselves in the marketplace (Brown & Geddes, 2006). The recent attempt to rebrand Kings College, London demonstrates the controversy and opposition that still surrounds these types of activities (Dearden, 2014). Research details the similarities between HE and the operations of commercial business (Bunzel, 2007; Hemsley-Brown & Goonawardana, 2007; Melewar & Akel, 2005). As with commercial brand management, the development of a distinctive brand helps to create a sustainable competitive advantage in the HE sector (Aaker, 2004; Hemsley-Brown & Goonawardana, 2007).

Lowrie (2007) remarks that the service orientation of higher education, particularly the intangibility and inseparability of education, make branding even more important than for organizations that make physical products. Roper and Davies (2007) argue that universities are corporate brands due to the multiple stakeholders that they need to engage with and,

again, their service industry orientation. Corporate branding is the most appropriate branding orientation for HEIs to establish differentiation and preference at the level of the organization rather than at the level of individual products or services (Curtis et al., 2009), many of which have similar or identical titles (consider degree programmes or individual modules). The corporate brand operates across borders and Kurre et al. (2012) discuss how higher education disassociates with geographic limitations. As well as recruiting students globally and delivering courses through multiple channels (such as face-to-face, online, and distance learning) to students in disparate geographies, institutions are also opening sites and offices overseas. For example, a walk through the Knowledge Village in Dubai involves passing buildings belonging to American, British, Indian and Australasian universities.

Corporate branding suits increased social media activity, as the corporate brand should encourage permanent activity and interaction, not the one-off promotions or specific marketing programmes of a transaction based approach. The idea of belonging aligns with the corporate branding approach (Curtis et al., 2009). Unlike other purchase decisions, a student signing up for a degree is effectively signing up for a lifelong relationship with the university, as they will always have that university's name linked with their own. Like other corporate brands, universities are now more accountable to their publics. Key income providers, such as the Higher Education Funding Council (UK), measure and report university performance, and newspapers provide league tables of performance data and rankings for their readers.

Hypotheses Development

Twitter provides real-time feedback from customers to the brand, particularly regarding their experiences, thoughts and questions. Asur and Huberman (2010) conclude that Twitter can predict future performance outcomes, providing a model to measure the rate of social

media buzz. Davis and Khazanchi (2008) seek to confirm a link between DWOM and performance, by examining the effect of DWOM on product sales. They conclude that a positive, statistically significant relationship exists. In contrast, Cheung and Thadani (2010) see the literature as fragmented and inconclusive; suggesting the need for further empirical research, aligning with Weinberg and Pehlivan's (2011) call for more research to show a return on investment for social media activity. An intriguing question for the university brand is to ask whether a relationship exists between social media use and brand performance.

Constantinides and Zinck Stagno (2011) suggest that social media is a particularly important higher education recruitment tool to reach and attract future students. Penetration of social media is extremely high among potential students, typically between 15 and 19 years old; members of the Millennial generation (Liang et al., 2010); extremely technologically savvy and immersed within social media. Barnes and Mattson (2009) find that a high proportion of HEIs use social media, and particularly Twitter and Facebook, albeit with varying degrees of proactivity, in their recruitment activities. Twitter and Facebook represent the largest portion of social media use in the UK with approximately 5 million (eMarketer, 2014) and 8.2 million (eMarketer, 2013) active Millennial users respectively. Given that previous research (Constantinides & Zinck Stagno, 2011) indicates that prospective students are predominantly seeking information when using social media, how does the level of proactive use of social media affect performance? This question leads to the first hypothesis:

H1: The level of HEI initiated social media activity (on H1(a) Twitter and H1(b) Facebook) positively and significantly relates to student recruitment performance.

The level of positive attention and endorsement measures the popularity of a brand on social media (Romero et al., 2011). Rapacz et al. (2008) explain that consumers wish to validate a brand preference with rational support (for example, by following a brand's Twitter feed or viewing and liking a brand's Facebook page) as they require further exposure to brand information to increase confidence in an initial decision. Previous research also suggests that validating a brand on social media affects consumers' purchase intentions (Muk, 2013). Therefore, the second hypothesis (see Figure 1) is:

H2: The level of HEI social media validation (on H1(a) Twitter and H1(b) Facebook) positively and significantly relates to student recruitment performance.

Figure 1 here

Social media is useful to reveal how consumers connect to those brands that they have an interest in (Davis et al., 2014). These associations attempt to satisfy a need (Yan, 2011) and lead to varying degrees of future engagement with brands. Thus a brand can strengthen its relationship by providing interaction and participation; allowing external audiences to identify, engage with (Ind & Bjerke, 2007) and advocate brands (Carlson et al., 2008). As well as building a connection with users, brands must also foster a sense of belonging through interaction and engagement, where engagement can take the form of content which tailors to specific groups of users (Lasorsa et al., 2012), for example, prospective students. Foulger (2014) explains that successful HEIs utilize social media as a traditional marketing funnel: they “acquire potential students [followers], engage with them [interaction], drive them to submit inquiries and applications [links], and finally convert them into enrolments.” Therefore, a brand must consider the level of engagement (interaction) and external content (website links) with its audience (followers) in mind. Therefore the third hypothesis (Figure 2) is:

H3: The type of tweets (of H3(a) direct user interaction and H3(b) website links) will significantly moderate the relationship between social media followers and student recruitment performance.

