

Tracing the symbolic contours of a lifestyle  
product category using #hashtags

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Telfer School of Management  
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## Abstract

In the cultural anthropological tradition, we study how people in a group think about things that somehow go together. Using hashtags, we introduce a series of methods to trace the conceptual contours in social media conversations. Hashtags align ideas and reveal the latent structures and symbolic boundaries within the conversation, detecting the domains, features, and sources of tension in the network of diverse perspectives and experiences conveyed in the conversation. We demonstrate how distinctive and affiliated hashtags, Hashtag Network Maps, and ImageQuilts can connect and aggregate concepts and render the shared and divergent meanings that structure the space.

This research features a case study of #homegym tagged messages posted at the onset of the COVID-19 pandemic. Gym closures disrupted established exercise regimes, while lockdown and work-at-home orders blessed others with newfound time to work out – inciting a spike in demand for gym equipment sales. First, we demonstrate our approach using a sample of Twitter posts with the #homegym hashtag, gathered between March 15 to April 16, 2020, from a COVID-19 database and a selection of Instagram photos. Next, we study the people, messages, and images to map the subgroups, social dynamics, and ideologies that constitute the #homegym leisure space. Finally, we draw methodological and practical implications to assist marketing researchers and practitioners in harnessing social media conversations to derive timely insights.

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# Chapter 1

## 1 Introduction

*"All goods carry meaning, but none by itself...The meaning is in the relations between all goods, just as music is in the relations marked out by the sounds and not in any one note." (Douglas and Isherwood, 1979)*

Products often derive meaning based on their relation to "other products" that may be complements-in-use (Shocker, Bayus and Kim, 2004) or leveraged to support a particular social role or lifestyle (Holt, 1997; Levy 1959). The symbolically-consistent configurations of brands, products, and roles form "consumption constellations" (Chaplin and Lowry, 2010; Englis and Solomon, 1996) or "Diderot unities" (McCracken 1988, 1989; Song, Gonzalez-Jimenez & Belk, 2021) that implicate brand associations, product category meanings, social identity concerns, and self-identity (Fournier and Alvarez, 2019). For this reason, consumer culture theorists tend to adopt a more holistic and interactive view of how different social actors add meaning to goods and consumption experiences, leading Fournier (1998: 367) to remark, "consumers do not choose brands, they choose lives." Increasingly, consumers share details of their lives and consumption practices on social media, spreading ideas about brands and product categories that offer implications for business, policy, and everyday life.

### 1.1 Research Objective

This thesis contributes new methods of analyzing hashtags to understand how people share information about consumption possibilities in a lifestyle product category. Hashtags provide researchers with archival evidence that marks how they think about products and consumption. By focusing on consumers' categories (as opposed to industry-defined categories), priorities, and mindsets, marketers may uncover new opportunities for growth and innovation (Boegershausen, Borah, & Stephen, 2021; Arvidsson and Caliandro, 2016) by discovering meanings and social practices not previously known or understood.

## 1.2 Background and Purpose

The texts shared by consumers on social media offer researchers a "window into experience" (Bernard and Ryan, 1998; Kozinets, 2015) to reveal the symbolic contours of a lifestyle product category. This work builds on earlier works that leveraged the power of social media conversations to tap into the wisdom of consumer crowds to understand the "webs of significance" that support market pursuits (e.g., Arvidsson and Caliandro, 2016; Kozinets, Hemetsberger, & Schau, 2008). Furthermore, this research aims to advance the use of archival and publicly available texts to examine the "textuality of the market" (Humphreys, 2021), studying both the stories and topics shared online and the relationships amongst people and communities who create and spread ideas. Finally, by contributing new methods of analyzing hashtags and images, the thesis holds the promise to surface consumption symbols and practices left unnoticed by text mining approaches.

## 1.3 Research Questions

This research investigates the following methodological, theoretical, and managerial questions:

- (1) How can hashtags in social media be analyzed in new ways to understand the meanings of lifestyle product categories?
- (2) What insights can we derive into product complements, consumption constellations, and Diderot unities from a system of hashtags associated with a lifestyle product category?
- (3) What implications do the findings hold for marketing management of lifestyle product categories?

## 1.4 Context of Study

The thesis develops a case study of #homegym tagged messages posted at the onset of the COVID-19 pandemic when gym closures disrupted established exercise regimes, and lockdowns and work-at-home orders afforded others newfound time to work out. This invigorated attention

in the category, evidenced by a spike in demand for gym equipment sales, provides a timely and evolving context to explore. A demonstration of hashtag-based techniques uses a sample of Twitter posts with the keyword “home gym,” gathered at the onset of the pandemic between March 15 to April 16, 2020, from a COVID-19 database, along with a selection of Instagram photos tagged with the exact and related keywords. The approach draws inspiration from cultural domain analysis, morphology, and visual approaches, including photo-elicitation, projective techniques, and ZMET.

## 1.5 Definition of Key Terms

**Affiliated hashtag:** Following terms used in social network analysis, affiliation refers to membership or participation (Borgatti and Halgin, 2011). For example, sets of hashtags that appear together in a post or tag an image are affiliated.

**Complementary products:** "The products that are manufactured together, sold together, bought together, or used together. One aids or enhances the other." (AMA, 2022).

**Consumption constellation:** a group of "complementary products, specific brands, and/or consumption activities used to construct, signify, and/or perform a certain role." (Englis and Solomon, 1996)

**Departure good:** "Any purchase or acquisition that has no precedent in the consumer's existing complement of goods." (McCracken, 1988)

**Diderot effect:** "A force that encourages the individual to maintain a cultural consistency in his/her complement of consumer goods." (McCracken, 1988)

**Diderot unities:** "Products consumed in a group that have an internal consistency based on lifestyle." (Davis and Gregory, 2003)

**Distinctive hashtag:** Our definition: "A hashtag that stands out from others for reasons of differentiation (uniqueness) and reputation (fame accrued via repeated associations)."

Hashtag: "Tags marked with a # symbol and include a word, initialism, concatenated phrase, or an entire clause" (Zappavigna, 2015)

Hashtag Network Map: A visualization representing connections between a set of hashtags.

Image Quilt: A display of a collection of image variants, using "small multiples" to facilitate comparisons, discover patterns and explore family resemblances (Tufte, 1997).

Lifestyle: "a more or less integrated set of practices which an individual embraces, not only because they give material form to a particular narrative of self-identity" (Veal, 1993)

Practices: "are linked and implicit ways of understanding, saying, and doing things. They comprise a temporally unfolding and spatially dispersed nexus of behaviors that include practical activities, performances, and representations or talk." (Schau, Mūniz, & Arnould, 2009)

Product category: a group of related products categorized "(at least temporarily) on the basis of factors such as physical resemblance, perceived similarity of products, or fit with available category labels." (Day, Shocker, & Srivastava, 1979).

Social media: "online means of communication, conveyance, collaboration, and cultivation among interconnected and interdependent networks of people, communities, and organizations enhanced by technological capabilities and mobility." (Caliandro, 2018)

User-generated content: "Media content created or produced by the general public rather than by paid professionals and primarily distributed on the Internet." (Daugherty, Eastin, & Bright, 2008)

## Chapter 2

# 2 Conceptual Foundations

## 2.1 Product Complementarity

Marketers must widen their focus beyond understanding the deliberation processes behind selecting a singular product or a particular brand. Instead, by accounting for the context within which people consume, market researchers discover a much richer and fulsome understanding of how the connections between products encourage consumers to seek them out. Further, a deeper understanding of why consumers purchase particular products, whether individually or together, can help shed light on these decisions. Finally, the notion that products are not consumed in isolation, but are an integral part of consumers' social lives, highlights the need for marketers to understand how consumers use sets of products with cultural meaning to define themselves and others (Solomon and Assael, 1987).

### 2.1.1 The Importance of "Other Products"

Given that products are consumed in meaningful groupings, it is crucial to understand how these relationships exist and how changes in pricing or consumer tastes can have an impact beyond a focal product. Complementarity and substitutability are entrenched views of product relationships (Shocker, Bayus, & Kim, 2004). Products that complement one another are often purchased together because their pairing serves a particular function. Given this, if the price of a complementary product is lowered, it will increase the purchase of a focal product. Conversely, products may also serve as substitutes for one another. In this type of relationship, products perform a similar function or embody a similar meaning to consumers. As a result, they can often serve in the place of one another. As a substitute product's price increases, sales for lower-priced competitors typically rise (Shocker, Bayus, & Kim, 2004). Alternately, introducing new products can change the nature of the consumption category.

When consumers bundle products, items from multiple categories jointly fulfill buyers' wants, leading to buyers selecting several different products. The seller may assemble product bundles

to promote suggested uses or reduce consumer search activity. Alternatively, consumers may create product pairings to fulfill a specific purpose (e.g., to host a particular event, such as a dinner party). Usually, the buyer's purposes or goals are central to these pairings.

### 2.1.2 Functional, Aesthetic, and Symbolic Complementarity

Consumers seek product pairings because they help them achieve particular aims. First, consuming products together achieves a functional complementarity (Englis and Solomon, 1996). For example, consumers buy tennis balls and rackets because playing the game requires both items. The functional consumption goal is straightforward and practical in its aim.

The second type of product complementarity is aesthetic complementarity (Englis and Solomon, 1996). Products sought for this purpose provide an aesthetic or sensory benefit when brought together. For example, an Eames lounge chair might be sought with other teak wood furniture to produce a cohesive mid-century modern look in a home office space.

Finally, the third form of product complementarity is sociocultural, or symbolic complementarity (Englis and Solomon, 1996). In this view, products consumed together suggest user identity meanings, conveying who they are and what they value to others, enacting or invoking a social role.

When taken together, the joint consumption of disparate products and services can shed light on the lifestyles, personality traits and social roles that consumers assume (Solomon, 1988). Social roles can be sourced from products, brands, hobbies, leisure activities, and other cues (Chaplin and Lowry, 2010). A commonly cited example is the "Yuppie," who can be identified as somebody who drives a BMW car, wears a Rolex watch, drinks imported wine, is educated, and lives in populated urban centres (Solomon and Buchanan, 1991). Of course, extracting and isolating any of these variables alone does not mean much. However, combining them makes a more concrete idea of who that consumer may be and what they value becomes apparent.

Despite the importance of the wider periphery surrounding consumption, a large portion of marketing research focuses on individual products and the brands that represent them. Further,

research often reviews products within their categories instead of accounting for the relationships between the products often used together (Solomon, 1988).

### 2.1.3 Consumption Constellations

To better understand how sets of consumption stimuli are used together and how they reflect consumer behaviour, the concept of the "consumption constellation" emerged (Solomon, 1988). By observing choices in physical possessions, leisure activities, and service encounters, the sum of deliberate choices made by the consumer shines a light on who they wish to reflect on themselves (Solomon, 1988). The sum of these different choices and the relationships among has come to be known as the "consumption constellation," which was initially defined as "clusters of complementary products, specific brands, and/or consumption activities used by consumers to define, communicate, and enact social roles" (Solomon and Assael, 1987). Reviewing consumption decisions in this way facilitates cognitive processing by enabling consumers, researchers, and observers alike to quickly categorize choices and attribute them to a specific type of end user. An essential distinction in the literature is that consumers can practice both approach and avoidance behaviours concerning consumption constellations (Solomon, 1988). Consumers may choose specific products, activities and services because they help to bring them closer to an ideal or envisioned version of the self.

On the other hand, consumers may avoid certain alternatives to distance the consumer from an undesired self (Solomon, 1988; Lowry, Englis, Shavitt, & Solomon 2001). For example, an upwardly mobile young professional may aspire to embody the "Yuppie" role mentioned above. When making a car purchase, they may seek a sleek, trendy sports car and avoid a pick-up truck to bring them closer to their envisioned version of self. Consumers store information about desirable and undesirable options in associative networks to facilitate rapid retrieval. Information about aspirational stimuli is retrieved much more quickly and defined than avoidance stimuli, which points to the meaning created within these networks (Lowry, Englis, Shavitt, & Solomon, 2001).

The challenge with consumption constellations is that they have traditionally been studied from the perspective of marketing researchers and branding professionals by looking to commercial media and advertising as a guide (Chaplin and Lowry, 2010). This perspective allows for easy

retrieval and identification of roles; however, relying on predetermined categories limits the consumer's voice to express their unique perspective. As a result, the ability to identify emergent lifestyles is inhibited. Consequently, researchers have called for a shift of the focus back to the consumer so that they may be able to reveal how they view the relationships among products, brands and activities and the roles they support (Chaplin and Lowry, 2010).

#### 2.1.4 Diderot Unities

Another perspective that sheds light on how consumers observe the complementarity of products is through Diderot Unities. The term "Diderot effect," coined by McCracken (1988), refers to philosopher Denis Diderot, who began to reconsider his surrounding possessions upon being gifted a rich new dressing gown. Since the new dressing gown elevated his lifestyle, the goods in his study – like his desk, rug, drapery, and engravings – no longer communicated the same image to the outside observer. The new gown catalyzed the reconfiguration of his possessions so that he could achieve consistency in how his lifestyle was exhibited. McCracken (1988) formally defined the "Diderot effect" as: "a force that encourages the individual to maintain a cultural consistency in his/her complement of consumer goods."

One of the main underpinnings of this theory is that consumers will seek to maintain consistency within the constellation of their goods. When making purchase decisions, they will actively select products that conform to their current image to communicate a consistent message about their lifestyle to the outside world.

McCracken notes the importance of the "key departure purchase" (such as Diderot's new robe) to create new product unities and alter consumer consumption. McCracken (1988) defines the departure product as "any purchase or acquisition that has no precedent in the consumer's existing complement of goods." Davis and Gregory (2003) advance the concept by viewing it through the lens of impulse purchases, identifying when departure purchases on impulse lead to the development of a new "Diderot unity." Further, they question whether certain categories of goods are more likely to be departure products than others. They found that the concept of "possible selves" factored into purchase decisions that deviated from the original Diderot unity. In cases where consumers aspire to a particular lifestyle, they may engage in buying that helps them to communicate a new (as opposed to current) version of the self. This switching behaviour

may also be the case when consumers try different roles to find the best possible fit for themselves (Davis and Gregory, 2003). A change in life stage can also prompt the purchase of departure goods leading to new Diderot unities, such as transitioning from student to full-time employment, experiencing the empty nest, and retirement (Davis and Gregory, 2003).

Song, Gonzalez-Jimenez and Belk (2021) extend the original theory of Diderot unities by demonstrating how a change in the self, through cosmetic surgery, can be the catalyst for a new Diderot unity to emerge. They propose that altering one's self-image can induce a chain reaction of new consumption behaviours to align the new version of the self with their surroundings. In attaining their "desired self," consumers engage in more materialistic consumption (acquiring new clothing, makeup, and getting hair and nails done) to highlight the changes their surgeries have brought about. Further, consumers tend to feel like they have an expanded range of products, brands, and experiences to choose from, from which they previously felt restricted. Rather than an object or material possession, such as a "departure purchase," initiating a change in the Diderot unity, the physical change in the self inspires a reconfiguration of an entirely new set of products and consumption experiences.

## 2.2 Social Tagging

As the content on social networking platforms has dramatically increased in recent years, users have incorporated social tags into their posts to organize, categorize and retrieve information (Sheldon, Herzfeldt, & Rauschnabel, 2020). As an organizational tool, social tags can summarize large volumes of content – both textual (news, reviews, blogs) and non-textual (images, videos, and songs) (Nam, Joshi, & Kannan, 2017). Social tagging originated in Web 2.0, where users would create labels to identify their content on websites such as del.icio.us (web bookmarks) and Flickr (photos). The practice of hashtagging, as we now know them with the pound symbol ("#"), originated on Twitter to categorize information and connect ideas to wider communities. Since then, hashtags have grown to accommodate several uses. Now, hashtags appear across platforms – from Facebook, Instagram, LinkedIn, and TikTok, where they connect conversations and unite users with shared interests.

While social tags can help aggregate information, details that shed light on who users are and what they value can get lost due to the sheer volume of data retrieved when exploring hashtags. As a result, there is a need to explore how to study hashtag use to gain more profound, nuanced

insight into users' attitudes, preferences and opinions to inform marketing research and practice (Nam, Joshi, & Kannan, 2017).

### 2.2.1 Tagging as Discourse

Text is vital for understanding how marketplaces have evolved and continue to operate (Humphreys, 2021). Marketplaces are embedded in texts, and the importance of text can be observed throughout – from labelling to advertising and retail signage to digital codes used to classify products and services. Product information is expressed using text, and consumers also use text as a form of personal expression. Through their exchanges online, whether to share information through reviews or to create interpersonal bonds on social networking sites, text can serve a cohesive function by bringing together various users of a product or service. Further, hashtags can solidify these groupings by providing an identifier to label the community.

Humphreys (2021) proposes three approaches used to study the textuality of markets: the archival approach (collecting text and tracing its origins to explain the evolution of a market), the big data approach (collecting large amounts of text and mapping meaning at a broader level), and the embedded approach (analyzing how text and social relationships are intertwined). Building upon the last approach, observing and tracing hashtags as a community identifier can help to understand the participants in a particular community and what text they choose to express themselves with on a given topic.

The words incorporated into hashtags can serve several functions: enhancing impressions, raising awareness toward a social movement, revealing a trending topic, highlighting a specific brand, or, more generally to reach a broader audience beyond one's follower-following circle (Celuch, 2021). In addition, hashtags can indicate group membership (Sheldon, Herzfeldt, & Rauschnabel, 2020) or an individual's particular interests (Celuch, 2021). Hashtags can be conceptualized as "framing vehicles," where the user can select and highlight specific elements to suggest an interpretation of a particular topic (Ichau, Frissen, & d'Haenens, 2019). Hashtags can also be "metacomments" used independently to relay a comment, offer an opinion, or emphasize a specific point of view (Sheldon, Herzfeldt, & Rauschnabel, 2020). Overall, hashtags reflect the content within the post itself and the user's mental representation of how the content is related to the words chosen (Nam, Joshi, & Kannan, 2017).

Hashtags also serve to connect conversations from vast corners of the virtual space. Tracing hashtags allows us to observe otherwise disconnected masses that tie back to a focal subject. The concept of Brand Public helps to explain how to make sense of disparate interactions on a given topic. Proposed by Arvidsson and Caliandro (2016), the Brand Public is distinguished using the following features:

1. "an organized media space kept together by a continuity of practices of mediation that are centered on a mediation device such as a hashtag."
2. "structured aggregations of heterogeneous meanings without the formation of collective values."
3. "participation is not structured by interaction but by private or collective affect."
4. "add publicity value to brands."

Despite not having direct engagement with one another, by participating in the action of tagging their content with the same hashtag, online users become part of a broader ecosystem involved in delivering a unique, heterogeneous perspective on a topic. Hashtags act as a mediating device that reveals online behaviour as a series of separate yet connected conversations, helping to delineate the boundaries of a conversation by identifying divergent and widespread users, online participation and perspectives.