Figure 2 here

Some researchers argue that traditional brand management methods, initially meant for use in a capitalist marketplace, are not suitable within the HE context (Jevons, 2006; Ramachandran, 2010). Other research suggests that the ranking of top universities does not change significantly from year to year (Bunzel, 2007), reinforcing the opposition to branding further. Within the UK, 24 leading universities belong to the Russell Group, formed in 1994. The Russell Group universities are well-established research-intensive institutions with strong reputations. Collectively, they symbolize academic excellence, selectivity in admissions and a degree of elitism that the less influential universities try to compete against. This reputational grouping of universities leaves us with an interesting question. Can overt branding activity improve the status of an HEI and make up some of the reputational shortfall of a less prestigious university over an older, better established institution? This leads to the fourth hypothesis (Figure 3):

H4: The level of social media use (number of H4(a) tweets, H4(b) direct user interactions, H4(c) website links on Twitter and H4(d) Facebook Talking About) will be significantly different between Russell group and non-Russell group HEIs.

Figure 3 here

Methodology

Research Design

The aim of this research is to test the relationship between social media variables and higher education recruitment performance. The researchers selected a range of UK higher education institutions to monitor and analyze their social media activity. Data was extracted from each HEI's social media feed manually (likes, followers, talking about) and then with automated web scraping software to download each tweet by each HEI. The second step was to analyze the content of all Tweets and the number of User Interactions (any tweet which interacts with one or more other Twitter user accounts) and the number of tweeted links. The third step was to explore the data visually and test for normality, linearity, homoscedasticity and independent errors. The fourth step was to use structural equation modelling (SEM) to test the holistic model. The final step was to explore the differences between University groupings.

Sample

The initial sample consists of 60 HEIs within the UK. These HEIs cover a broad range of performance from the top to the bottom of a research-based league table of Russell group and non-Russell group universities (RAE, 2014). A box plot checks for outliers. The London School of Economics, Oxford University and Cambridge University are outliers in this dataset and their removal reduces the sample size to 57. Middlesex University does not have any data for Facebook Talking About, the removal of this university reduces the final sample size to 56 HEIs.

Measures and Data Collection

The research collects and analyzes secondary data found on 2 popular social media outlets; Facebook and Twitter. Social media interaction and social media validation are key measures of social media use. The total number of tweets by the HEI and the number of Facebook interactions in the previous seven days quantify social media interaction, in line

with previous studies (Asur & Huberman, 2010; Nguyen et al., 2012). The data collection was during the second week of November as a high number of UK HEIs have open days during the first semester. Open days coincide with a peak in social media activity with HEIs attempting to nurture and convert prospective student interest into applications. Social media users do not just represent prospective students, but university marketing activity in this period focuses on driving recruitment and targets this specific group of social media users. This data gives an indication of the magnitude of the HEI's communication over these two social media platforms. The number of Twitter followers and the number of Facebook likes for the HEI Facebook page measure social media validation. To ensure consistency across the sample, the researchers collected student recruitment performance data (UCAS, 2014) for each of the 56 HEIs, along with their social media (Twitter and Facebook) metrics at a single point in time. Table 1 summarizes the variables in this research.

Table 1 here

Measures of HEI performance include *inter alia* research output and citations, graduate prospects and student satisfaction. For this study, student demand per place acts as a measure of HEI performance. One measure of reputation is how selective an institution can be in terms of student recruitment, with metrics such as the number of applications per place available (Locke, 2011). In the UK, the Universities and Colleges Admissions Service (UCAS) is the central processing organization for applications to undergraduate degree programs, their data is publicly available. This dataset enables a linkage between institutional characteristics and student applications, offers and acceptances. (Holmström, 2011) acknowledges the data as rich and remarkably complete. Therefore in this study, UCAS demand data measures student recruitment performance for each HEI.

Data analysis

The researchers test the data for normality, linearity, homoscedasticity and independent errors. The assumptions hold and the results of the tests suggest that the data are suitable for further analysis (Field, 2009). Further analysis generates scatter plots between key independent variables and the dependent variable. Visually, all key independent variables appear to correlate positively to performance. Data suggest that converting people into Twitter followers helps demand and the slightly steeper curve for Facebook likes highlights the synergy between platforms (see Figure 4).

Figure 4 here

Structural equation modelling (SEM) provides a full overview of relationships between the individual independent variables, moderator variables and a single dependent variable. SEM is an analysis technique that allows the estimation of a dependent variable based on multiple continuous variables and supports multiple moderators.