### 2.2.2 Tagging as a Folksonomy

While tagging refers to the process of selecting a word (or phrase) and making the addition of the "#" symbol to create a hashtag, the creation of a folksonomy refers to the system used to categorize online information, often produced as a result of user interactions in a specific online conversation.

Golder and Huberman (2006) refer to social tagging as "collaborative tagging," where anyone can attach keywords to their content online. In their view, social tagging is fundamentally a process of sensemaking, where content can be tagged or "bookmarked" by users to retrieve something they have found before. Social tags can perform various functions: identifying what (or who) the content is about, who owns it, identifying specific qualities and characteristics, refining categories, self-reference and task organizing (Golder and Huberman, 2006). Marlow, Naaman, Boyd and Davis (2006) focus on the relationships between users and highlight that

these connections are a critical element of tagging systems. Some of the characteristics of tagging systems that they have identified are: tagging rights (who can tag what), tagging support (whether you can see tags), aggregation (duplicate tags for the same resource), type of object (what is tagged), source of the material (participants, system or Web), resource connectivity (links using tags) and social connectivity (links between users). They also distinguish between organizational (future retrieval) and social motivations (contribution and sharing, attracting attention, play and competition, self-presentation, opinion expression) for users incorporating tags into their posts (Marlow, Naaman, Boyd, & Davis, 2006).

Quintarelli (2005) views social tagging as a "user-generated classification" which emerges through a "bottom-up consensus" whereby online users in a particular community identify relevant tags to accompany content collaboratively and iteratively. Meanings eventually emerge from the aggregation of tags and their clustering, where relevant themes begin to surface. However, Quintarelli (2005) took a more critical approach to social tagging and noted some drawbacks: a lack of precision, absence of hierarchy, low findability quotient, and problems with scaling.

It is important to note that compared to the "controlled vocabulary" approach of applying a taxonomy, the folksonomy approach to social tagging sheds light on how the users express themselves in their terms rather than ascribing to a predetermined definition. Despite the drawbacks noted by Quintarelli (2005), the collaborative approach to the folksonomy of social tagging demonstrates the organic nature of social tagging evolution from the users' perspective.

## Chapter 3

### 3 Methods and Data

Using #hashtags, we introduce a method to trace the conceptual contours in social media conversations. In the cultural anthropological tradition, we study how people in a group think about things that somehow go together. Hashtags align ideas and reveal the latent structures and symbolic boundaries within the conversation, detecting the domains, features, and sources of tension in the network of diverse perspectives and experiences conveyed in the conversation.

This research features a case study of #homegym tagged messages posted at the onset of the COVID-19 pandemic. Gym closures disrupted established exercise regimes, while lockdown and work-at-home orders blessed others with newfound time to work out – inciting a spike in demand for gym equipment sales. In addition, increased engagement on social media during the pandemic enriched conversations as gym-goers reassessed and reconfigured resources to achieve their fitness goals in the face of adversity.

#### 3.1 Netnography

To take advantage of participation in the online realm, we became interested in better understanding who the participants within the leisure space are and what characterizes the home gym leisure space. To do this, we took to social media to "follow the natives" by studying the conversations that delineate the topics of interest within the space. Coined by Latour (2005), the term indicates how observing the practices through which social actors make sense of their worlds and the categories they use to frame their worldviews in the digital sphere can be particularly illuminating of behaviour. Furthermore, with the advent of Web 2.0, it has been argued that online and offline realms have become increasingly intertwined, meaning that employing digital methods to study consumer behaviour provides a window into how consumers enact online and offline behaviours (Caliandro, 2018).

Leveraging social media to study conversations presents an opportunity to survey the digital landscape unobtrusively. Countless interactions occur online daily, across many different

platforms – Facebook, Instagram, Twitter, LinkedIn and most recently, TikTok. Not only are these interactions varied and plentiful, but also they are publicly available, which negates the requirement to seek and receive approval to access the community (Kozinets, 2002). Further, since there is no risk of harm to participants, ethics approval does not need to be sought.

Akin to the ethnographic approach to studying behaviour, we take to the digital space to observe conversations in the environment where they occur without interfering for interactions to unfold naturally. By observing online interactions, we can note how users express themselves through different mediums – words, imagery, and hashtags. We place particular importance on hashtags, a built-in tool that helps to organize the social space and follow the flow of interactions, as they facilitate the identification of online conversations' boundaries (Caliandro, 2018). Further, observing hashtags allows us to trace the interrelatedness of topics.

## 3.2 Study Context

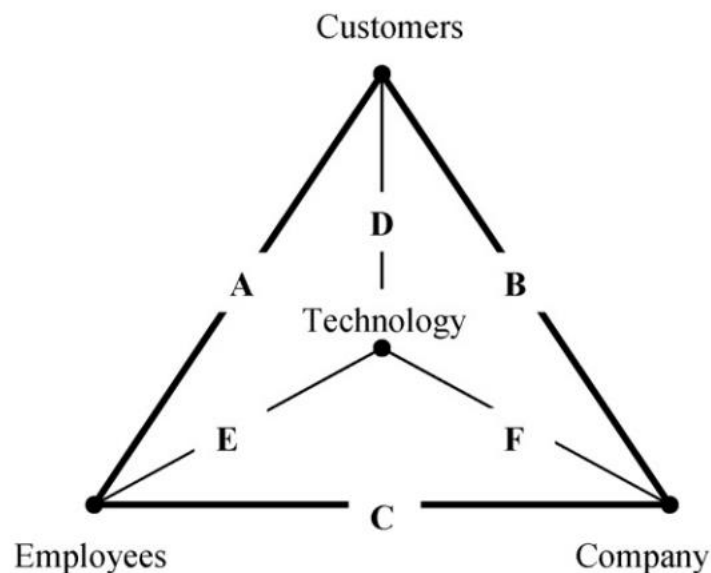
The World Health Organization (WHO) declared COVID-19 a pandemic on March 11, 2020. This announcement was a forerunner of government actions and policies, including quarantine, lockdowns, distancing, and travel bans. The coronavirus disease (COVID-19) wrought unexpected stress and adversity for many people worldwide and profoundly affected society and businesses in ways never imagined.

The impact on service businesses, especially those that rely on in-person interactions, including healthcare, airlines, restaurants, and travel and leisure facilities, was particularly severe, often leaving customers with nothing but a "sorry we are closed" sign on the front door. For instance, in the United States, total revenues for the Gym, Health and Fitness Clubs industry declined from \$40.0B in 2019 to \$33.7B in 2020—a 15.7% annual drop—due to the compulsory closure orders enacted in many states (Le, 2021). In retrospect, the financial impact on the industry was evident. However, people's response to service disruptions and their rituals and routines is less known.

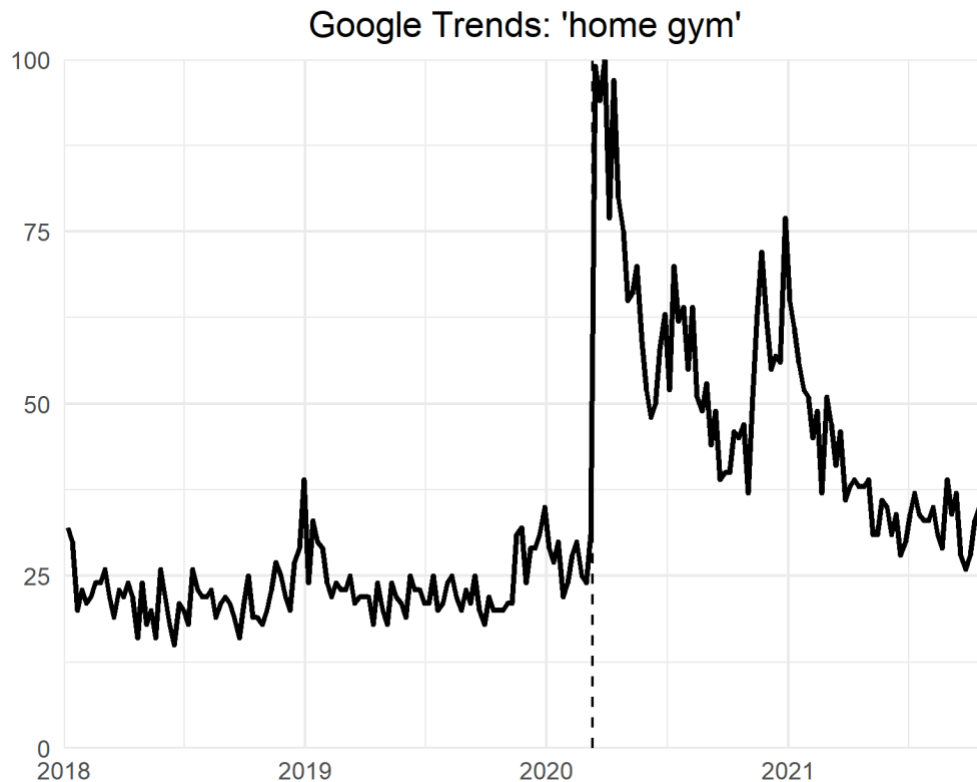
Public health restrictions caused by the COVID-19 pandemic led to self-isolation and physical distancing, impacting the types of leisure pursuit alternatives available to people. The impact of the restrictions was tough on those who live alone, as the lack of group activities (gym friends, running club, team sports) amplified feelings of isolation and diminished the level of enjoyment

derived from the activity (Giles and Oncescu, 2021). Further complicating matters, engagement in solo outdoor leisure pursuits is not an option for those who fear sexual violence, harassment, or being targeted by strangers. Rosenbaum and Russell-Bennett (2020) suggest that consumers' feelings of place attachment, insidership, and the loss of commercial friendships further muddle service interactions. Thus, the context of fitness and leisure goal pursuit during the pandemic is complex as its benefits and meanings are in flux.