The Partial Least Squares (PLS) modelling approach offers several key advantages (Wilson, 2010). First, PLS provides better convergence behavior for smaller sample sizes (Haenlein & Kaplan, 2004); with a sample size of 56 institutions, a PLS approach detects R^2 values higher than 0.5 at a 5% significance level for a statistical power of 80% (Henseler et al., 2014). Second, the method is ideal for research which explores relationships between multiple factors and it is particular easy to interpret effects and interaction (Vinzi et al., 2010). Third, unlike covariance-based SEM, normality is not a prerequisite (Henseler et al., 2009). Fourth, PLS substantially reduces the effects of measurement error and bootstrap resampling helps to assess the stability of estimates and interaction effects (Chin et al., 2003). In spite of these benefits, PLS has critics (Rönkkö & Evermann, 2013). However, recent literature demonstrates the method to be comparative to covariance-based SEM (Hair et al.,

2012; Henseler et al., 2014). This research uses the Smart PLS software package (version 3) for empirical analysis (Ringle et al., 2005).

Single indicators test relationships in the model (Henseler & Fassott, 2010). The observation of the standardized path coefficients and their significance levels (Chin, 1998) assesses whether predictors have significant effects on the dependent variable. The first model tests the main effects and all direct effects are significant ($p < .05$). The predictive power of the model is good, $R^2 = 45.4\%$. The second model tests the interaction effects using the product term approach, which (Henseler & Fassott, 2010) consider superior to the group comparison approach. With the addition of the interaction terms, the variance explained increases, $R^2 = 58.6\%$. Figure 5 shows the results of the research model.

Figure 5 here

To ascertain whether the addition of the moderators makes a meaningful contribution to the model, the calculation of Cohen (1988) F^2 determines the effect size contribution. The difference in R^2 between the main model (45.4%) and interaction model (58.6%) shows the overall effect size F^2 of the interaction. Values of 0.02, 0.15, and 0.35 are small, moderate, and large effects respectively (Cohen, 1988). In this case, the addition of the moderator demonstrates a moderate to large effect (0.30).

Analysis reveals that Facebook Talking About significantly predicts UCAS Demand, thus supporting hypothesis H1(b). HEIs that are more talked about have higher demand. This result holds true for the number of Twitter Followers and the number of Facebook Likes, although Followers more strongly predicts performance than Likes. This supports hypotheses H2(a) and H2(b). In contrast, Twitter Tweets do not significantly predict UCAS Demand and this result shows no support for hypothesis H1(a). However, the number of User Interactions and Links on Twitter significantly and positively moderates the

relationship between Facebook Likes and performance. In other words, well-liked HEIs on Facebook can positively influence their performance through User Interactions and through assisting these users by pointing them to external websites. This result supports hypotheses H3(c) and H3(d). However, only User Interactions significantly and positively moderate the relationship between Twitter Followers and UCAS Demand. This result supports hypothesis H3(a), but not H3(b). This finding means that increasing Followers and User Interaction contributes to increased performance, but linking users to external websites does not. Table 2 shows the hypotheses testing results.

Table 2 here

Difference between University Groupings

Finally t-tests assess the differences between the number of tweets and types of user interaction and posted links. Table 3 highlights the outcomes.

Table 3 here

No significant difference exists in the number of Twitter Tweets by Russell group ($M=1782.44$, $SD=1043.99$) and non-Russell group HEIs ($M=1124.44$, $SD=968.44$), $p = 0.071$. This result shows no support for hypothesis H4(a). This outcome suggests a similar average amount of social media activity by both groups of HEIs.

However, a significant difference exists in the number of Twitter Interactions for Russell group ($M=654.44$, $SD=350.07$) and non-Russell group HEIs ($M=353$, $SD=274.82$), $p < .05$. This outcome suggests a significantly different average number of Twitter Interactions between groups. This result supports Hypothesis H4(b). On average, Russell group institutions interact more with their Twitter Followers than non-Russell group institutions.

Table 4 gives examples of the types of tweets from the most interactive Russell and non-Russell group HEIs.

Table 4 here

A significant difference exists in the number of Twitter Links for Russell group ($M=796.88$, $SD=484.07$) and non-Russell group HEIs ($M=376.94$, $SD=292.04$), $p < .005$. This outcome suggests a significantly different average number of Twitter Links between groups.

Therefore, this result supports Hypothesis H4(c). On average, Russell group institutions provide more external links on Twitter than non-Russell group institutions. Table 5 gives examples of some of these links.

Table 5 here

No significant difference exists in the number of Facebook Talking About by Russell group ($M=326.33$, $SD=222.31$) and non-Russell group HEIs ($M=179.06$, $SD=30.08$), $p = 0.09$.

This result shows no support for hypothesis H4(d). This outcome suggests a similar average amount of being talked about on Facebook by both groups.

Discussion and Conclusions

The findings lead to several significant theoretical, strategic and managerial implications. First is the importance of the validation of the brand. Barnes and Mattson (2009) report that universities embrace the use of social media in their branding activities, particularly in their recruitment initiatives. At its most basic, this research highlights that establishing a high number of Twitter followers is a strong predictor of student recruitment success. Twitter followers are a proxy for the brand strength or the reputation of the university brand. Students endorse the university by following the Twitter feed or by liking the Facebook posts.