Disruption provides an opportune moment to study how consumers pivot in changing circumstances. In the services industry, the services marketing Pyramid Model (Parasuraman, 2000) helps explain how different elements come together to enable the service encounter (see Figure 1). Relationships between customers, employees, the company, and technology support the service's functioning. However, a change in any of these elements can provide the opportunity for innovation, as existing interactions and ways of doing business are renegotiated (Padgett and Mulvey, 2007). The pandemic offered a unique opportunity to study the fitness industry as lockdown measures, store closures, supply chain issues, and social distancing requirements altered everyday consumption routines, leading people to seek new ways to consume. Observing changes in consumer interactions with service-industry businesses allows us to study how gym-goers developed solutions in real time.



**Figure 1 Services marketing Pyramid Model**



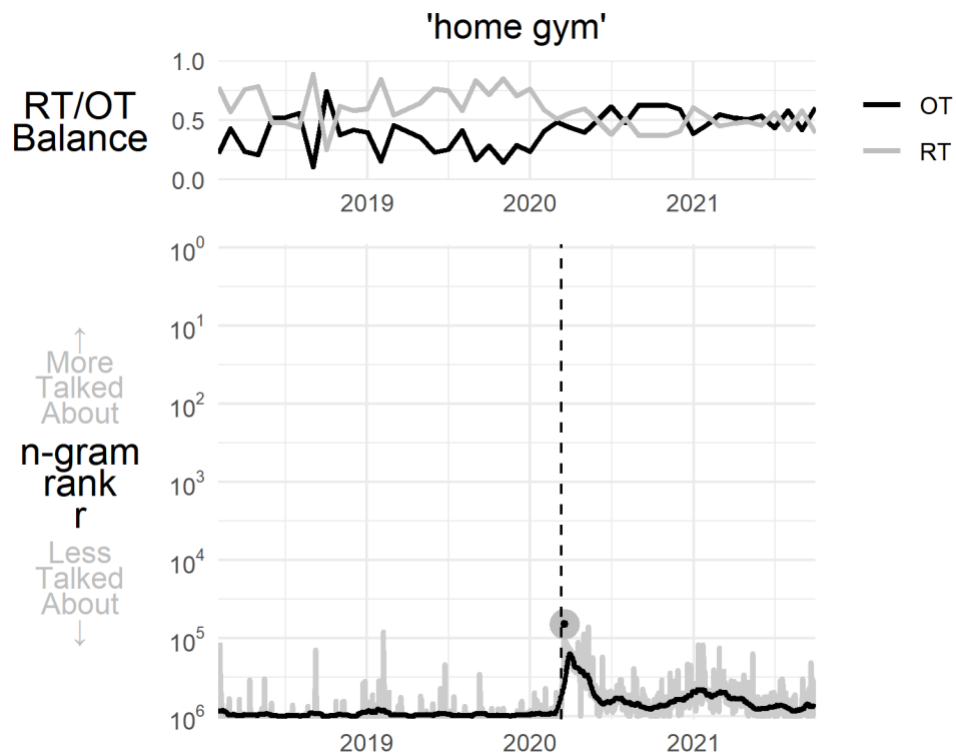
**Figure 2 Google Trends: Search interest in "home gym"**

Figure 2 illustrates the search interest on Google for "home gym." The dashed vertical line marks the onset of the COVID-19 pandemic on March 11, 2020. Online search interest for home gyms increased dramatically once the pandemic was declared, as consumers rushed to find a viable solution to replace their established fitness routines. Search behaviour decreased into 2020 but regained momentum as 2021 approached, with lockdown restrictions limiting gym access into the new year. As a result, this likely encouraged more users to explore the possibility of creating a home gym setup since it became apparent that the impacts of the pandemic had longer-term consequences. As demonstrated in Figure 2, despite a decline in search interest for the term "home gym" following the onset of the pandemic, search levels remained higher than pre-pandemic levels.

Consumer feedback platforms provide users with ways to share qualitative and quantitative feedback about their consumer experiences and the ability to share this experience with others (Kozinets, Ferriera, & Chimenti, 2021). Given the tremendous rise in search interest for the term

“home gym” on Google, we were interested to see how consumers might leverage social media platforms to discuss and display their experiences with creating home gym set-ups or accessing the resources necessary to develop solutions. Consumers also turn to social media to share their experiences with fitness, where they can search for content tagged with hashtags to obtain health and fitness information and gather inspiration (Rojkowski and Schöps, 2021). As a result, turning to Twitter and Instagram gave us a window into studying the changes in fitness regimes due to the COVID-19 pandemic.

Figure 3 illustrates the popularity of the term "home gym" using a Twitter Contagiogram. Contagiograms provide a graphical representation of the frequency of a term's use on a platform for a given period (Alshaabi et al., 2021). The dashed vertical line indicates the date the World Health Organization (WHO) declared COVID-19 a pandemic – March 11, 2020. As seen in Figure 3, the discussion on Twitter surrounding the "home gym" topic was consistent and relatively minimal prior to the onset of the pandemic. However, once the pandemic hit, interest in the topic spiked, and conversations began to flourish. Twitter users took to their social media



**Figure 3 Twitter Contagiogram: Popularity of "home gym"**

channels to connect with others on the "home gym" topic: from soliciting information and gathering inspiration, commiserating, to sharing their home gym solutions. The frequency of conversations declined into the latter portion of 2020 and 2021 but remained at a higher rate than pre-pandemic levels.

The RT/OT Balance refers to the "re-tweet vs. original tweet" ratio. Before the pandemic, the number of "re-tweeted" or shared posts on the topic was higher than the number of original posts. However, with the onset of the pandemic, the number of original posts matched or exceeded the number of shared posts. This finding may indicate a growing number of new entrants into the online conversation surrounding "home gym" as interest grew and drew in a bigger audience.

Next, we describe the methods and data sources we analyzed to trace the origins and evolution of the changing gym and fitness market using the texts and images consumers produce on social media (Humphreys, 2021).

### 3.3 Research Design

This research aims to develop techniques to harness social media conversations to trace the boundaries of a lifestyle product category, focusing on when it is emergent or in flux. Using the #homegym category as a case study, we developed a three-step approach to study hashtags' power to connect and aggregate concepts and render the shared and divergent meanings that structure the lifestyle product space. Table 1 provides an overview of the overarching research design, organized into three steps: exploration, enlargement, and refinement.

**Table 1 Research design**

	Analysis Phase		
	1. Exploration	2. Enlargement	3. Refinement
Objective	Collect data in a <i>real-time moment</i> to study social media conversations and identify current concerns.	Look <i>backwards</i> in time within digital archives and across platforms to add details and clarify the meaning of distinctive concepts.	Reconcile the findings with the literature to separate established from innovative ideas.
Data Sources	I. Twitter Scrape and analyze tweets at a critical period for a limited time (10 days) – as gym closures stirred online talk about substitutes (home gyms) at the outset of the COVID-19 pandemic.	II. Instagram Collect samples of popular and current images tagged with distinctive hashtags. III. Ingramer Gather affiliated hashtags (co-mentioned with a distinctive hashtag) to examine connections in conversations.	IV. Academic literature (Re)examine the literature to identify connections and gaps between the findings and established theory.
Methods	A. Hashtag counts: examine the prevalence of tags. B. Hashtag networks: map the co-occurrence of tags in posts. C. Hashtag clusters: group hashtags based on co-occurrence. D. Image analysis: review and content analyze the images included in posts. E. Close reading: Review the messages, hashtags, and images for key terms, recurrent themes and tensions shared by users. F. Distinctive hashtags: Select a subset of tagged concepts to elaborate and refine.	G. ImageQuilts: create mosaics of tagged Instagram images. H. Hashtag categories: classify tags based on semantic similarity. I. Hashtag elements: divide tags into constituent units (morphemes). J. Hashtag networks: map the co-occurrence of tag elements with the distinctive hashtags.	K. Qualitative synthesis: integrate the findings into a coherent framework.

### 3.3.1 Objectives

In order to carry out the analysis for this study, we opted for a phased approach. We implemented three broad phases: exploration, enlargement and refinement. Following the systematic, inductive, discovery-oriented principles of grounded theory (Strauss and Corbin, 1997), the **exploration** phase aimed to understand the #homegym leisure space without any predetermined assumptions to guide our investigation. The primary purpose was to survey the environment in a real-time moment as conversations unfolded naturally on Twitter. We wanted

to be able to identify prevalent themes in the online space, as well as to observe how users expressed themselves and how they engaged with one another.

Once we identified the main threads in the conversation, we wanted to develop a more robust understanding of the depth and breadth of the focal topics. To do so, we embarked on the **enlargement** phase. This part of the analysis entailed looking backwards in time at content that already existed on the platform to see if there were particular nuances in how online users expressed and defined these topics. The archival, historical approach recognizes that we can often learn much by asking questions from existing datasets (Humphreys, 2021). Further, we expanded the scope of the study across platforms. Thus, moving from our initial explorations on Twitter, we turned our attention to the highly visual platform of Instagram. The combination of text-featured Tweets alongside highly-hashtagged image-based Instagram posts provided the opportunity to add detail and refine the concepts under examination.