Similarly, the younger consumer demographic validates commercial brands by indicating a preference for and providing an endorsement of the brand (Rapacz et al., 2008).

Second is the importance of specific types of tweets. This research demonstrates that the use of social media alone is not necessarily a positive branding activity for universities. The findings highlight that the number of tweets from a university does not significantly predict recruitment success. This means that tweeting a large number of messages is not an predictor of performance; instead the content and types of tweet are more important, which concurs with (Rodriguez et al., 2012) study.

The real brand benefit occurs when a university uses social media interactively (Hall-Phillips et al., 2015; Kim & Ko, 2012). This research shows that fostering relationships with consumers who endorse the brand is key to the successful use of social media. The literature suggests that consumers follow brands that they like, which acts as an endorsement. Brands can then engage and interact with these consumers to reinforce their endorsement and foster a relationship. The added benefit of forming and developing these relationships within social media is that the communications are public and are easily taken up by others, for example by re-tweeting. These tweets and re-tweets further endorse the brand in the eyes of those users who are not directly involved in the interaction. A multiplying effect exists for the university that effectively engages with social media. The responsiveness of the brand to consumers is another aspect of social media interaction, where universities that reply quickly and helpfully to questions and statements generate better engagement with followers and potential students. Again, countless other potential students can witness and pass on this positive interaction. The findings of this research indicate that universities that interact more with their followers achieve better student recruitment performance than universities that fail to interact, even when potential students prompt them to do so. Applying Herzberg's (1966) motivation-

hygiene theory, if a student poses a question to a university and receives a response, they may feel neither satisfaction nor dissatisfaction. However, if no response is forthcoming, the student may experience dissatisfaction. This lack of response in turn can affect their decision to apply to that university.

Third, Russell group universities interact with their followers more than non-Russell group HEIs. Although no significant difference exists in the number of tweets from Russell and non-Russell group HEIs, closer examination reveals a difference in the content of the tweets. Russell group HEIs predominantly tweet links to direct their followers to news and information on their own website, keeping followers closely linked to their brand. Non-Russell group HEIs, however, tend to tweet more external brand links, for example to scientific articles within newspapers, which push their followers away from the HEI's internally controlled brand experience. Further, the findings indicate a definite social media validation advantage to being in the Russell Group of Universities. Although over the general HEI population, interaction appears important to all HEI's recruitment performance, Russell group institutions interact more with their Twitter Followers than non-Russell group institutions. This result may appear surprising, given a general assumption that newer universities are more proactive in embracing social media platforms. However, in general, Russell group institutions have higher levels of social media validation, for example, more Followers on Twitter and Likes on Facebook, which means that potentially they have more opportunities to interact with their followers than non-Russell group institutions.

Fourth, the combination of validation (likes and followers) and interaction highlights that social media can effectively predict future events (Asur & Huberman, 2010). These findings agree with previous studies and show that social media can predict demand, as HEIs with more social media validation have higher levels of student recruitment demand. However,

these findings extend previous studies (Tuškej et al., 2013) by incorporating proactive social media activity to build brand relations, that is HEI interaction with its followers and likers. For example, simply responding to a potential student's question can make a difference to brand perception. These user interactions explain a significant proportion of extra positive variance, which influences HEI recruitment demand. This finding is important given that interaction can be a competitive advantage, particularly when a prospective student's choice is close between two or more similar institutions; as just responding at all could prove to be the recruitment difference between similarly rated institutions. As social media interactions are publicly viewable and retweetable, thousands of prospective students can potentially view a single positive interaction (Chang et al., 2015). *Ceteris paribus*, if a university is equally well validated, interaction or a lack of interaction can influence recruitment demand. This effect, compounded over many students and years, can lead to a HEI having a larger number of higher quality students to choose from each year, and indeed create reputational differences over time in league table positions, as better candidates filter through their institution. Therefore, this study provides a contribution to the debate between social media as a purely predictive tool, versus social media as a causal mechanism.

Fifth, users with multi-channel access can create synergy between platforms, as Gyrd-Jones and Kornum (2013) report. The model shows the varying degrees to which the social media platforms and their metrics interact with each other as well as the relative importance of each for student recruitment. This research highlights the synergy and high levels of variance explained when incorporating two of the largest social media platforms, and emphasizes the fluid nature of social media usage by students online. A large difference in means exists between Russell and non-Russell group HEIs' Talked About on Facebook, but the mean is not significantly different overall. As Facebook Talking About accounts for one of the largest amounts of variance alone, HEIs should monitor this platform for spikes in

Being Talked About, to encourage validation [following], to engage [interaction] and to drive the submission of inquiries and applications [links], which are the key stages in the social media recruitment funnel (Foulger, 2014).