The third and final phase of our analysis was the **refinement** phase. Once we could appreciate how our focal topics were defined and expressed in text and image format, we sought to ground our observations and processes in the existing literature. Following Belk and Sobh (2019), an abductively derived theory emerges from consistency with the data and the mind of a researcher/theorist. Thus, a well-read mind enhances the odds of generating original insights. By revisiting and scrutinizing extant theory, we planned to look for anomalies and surprises that move thinking in new directions.

### 3.3.2 Data Sources

Communication on social media channels has evolved significantly in recent years. No longer does the transmission of a message rely solely on text – now, users have a wide array of tools in their arsenal to deploy. In addition, platforms cater to different modalities: Twitter primarily focuses on text, Instagram focuses on imagery, and YouTube and the most recent social media incarnation, TikTok, are video-based. With this, they have also become increasingly multimodal, as users can combine mediums when crafting their content – leveraging text, emoticons or emojis, hashtags, images, filters, and video to elevate their messaging and better connect with audiences (Russman and Svensson, 2017). For this reason, we have chosen to focus on how

written words, imagery, and hashtags selected to accompany are employed in tandem to convey the richness of perspectives in the #homegym leisure space.

### I: Twitter

We first looked to Twitter to provide a baseline understanding of how online community members expressed themselves in text format. First, we used the Sprout Social COVID-19 database to extract a manageable data set of 1,000 posts with the keyword "home gym" collected at the outset of the COVID-19 pandemic (March – April 2020). The posts were assembled in an Excel spreadsheet, read, analyzed and inductively coded to identify broad themes. Next, we assigned codes to the posts and extracted the hashtags and images for further analysis. The results of the hashtag and image analyses served to refine the themes and tensions present in the data. Making a note of these tensions would help us understand where points of view collide or differ and guide us on where to focus our attention.

### II: Instagram

Since Twitter posts often centre on text-based communication, there was interest to see the visual communication of the themes. To explore this further, we searched for hashtags on Instagram that corresponded to the key concepts/keywords uncovered in our Twitter study. Doing so also helped to verify whether the hashtags had uptake across platforms and gauge the level of interest. Next, we scraped a sample of the most popular and recent images associated with the hashtags and reviewed them to examine prevalent themes. Then, we created ImageQuilts using 32-40 pictures by combining the images that best illustrated the underlying properties of the hashtag's theme.

### III: Ingramer

Next, our study observed the intersection of the distinctive hashtags with related domains to see how #homegym connected to other areas. Affiliated hashtags are those that are mentioned together in posts. Using Ingramer (rebranded as "Inflact") – a tool that helps identify affiliated hashtags – we pulled together samples of hashtags that intersected with the distinctive hashtags. Next, we sorted the hashtags into broad categories to better understand underlying patterns (people, activities, places, etcetera). Next, we generated co-occurrence maps to display these

patterns visually. This technique delivers a macro-overview of the landscape and the relatedness amongst different hashtags.

#### IV: Academic Literature

Finally, after reviewing and reflecting upon our findings, we referred to the academic literature on netnography, consumption constellations, Diderot unities, and hashtags to determine how our findings aligned with the literature. We searched for connections, corroboration, discrepancies, and gaps in knowledge.

### 3.3.3 Methods

#### 3.3.3.1 Exploration

Twitter hashtags were collected into an Excel spreadsheet to perform content analysis. First, we wanted to understand the broad landscape of hashtags mentioned within the set, so we calculated hashtag frequencies. Next, we mapped the co-occurrence of tags within the posts. Cultural Domain Analysis (Borgatti, 1999; Ryan and Bernard, 2000) provides a series of methods for collecting and analyzing data about how people in groups think about things and how observed concepts relate to one another. The basic premise of the techniques is that items can be sorted into categories based on their unique attributes – pairings can be identified, while outliers are re-assigned until they find their match. In doing so, researchers and observers can discover patterns founded upon implicit cultural knowledge, which helps shape consumers' choices. Finally, drawing inspiration from network analysis (Mohr, 1998), we sorted hashtags into clusters based on co-mention frequencies. Doing so allowed us to recognize the interrelatedness of topics in the #homegym space and the potential boundaries of the conversation.

Tweets were analyzed inductively, and in reviewing the content within each of the messages, thematic coding was applied to each message to begin to identify broad patterns in the data. By identifying patterns in the data, we could make sense of the findings and begin to focus our efforts on the trends that surfaced most prominently (Vaughn and Turner, 2016). We also examined the images within Tweets to discern distinctive and complementary meanings. Iterations of thematic coding served to lessen inconsistencies in the assigned codes. Tweets with similar content were grouped and assigned a new, overarching code to apply to the set.

Finally, we reviewed sets of Tweets to locate distinctive hashtags that could help to shed light on the category. We define *distinctive hashtags* as "A hashtag that stands out from others for reasons of differentiation (uniqueness) and reputation (fame accrued via repeated associations)." Conversely, we were not interested in studying idiosyncratic hashtags that are particular to a single individual, nor ones that lacked renown or acclaim. Therefore, a list of distinctive hashtags was compiled for review on Instagram, along with tensions we observed in the conversation.

We specifically chose to observe outliers and anomalies within the dataset because we believed they could help us identify promising new directions from which we could begin to observe the array of consumption possibilities. While frequently used hashtags can identify the main threads within a conversational space, the outliers help to distinguish the boundaries of a topic. Further, by focusing on distinctive meanings within the broader conversation, we can identify new entrants or those we may have overlooked in the space, which can help to indicate where untapped demand may reside.

### 3.3.3.2 Enlargement

We extended our investigation to examine the visual expression of the distinctive hashtags on Instagram. First, the hashtags from each set were entered into Instagram's search bar to review tagged images. Then we saved and compiled the retrieved images for further analysis. The sample includes tagged images that Instagram deems most popular and recent. Next, we selected a set of 32 to 40 non-duplicate images to create ImageQuilts.

ImageQuilts are a visual method introduced as a collaborative effort by statistician Edward Tufte and Adam Schwartz (2022), where users can download a Google Chrome extension and either search for images on Google Images or insert their images into a digital collage that brings together a variety of perspectives on a given topic. ImageQuilts serve to compile the various parts that comprise the whole so that the essence of a topic can be explored. Tufte (1997) advocates using "small multiples" of related images to facilitate comparisons, discover patterns, and explore family resemblances. We created ImageQuilts using the tagged Instagram images for each identified distinctive hashtag to understand the variations within each theme. Doing so enabled us to gain a nuanced perspective on how users express themselves on the topic.

In order to obtain an understanding of the broader landscape, we were interested in learning more about the co-occurrence between the distinctive hashtags identified with related hashtags. Therefore, we focused on affiliated hashtags to understand how a distinctive hashtag connects to related domains. By observing hashtags mentioned together frequently, we could trace the connections between domains to determine the reach of communities.

We identified affiliated hashtags using an online marketing analytics tool, Ingramer Hashtag Generator (rebranded as "Inflact"). This tool leverages AI to help marketers target audiences, optimize their social media content and grow their customer base. Using the platform's "Hashtag Generator" function, we identified a list of relevant hashtags based on the keyword for each of the distinctive hashtags. Figure 4 illustrates how #homegymdesign affiliated hashtags are displayed on the Inflact platform. In addition, affiliated hashtags (termed "Related Organic Hashtags" by Inflact) are classified by the frequency of mention on Instagram: frequent, average, or rare. These results are interesting because they reveal implicit hierarchies within the product category, spanning the spectrum from broad categories like #workout, #homedecor, and #weightlifting to more niche categories such as #dumbbell, #boxsquats, and #bandworkouts.

## Related Organic Hashtags

The hashtags that are advised by Instagram and are often written together in the same post.

Frequent	USE 1-4 <b>HARD</b>	Average	USE 10-15 <b>MEDIUM</b>	Rare	USE 5-10 <b>EASY</b>
<input type="checkbox"/> #workout	206.33 m	<input type="checkbox"/> #emom	330.34 k	<input type="checkbox"/> #gobletsquats	85.46 k
<input type="checkbox"/> #interior	79.73 m	<input type="checkbox"/> #resistancebands	908.54 k	<input type="checkbox"/> #gympump	51.09 k
<input type="checkbox"/> #interiordesign	152.71 m	<input type="checkbox"/> #gymsession	382.96 k	<input type="checkbox"/> #boxsquats	93.54 k
<input type="checkbox"/> #squat	17.91 m	<input type="checkbox"/> #dumbbell	395.8 k	<input type="checkbox"/> #bandworkouts	59.22 k
<input type="checkbox"/> #strengthtraining	10.97 m	<input type="checkbox"/> #resistanceband	148.59 k	<input type="checkbox"/> #body_control	496
<input type="checkbox"/> #instahome	14.86 m	<input type="checkbox"/> #homedesigner	467.82 k	<input type="checkbox"/> #дверивналичии	51.47 k
<input type="checkbox"/> #glutes	7.39 m	<input type="checkbox"/> #homedesigns	794.86 k		
<input type="checkbox"/> #weightlifting	21.37 m	<input type="checkbox"/> #armsworkout	666.66 k		
<input type="checkbox"/> #interiorinspiration	7.52 m	<input type="checkbox"/> #dumbbellworkout	325.97 k		
<input type="checkbox"/> #homedecor	123.4 m	<input type="checkbox"/> #homebeautiful	675.92 k		
<input type="checkbox"/> #interiorinspo	8.55 m	<input type="checkbox"/> #instainterior	967.49 k		

**Figure 4** Affiliated hashtags for #homegymdesign

We were also interested in studying the co-occurrences of keywords expressed as hashtags. VOSviewer (2010) is a leading online software tool that is widely adopted, publicly available and peer-reviewed, allowing users to construct and visualize bibliometric data networks. We adopted the 2022 version 1.6.18 of the software to examine a text file of co-occurring hashtags.