Sixth, does the branding activity of an institution make up for an inferior reputation? The findings show that universities with lower league table positions cannot rely on social media branding activity to raise performance to the level of an institution with a much higher reputation. However, all HEIs that interact responsively with their followers perform better than their less responsive counterparts, whether they are a Russell group university or not. Increased use of social media and more interaction with students, including directing them to recruitment material, all help to increase recruitment performance against a less active institution with a similar reputation (Kietzmann et al., 2011a). Compounded over many students and many years, this increased interaction could help a university to secure a higher league table position.

Seventh, the findings of this paper demonstrate that social media activity burnishes the corporate brand of an HEI. Mattes and Milazzo (2014) report the importance of students' emotional commitment to the HEI brand. This paper shows that social media can help to build an HEI's corporate brand. Social media interaction prior to student recruitment fosters an early sense of belonging to the university. As stated earlier, branding activity and the treatment of HEIs as brands is not without its critics. Ongoing communication and interaction with a corporate brand is not unusual to the contemporary student. The Millennial generation expect fast and direct interaction from the outset of the recruitment and application process and universities are having to respond and adapt or abandon their traditional marketing and branding approaches.

Finally, the study contributes to branding and marketing research within the higher education sector. Branding within this sector is increasingly important, as universities compete more aggressively for high quality staff and students by adopting more tools and techniques from the corporate sector.

Limitations and Future Research

Social media validation on Twitter and Facebook predicts UCAS demand, whilst social media activity (namely interaction), either increases demand, or reflects the underlying qualities of a HEI that also predicts student demand. Therefore, in order to verify the interaction's causal effect, further studies should isolate the effect of interaction alone.

This UK based study considers social media use and student recruitment performance within universities at a single point in time. The results may not be generalizable to other countries and organizational contexts. Further research can therefore extend this study to HEIs in other countries to investigate the extent to which the higher education sector is embracing social media in its branding activity and performance. Longitudinal studies would enable the study of changes in brand management and performance over time to investigate the extent to which social media use continues to influence performance. This research focuses on the social media aspect of marketing communications of the HEIs and does not take into account textual data or consider other aspects that contribute to the brand and its personality or consistency throughout social media and its online presence, such as logo, graphics, color, shapes and layout of communications. As well as considering these additional elements of a brand's personality, future studies could also include an analysis of other social media channels such as blogs, shared photos and videos as part of an overarching story (Woodside et al., 2008). Consumer perception of the university brand personality and

its consistency across other media is therefore another interesting and useful area for further research.

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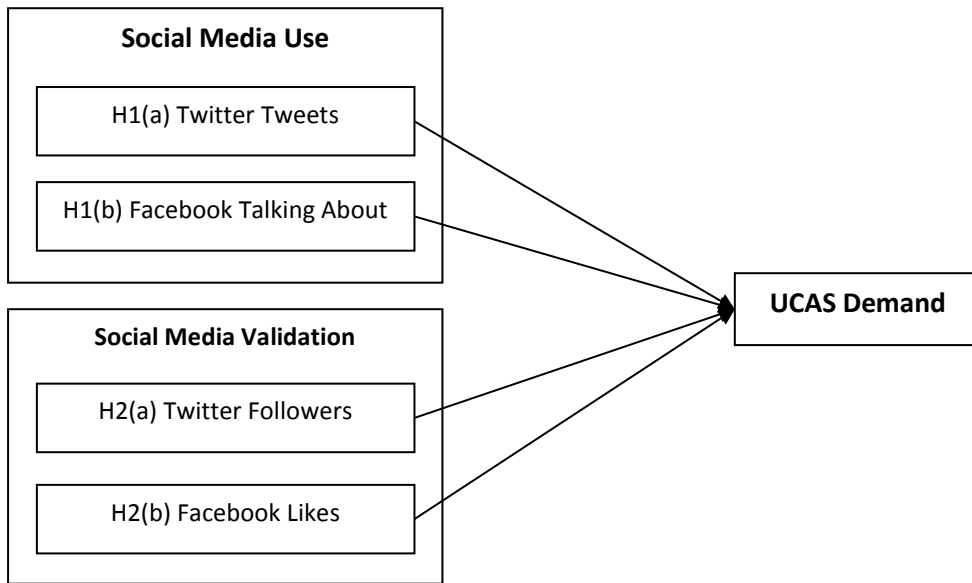


Figure 1: H1 and H2 - the relationship between social media interaction, validation and UCAS demand as student recruitment performance.