As a first step, we used COWO (Levallois, 2012) to prepare the text data before inserting it into VOSviewer. COWO can take a file with several lines of text and help filter the content based on parameters set out. Pre-processing standardizes the text and removes meaningless terms or “noise” to facilitate content analysis (De la Hoz-M, Fernandez-Gomez, & Mendes, 2021). We used COWO’s default settings to prepare our data: removing stop words, searching for n-grams of up to 4, indicating a minimum of 3 characters per word, and defining a minimum of 3 terms and including a maximum of 250 terms. Once we prepared our data using COWO, we inserted the text file containing our pre-processed hashtags into VOSviewer. Our approach is consistent with Mulvey, Padgett, and Lever (2022), who studied retirement travel advice on Reddit.

VOSviewer assigns terms to a cluster based on the similarity of the terms. Each cluster is colour-coded to provide a distinction between sets of terms. At this point, we could observe how the terms were related – observing commonalities and distinctions. By obtaining a macro-overview of how our hashtags interacted, we could distinguish which hashtag clusters had significant uptake and co-mention amongst users (more prominently displayed, closer to the centre) versus which ones were less likely to be used (less prominent, further toward the periphery). Depending on the user's needs and desired level of specificity, the number of clusters can be increased or decreased. We reported the results obtained using the default resolution (= 1.0) but experimented with parameters to explore more granular and specific views of patterns.

### 3.3.3.3 Refinement

Once we acquired knowledge of the distinctive hashtags, we leveraged various techniques to make sense of the data before us. By observing how our data was expressed using different perspectives – from ImageQuilts, morphology, identification and analysis of tensions, and employing cultural categories, we could analyze different facets of the dataset to begin to construct the consumption constellation. This final stage of our analysis relied upon revisiting the existing literature, both pioneering (i.e., McCracken, 1988; Solomon, 1988) and more recent (i.e., Chaplin and Lowrey, 2001; Song, Gonzalez-Jimenez, & Belk, 2021), in order to observe whether existing ideas and frameworks could be employed to make sense of the data and provide clarity and structure to our observations.

By exploring and evaluating different visualizations and existing frameworks documented in the literature, we could validate the utility of existing methods and extend their use in new directions. By relying on abductive reasoning, we could observe our findings as they were – being led in directions of interest to capitalize on surprises, anomalies and the unexpected (Belk and Sobh, 2019). In line with Belk and Sobh's (2019) perspective, where the existing theoretical perspective does not extend far enough, there is an opportunity to develop original approaches. We wanted to harness the strengths of different frameworks to observe and explain our dataset. By carefully sorting through and considering the fit of existing theoretical perspectives, we charted new territory by bringing forward the methodological components from diverse perspectives that we believed could best reflect our findings.

## Chapter 4

### 4 Results

#### 4.1 Hashtag Counts and Associations

We initially analyzed 1,000 Tweets from the Sprout Social COVID-19 database containing the keyword "home gym." Of those 1,000 Tweets containing the keyword "home gym," we collected the following insights:

- Tag incidence: 483 out of 1,000 (48.3%) tweets included hashtags
- Tagged topic: #homegym included in 50 Tweets (= 5% of the sample)
- Tag count: a total of 1,554 tags used
- Distinct tags: 680 of the tags were unique
- Prevalent tags: 76 of 680 (=11.1%) tags appeared three or more times
- Idiosyncratic tags: 604 of 680 (=88.8%) of the tags appeared only once or twice
- Tag co-occurrence: 308 of 483 (= 64%) tagged messages included two or more tags

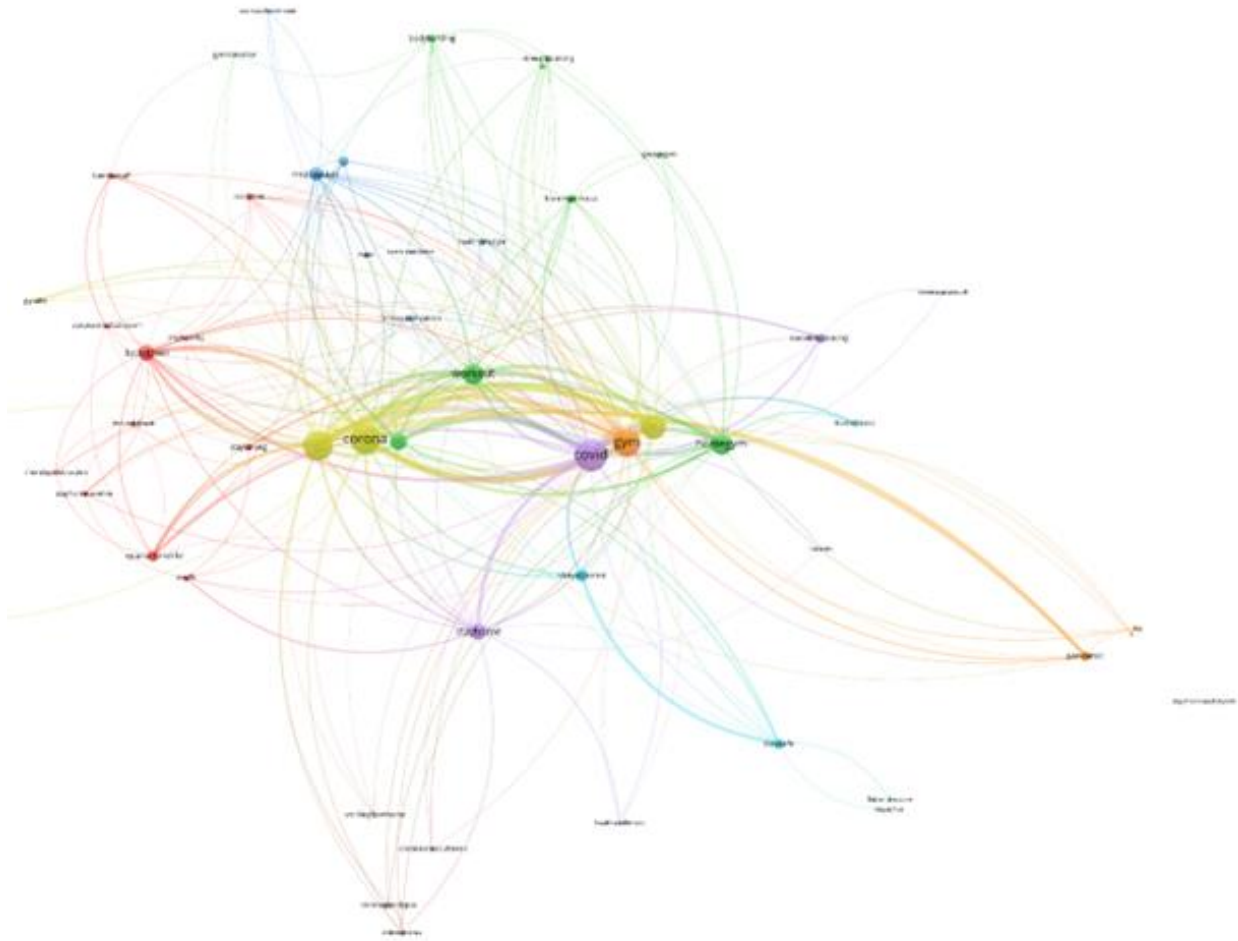
Accordingly, hashtags, though common, are not ubiquitous as they appear in about half of home gym tweets. Though the keyword "home gym" is an element of all posts, a minority use #homegym to connect the message to a broader conversation. The diversity of tags used and the "long tail" of idiosyncratic tags hints at a lack of linguistic consensus or community – perhaps brand publics are at work. Finally, further analysis of tag co-mentions (or affiliations) may reveal a more coherent pattern of related ideas.

Next, we sorted the hashtags into two groups: those related to COVID-19 and were not related to COVID-19. By doing so, we could disentangle the COVID-19 context from the hashtags to better understand the distinctness of the #homegym leisure space. Table 2 outlines all the hashtags that were mentioned at least three times in the data set:

**Table 2 Hashtag frequency**

COVID-related		Non-COVID-related			
Hashtag	Count	Hashtag	Count	Hashtag	Count
#covid19	184	#homegym	50	#katrinakaif	3
#coronavirus	159	#fitness	38	#mondaymotivation	3
#stayhome	26	#gym	18	#dadbod	3
#covid	23	#workout	14	#garagegym	3
#quarantine	21	#exercise	12	#gymmotivation	3
#quarantinelifelife	16	#homeworkout	11	#fitlife	3
#stayathome	14	#workoutathome	9	#sportsnews	3
#socialdistancing	13	#health	9	#healthandfitness	3
#covid2019	11	#plussizefitness	8	#toronto	3
#pandemic	10	#bodybuilding	7	#stayactive	3
#isolation	7	#healthylifestyle	7	#diy	3
#lockdown	7	#wellness	7	#bettertogether	3
#corona	7	#fitnessmotivation	6	#gains	3
#stayhomesavelives	6	#stayfit	5	#healthy	3
#staysafe	6	#strengthtraining	5	#home	3
#coronavirusoutbreak	6	#gymlife	5	#ifsccommunityunity	3
#coronaviruslockdown	5	#fit	5	#ifscfriday	3
#thelockdown	3	#healthyliving	5	#realmadrid	3
#workoutfromhome	3	#stayhealthy	4	#sergioramos	3
#coronavirustruth	3	#exerciseathome	4	#spain	3
#flattenthecurve	3	#motivation	4	#sportclimbing	3
#chinesevirus	3	#keephealthy	4	#training	3
#convid19	3	#homefitness	4	#weightlifting	3
#coronapocolypse	3	#sport	4		
#workingfromhome	3	#staystrong	4		
#stayathomeandstaysafe	3	#tsgtraininges	4		
		#workouts	4		

Next, we examined patterns in hashtag co-occurrence using VOSviewer to obtain a visual representation of connections in the network of associated tags, along with cluster analysis. Figure 5 depicts the hashtag co-occurrence map, and Table 3 lists the clusters of associated hashtags.



**Figure 5 Hashtag Co-occurrence (using VOS Viewer; minimum count = 3)**

An 8-cluster solution captured the affiliations well. All clusters address the general concern of maintaining fitness routines during the pandemic. However, a closer look at the clusters reveals differences in users' concerns. For example, the distinctive hashtag, #homegym, is embedded in Cluster 2 and draws attention to maintaining workout rituals during quarantine. Likewise, the hashtag cluster emphasizes bodybuilding and strength training, perhaps to maintain a #dadbod. This message differs from the lockdown fitness message delivered by British actress/influencer Katrina Kaif (Cluster 1), the more generic health and fitness message suggested by Clusters 3 and 4, and other pandemic-themed fitness ideas proposed in Clusters 5, 6, 7, and 8.

These results indicate that fitness-minded people may use different coping strategies to deal with disrupted exercise routines due to lockdown, quarantine, and stay-at-home measures. In the following sections, our analysis pays closer attention to the nuances of differences in fitness activities, settings, and identity concerns.

**Table 3 Hashtag co-occurrence clusters**

<i>Cluster 1</i>	<i>Cluster 2</i>	<i>Cluster 3</i>	<i>Cluster 4</i>
#isolation	<b>#homegym</b>	#workoutathome	#coronavirus
#lockdown	#quarantine	#healthylifestyle	#fitness
#stayhomesavelives	#workout	#fitnessmotivation	#corona
#coronaviruslockdown	#homeworkout	#exerciseathome	#wellness
#stayfit	#bodybuilding	#motivation	#gymlife
#stayhealthy	#strengthtraining	#fitlife	#keephealthy
#katrinakaif	#dadbod	#workoutfromhome	
#mondaymotivation	#garagegym		
#thelockdown	#gymmotivation		
<i>Cluster 5</i>	<i>Cluster 6</i>	<i>Cluster 7</i>	<i>Cluster 8</i>
#stayhome	#stayathome	#gym	#coronavirusoutbreak
#covid	#staysafe	#pandemic	#chinesevirus
#socialdistancing	#homefitness	#convid19	#coronapocolypse
#coronavirustruth	#flattenthecurve	#diy	#workingfromhome
#healthandfitness	#stayactive	#stayathomeandstaysafe	
#toronto			

## 4.2 Distinctive Keywords and Hashtags

Using #homegym as an anchor hashtag, we wanted to be able to map the dimensions of the constellation. In order to do so, we first established what the baseline offering was. When considering "home gym" as a product category, the intuitive association is with the default "off the shelf" solution; purchasing gym equipment provided by suppliers and setting it up in a tucked away corner of the home, such as the basement. We found that the hashtag #homegymequipment illustrated the status quo, as content produced by users displayed ready-made solutions obtained from retailers.

However, buying new gym equipment was not an option for many consumers due to lockdown measures, store closures, and online retailer inventory stockouts. To reflect this, we wanted to

find threads within the conversational space that could point to unique, distinctive perspectives on how consumers interacted with the home gym leisure space. In analyzing the hashtags contained within our Twitter dataset, we identified the following points of departure:

- 1) Financial disparity: we found many users discussing the implications of financial opportunities or constraints on their ability to create or access home gym possibilities. Tracing the hashtag *#homegymdesign*, we found users with the resources to afford top-of-the-line gym setups, proudly posting photos of their thoughtfully crafted spaces. Opposing this, we found users who either did not have access to the resources to afford extravagant setups or did not see the value in buying expensive off-the-shelf equipment. Instead, related to the hashtag *#diygym*, we observed creative, low-cost solutions.
- 2) Product reliance: discussions surrounding products, or the lack thereof, also surfaced prominently in our dataset. As mentioned, the hashtag *#homegymequipment* helped to illustrate the baseline offering. Under this hashtag, we observed users discussing their search and acquisition processes as they collected equipment to create their home gym setups. However, other users seemed to oppose traditional setups and the use of equipment actively. For example, the hashtag *#calisthenics* displayed uses of outdoor spaces, exercise routines performed using bodyweight, and natural forces, such as gravity.
- 3) Sociality: we discovered that fitness could be welcomed as an individual endeavour or celebrated as a social activity. The hashtag *#dadbod* pointed to conversations centred on men showcasing personal fitness routines and progress, often sharing before and after images to show how far they have come. Other users cherish the connection with others while working out. The hashtag *#familyfitness* celebrated the benefits of fitness as a collective, with parents displaying workout routines with their kids included.

#### 4.2.1 Affiliated Hashtags on Instagram

Building off the primary tensions identified (financial disparity, product reliance, and sociality), we selected hashtags from Twitter with distinctiveness for further investigation. First, we looked

at each hashtag to develop a better sense of what themes emerged for the group and then contrasted it with the opposing hashtag to understand the boundaries between concepts.

For each of the distinctive hashtags identified, we obtained a list of the affiliated hashtags from the online marketing analytics platform, Inflact. Affiliated hashtags are frequently mentioned together, which can serve to indicate the interconnectedness of domains. With each distinctive hashtag, we reviewed and sorted the affiliated hashtags to perform a deeper investigation into the expression of different meanings within domains. What became apparent through this process is that despite the similarity in meaning, the words used to express terms vary. Tracing this variability can uncover new, distinct communities of users.

Table 4 demonstrates how we traced the affiliated hashtags for the social identity tension (#dadbod versus #familyfitness). Connected to the #dadbod hashtag, we identified different social groupings that related to the hashtag. Most prominently, we observed variations on the theme of fathers who are engaged in fitness activities: #dadswholift, #dadsofinstagram, and #fitdad. However, we also note an entire subset with no explicit link to fatherhood, more focused on (older) men who are physically active: #fitat40/#fitat50, #fitover40, and #guyswholift. We also noted an apparent connection to the LGBTQ+ community, with hashtags such as #instagay, #gaydaddy, and #gayswithtattoos surfacing. By focusing on celebrating the individual, these hashtags serve as a departure from the more family and fitness-oriented communities observed within the set. Connections to physical appearance and personal expression were also highlighted, with hashtags such as #beardsandtattoos and #menwithtattoos appearing.

Opposing the #dadbod distinctive hashtag, we observed other related communities within the #familyfitness domain. Related hashtags emphasized variations of working out together as a collective family unit, highlighted by hashtags such as #fitfam, #familyfun, #familyworkout, and #gymfamily. We also noted crossovers in community fitness, with hashtags such as #fitnesscommunity, #fitcommunity, #fitfriends, and #groupworkout. The importance of leaders in the fitness category was also apparent as providers surfaced within the set, with hashtags like #certifiedpersonaltrainer, #coach, and #onlinefitnesscoach.

**Table 4 Related hashtags: Social identity signals in #dadbod versus #familyfitness**

Social Group	#dadbod	#familyfitness
Household		
<i>Father</i>	#beardeddad #dad / #dads #daddy #dadsofinstagram #dadswholift #dadswithtattoos #fitdad / #fitdads	#fitdad #fitdads
<i>Mother</i>	#momswholift	#fitmum / #fitmums #strongmum
<i>Children</i>		#kids
<i>Family</i>	#family #fitfam	#family #fitfam / #fitfamily #familyfun #crossfitfamily #fitnessfam / #familyfitness #familyworkout #gymfamily / #gymfam
Fitness-minded	#bodybuilder #fitat40 / #fitat50 #fitnessaddict #fitover40 #guysthatlift #guyswholift #gymbro #pumpchasers #swoldier #swolermates	#fitcommunity #fitfriends #fitgirl / #fitnessgirl #fitnesscommunity #fitnesslover #fitnessmodel #groupworkout #guyswholift / #girlswholift #traintogether #workoutpartner
Service Providers	#fitnesstrainer	#certifiedpersonaltrainer #coach #fitnesscoach #fitnessinstructor #fitnesstrainer #onlinefitnesscoach #personaltrainer
LGBTQ+	#bearsclubsandbeards #instagay #gaydaddy #gayswithtattoos	
Other Identity	#beardandtattoos #male #menwithtattoos	#tiktokers

## 4.2.2 Hashtag Networks

Next, we focused on how the words contained within the hashtags could be analyzed to distill other meanings. To do this, we looked at the study of morphemes and morphology to guide our analysis. Morphemes are short segments of language where the word cannot be reduced any further; otherwise, it would become meaningless. Exploring linguistic signs and symbols, such as hashtags, helps tap into human consciousness and experience since the words consumers choose to use in their expression illuminate how they interpret the world around them (Mick, 1986). Marketers have adapted linguistics and cultural anthropology concepts to understand words' meaning and significance in cultivating brand names (Robertson, 1989). From a marketing and branding perspective, short brand names possess particular benefits: they are often easy to say, spell, read and understand. Given these characteristics, they are more easily learned and recalled by consumers (Robertson, 1989). Building upon this, we wanted to understand how the short phrases users choose to tag their posts can shed light on how they think about the #homegym online space. We adopted morphology to our context to break down the hashtags to their most basic form and observe the nuances.