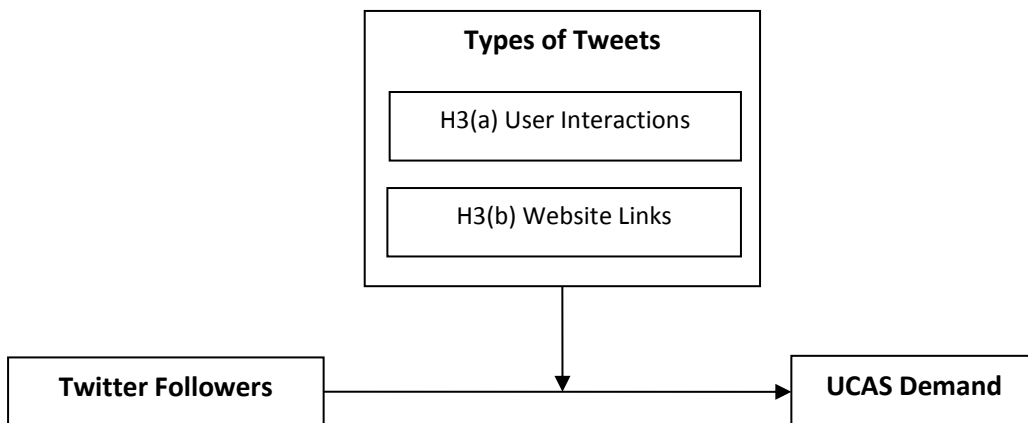


Figure 2: H3 - the relationship between social media interaction, validation and UCAS demand as student recruitment performance.

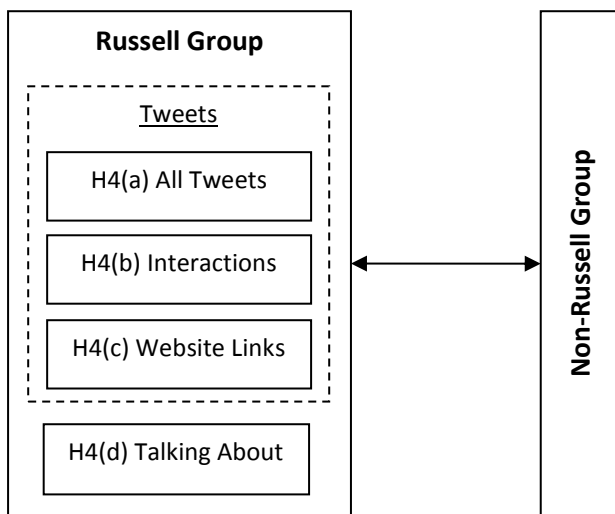


Figure 3 H4 – Comparing Russell and non-Russell group HEIs’ social media use.

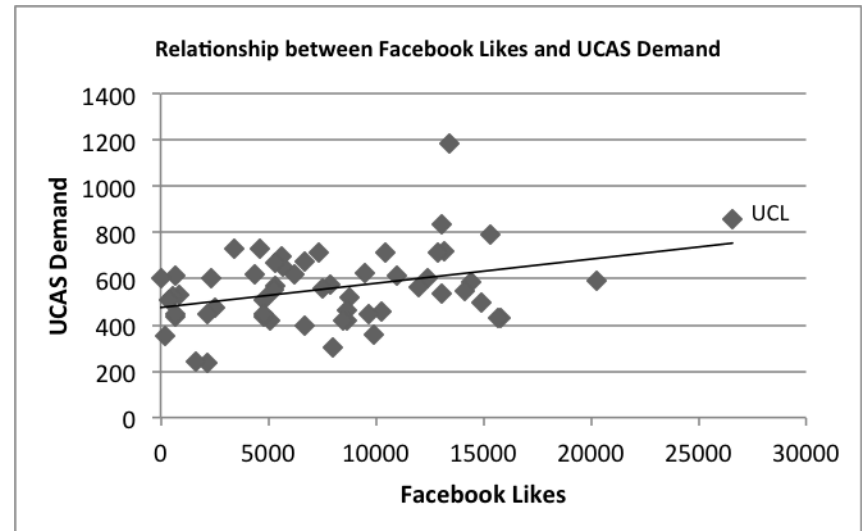
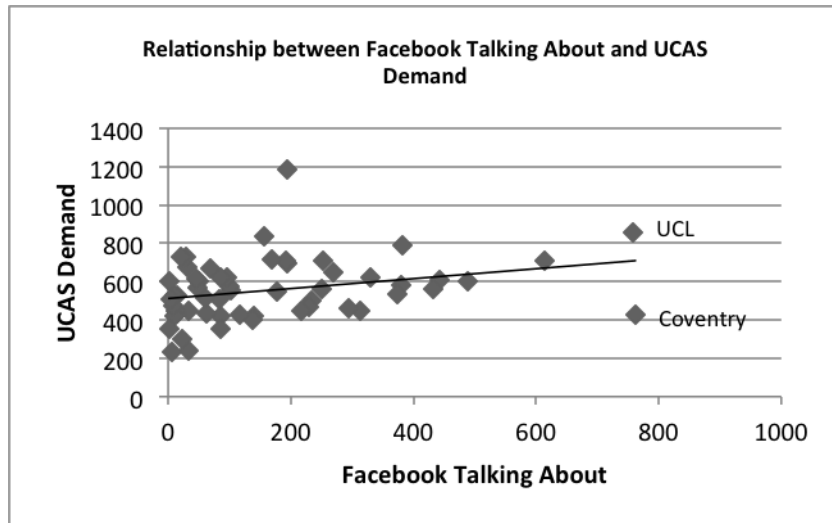
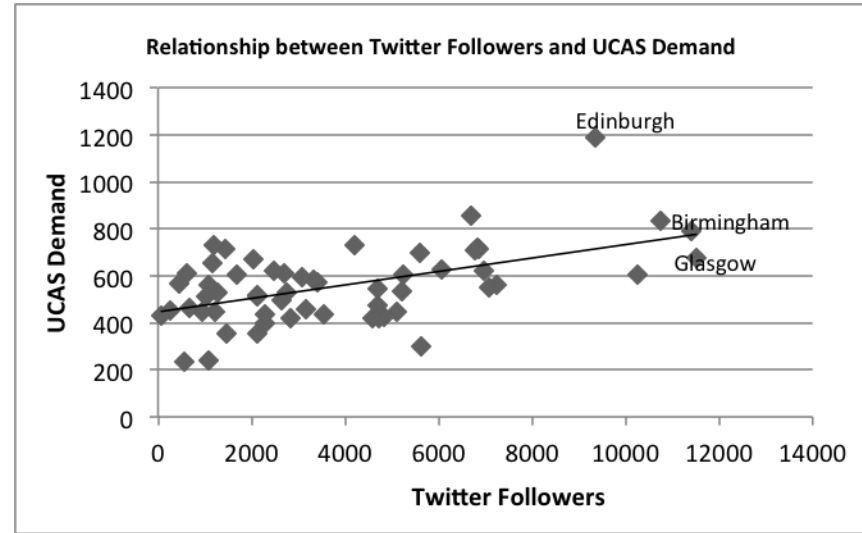
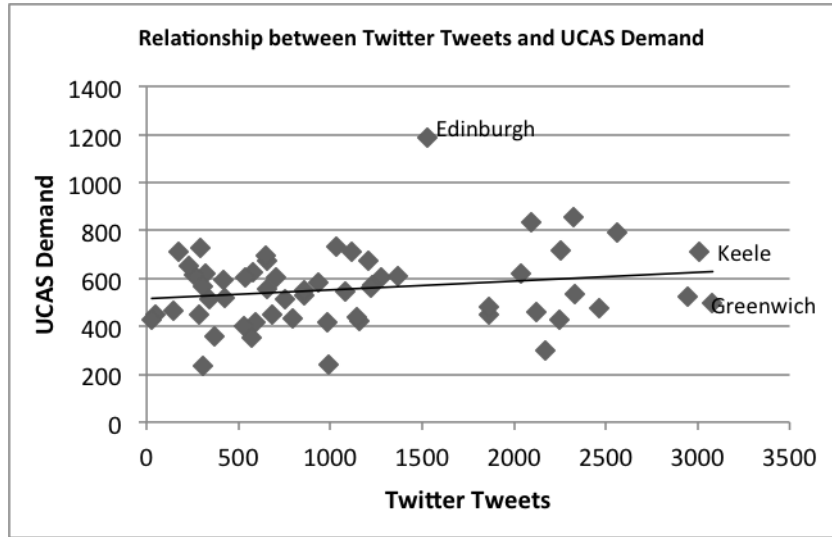


Figure 4: Relationship between each independent variable and the dependent variable (UCAS Demand).

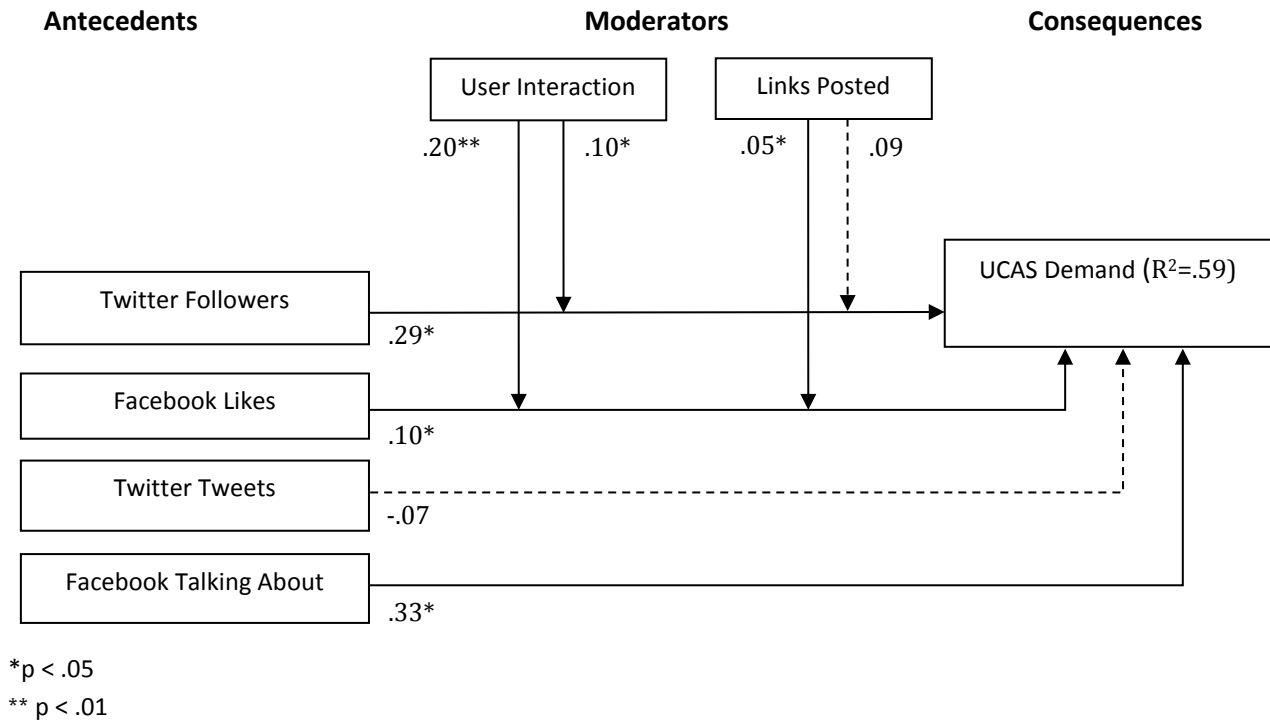


Figure 5: Full Model Relating Social Media to Demand.

Variable	Description and Measure
Social media use	<ul style="list-style-type: none"> • Twitter Tweets – the number of tweets from the HEI twitter account. • Twitter Interaction – the number of direct interactions with other Twitter users. • Twitter Website Links – the number of website links posted to Twitter. • Facebook Talking About – compiles from a variety of Facebook interactions that took place over the 7 days. These interactions include: liking an HEI; posting to a HEI Page; liking, commenting on or sharing an HEI’s post; responding to a question; RSVPing to an event, mentioning an HEI’s page in a post; and photo tagging an HEI’s page.
Social media validation	<ul style="list-style-type: none"> • Twitter Followers – the number of users that are following the HEI’s twitter account (with the HEI tweets shown in the user’s feed). • Facebook Likes – the number of users who like the HEI’s Facebook page.
Performance	<ul style="list-style-type: none"> • Student Recruitment Performance – UCAS provides data on the number of applicants to an HEI and the number of accepted places. Thus UCAS Demand per Place is an accepted measure of student recruitment performance.

Table 1: Variables

Hypotheses		Supported
H1(a)	Twitter Tweets → UCAS Demand	No
H1(b)	Facebook Talking About → UCAS Demand	Yes
H2(a)	Twitter Followers → UCAS Demand	Yes
H2(b)	Facebook Likes → UCAS Demand	Yes
H3(a)	Twitter Followers x User Interactions → UCAS Demand	Yes
H3(b)	Twitter Followers x Links Posted → UCAS Demand	No
H3(c)	Facebook Likes x User Interactions → UCAS Demand	Yes
H3(d)	Facebook Likes x Links Posted → UCAS Demand	Yes

Table 2: Hypotheses testing results

Hypotheses	Difference in number of:	Supported
H4(a)	Tweets	No
H4(b)	User Interactions	Yes
H4(c)	Links Posted	Yes
H4(d)	Talking About	Yes

Table 3: Hypotheses testing results

HEI	Tweet Examples
Edinburgh University	<p>“@user Which courses/schools are you interested in finding out more information on?”</p> <p>“@user Will pass your feedback on. Hope the new one you've ordered answers all your questions. If not, just drop us a tweet!”</p> <p>“@user Good to hear, glad they enjoyed the tour... and the food”</p> <p>“@user You'd be best to check with @EdinburghMBChB, they will have the latest information on UKCAT scores.”</p>
University of Greenwich	<p>“@user Brilliant news :) What are you applying for? Any queries get in touch :)”</p> <p>“@user We have a January intake for some postgraduate programmes, call us to find out what we're offering”</p> <p>“@user Congratulations! :)”</p>

Table 4: Example tweets by the most interactive HEI from each group

HEI	Tweet Examples
Edinburgh University	<p data-bbox="395 327 1193 427">“Studying, or thinking of studying, with the College of Medicine & Vet Medicine? There's so many ways to follow them! http://www.ed.ac.uk/studying/postgraduate/open-day”</p> <p data-bbox="395 472 1193 607">“RT @user New guides to help with your UCAS personal statement - timelines and worksheet PDFs now online at http://www.ucas.com/how-it-all-works/undergraduate/filling-your-application/your-personal-statement”</p> <p data-bbox="395 651 1193 786">“@user Glad you are interested in the Uni. Recruitment & Admissions should be able to help you with your query - http://www.ed.ac.uk/schools-departments/student-recruitment”</p>
University of Brighton	<p data-bbox="395 835 1193 902">“University supporting launch of cooling crash helmet to help prevent brain injury via KTP: http://tinyurl.com/cwwryz6 ”</p> <p data-bbox="395 947 1193 1059">“Scientists reveal diagnostic device to help reduce Diabetes related amputation, to coincide with National Diabetes Day: http://tinyurl.com/7lfc19b”</p> <p data-bbox="395 1104 1193 1196">“Access to professions bursaries for lower income students applying for architecture, pharmacy & teaching http://bit.ly/twOK59”</p>

Table 5: Example tweets by the most active linking HEI from each group