Our process involved reviewing hashtags containing compound phrases to identify and separate the words within to examine them individually. In doing so, we followed the natural language processing (NLP) approach and removed "stop words" – commonly used words, such as articles, prepositions, pronouns and conjunctions, which serve to connect bits of text but do not provide any additional meaning on their own (Raina and Krishnamurthy, 2022). Then, for each morpheme, we tagged the text with an identifier that captured the overall theme of the message. The examples below illustrate how we analyzed the hashtags using this method:

- #gymselfie = gym (setting) + selfie (action)
- #legday = leg (body part) + day (frequency, time)
- #workoutmotivation = workout (activity) + motivation (psychological force)
- #workoutoftheday = workout (activity) ~~of the~~ (removed stop words) + day (frequency, time)
- #workoutathome = workout (activity) + ~~at~~ (removed stop word) + home (setting)
- #shoulderworkout = shoulder (body part) + workout (activity)
- #hiitworkout = hiit (activity) + workout (activity)
- #athomeworkouts = ~~at~~ (removed stop word) + home (context) + workouts (activity)
- #garagegym = garage (setting) + gym (setting)

We created a hashtag co-occurrence map of the overall #homegym online space to trace the distinctive hashtags' interrelatedness and their related counterparts. In the map displayed in Figure 6, we see how #homegym occupies the centre of the constellation, with all hashtags connecting back to it. Each of our distinctive hashtags is interspersed throughout the map, occupying its own section – often on the periphery, demonstrating the boundaries of the conversation. For example, the hashtags for #calisthenics and #familyfitness appear most prominently and furthest away, with distinct related tags. Hashtags surround the hashtag for #calisthenics with no mention of equipment - #headstand, #yoga and #bodyweight. On the other hand, #familyfitness shows strong ties to #fitness and #workout, as well as ties to #fitfam and #hiit – bringing in the perspective of activity with others.

The hashtag for #homegymdesign shows connections to setting (#homefitness) and inspiration (#inspo). The hashtag for #diygym, also toward the periphery, shows stronger ties to activity (#powerlifting, #deadlift) and setting (#garagegym). Meanwhile, #dadbod features more closely to the constellation's centre and indicates relationships with body transformation (#weightloss, #fitspo, #nutrition, #muscle). A later section will present and discuss the network diagrams for each distinctive hashtag.



### 4.3 Image Analysis




We conducted image analysis in two distinct ways. As a first measure, we focused our attention on Twitter images contained within the posts we had scraped from the Sprout Social COVID-19 database. The 1,000 Tweets included 274 images. We began by reviewing each image to see what features of interest emerged. In particular, we were looking at the focal subject within the image, the surrounding context, the presence or absence of other people, and any particular branded indicators (i.e., a specific piece of equipment, such as a Peloton bike). From there, images were sorted into relevant groupings to identify commonalities and distinctions within the subset. Next, we discussed image groupings to identify themes that could characterize the subset. Finally, we reviewed the original Tweet texts to confirm classification accuracy.

We extended this process by compiling ImageQuilts for each distinctive hashtag to discern the broader conceptual landscape connected to the tag. To do so, we scraped a sample of the most recent images tagged with the hashtag on Instagram. Once we obtained the images, we sorted and assembled them into the ImageQuilts to analyze the emerging themes. Within each ImageQuilt, we made a note of overarching themes, as well as anomalies within the set. The results of our ImageQuilt assembly for each distinctive hashtag are provided and elaborated on below.

### 4.4 Themes and Tensions

Performing a cross-platform analysis, we were able to begin to map the contours of the #homegym leisure space. From our initial observations on Twitter, we identified a series of tensions that helped form the contours of the category. The primary tensions observed were financial disparity, product reliance, and sociality. Table 5 outlines the primary tensions identified:

**Table 5 Tensions in the #homegym tweets**

Domain	Theme <i>Latent Tension</i>	Hashtag	Hashtag	
 Place	Financial Disparity <i>Low budget innovation versus luxe taste</i>	#diygym (handmade, affordable)	↔	#homegymdesign (style-forward, curated spaces)
 Product	Product Reliance <i>Minimalist versus gear-intense</i>	#calisthenics (few or no products)	↔	#homegyequipment (many products)
 Person	Sociality <i>Alone time versus inclusive activity</i>	#dadbod (consuming alone)	↔	#familyfitness (consuming with others)

Financial disparity: this tension primarily focused on the places and spaces that users exhibited in their posts. At one end of the spectrum, under the hashtag #diygym, we observed low-budget, handy skills and ingenuity as users proudly displayed their self-made home gym setups. In contrast, #homegymdesign uncovered high-budget, beautifully curated, stylish spaces that were nothing short of magazine worthy.

Product reliance: this tension centers on the need for and reliance (or lack thereof) on commercial goods to pursue a fitness routine. Under the hashtag #calisthenics, we discovered a subset of users who took pride in doing without traditional gym equipment, sharing creative ways to stay fit in alternative settings. At the other end, under #homegyequipment, we observed how users displayed the workout equipment they already had or were able to acquire and how they used it in their own spaces.

Sociality: this tension highlighted the people within the posts and whether they participated in fitness alone or communally. The hashtag #dadbod showed users who indulged in personal fitness routines, highlighting their physiques and progress. In contrast, users of the hashtag #familyfitness celebrated the joys of working out as a group, often with their children in tow.

A detailed analysis of each tension and illustrative examples follows.

#### 4.4.1 Financial Disparity

A striking tension was observed between the so-called "haves" and the "have nots." Some had the resources to afford extravagances, while others did not. However, the latter group was also often proud to show off their handy skills and ingenuity as they displayed their unique creations. Figure 7 presents illustrative Tweets that demonstrate the two poles of the tension; also, see the Hashtag Network Map (Figure 8) and Image Quilt (Figure 9).

In the #homegymdesign space, we primarily found evidence of aesthetic utility. Users were preoccupied with sharing their design-forward, aesthetically pleasing workout spaces. The imagery focused mainly on the environment: showing off crisp, clean settings where everything was well-coordinated. Organization, cleanliness and brightness emerged throughout as common threads. Users within this segment have the financial capital to afford to buy higher-end gym equipment, and they can retrofit their physical environments to match.

When looking at lifestyle intersections, these users often crossed over into the realms of architecture and interior design. Affiliated hashtags such as #interiorinspiration, #homedecor and #homeinspo shed light on users who have an interest in all things home and style. For these users, achieving and displaying a magazine-worthy space for their workouts is the goal.

Opposing the #homegymdesign users, we discovered a subset of users who proudly displayed their creations, tagging their posts with the #diygym hashtag. These users became producers as they used their creativity and skills to make do with the supplies they could get their hands on. Prominent displays of 2x4 wood pieces, concrete, car tires, and metal bars dominate this theme – with various constructions visible throughout. These individuals bring utilitarianism to the forefront – their creations are practical and functional and demonstrate their handmade mastery.

The #diygym group has the most substantial lifestyle intersections with the skilled trades – woodworkers, welders and handy individuals. With low budgets, a high level of skill and a good dose of creativity, they are self-reliant and can produce whatever they desire in the comfort of their surroundings.

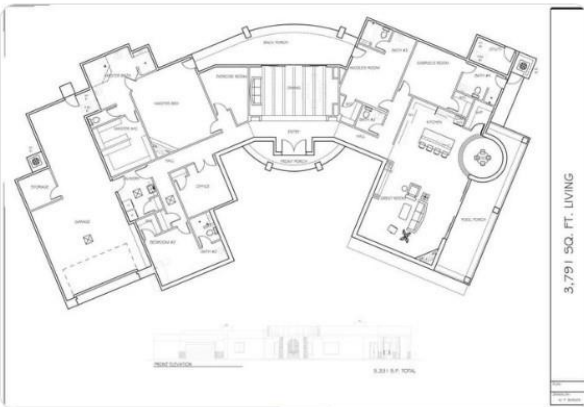
#homegymdesign

#diygym

**Brian** @OwnerFaithful  
 Nothing cheers me up quite like 27 Instagram stories of footballers working out in their \$250,000 in home gyms. What corona virus?  
 1:52 PM · Mar 27, 2020 · Twitter for iPhone

**ForeverSA** @ForeverSA04  
 Anyone else find it annoying being “reminded” to stay home by celebrities annoying? Especially when they are posting from their home gym, home pool, home theater, ocean-side homes... 🙄🙄 #shutup #covid19 #quarantine #nbcnews #enews  
 10:31 PM · Mar 31, 2020 · Twitter for iPhone

**The Realtor Who Builds Homes** @CorshelleR  
 One of my former clients is quarantined here! 😊 What would you want in your next home? Gym? Entertainment room? Built in Mexican restaurant?  
 #DreamHome #CustomHomeBuilder #TucsonRealtor #TucsonRealEstate #QuarantineLife #Quarantine #COVID19 #coronavirus



5:36 PM · Mar 30, 2020 · Twitter for iPhone

**gaw-Nice** @GCCBawnee  
 Why couldn't I have been someone's meant to be that was Rich and had a home gym in a 5 bedroom 6 bathroom house that had an indoor pool and 3 guest houses so I could keep my family close by especially during this pandemic? 🙄🙄

**Just Kate** @humbleddaily · Mar 14, 2020  
 You are someone's meant to be.

11:38 AM · Apr 1, 2020 · Twitter for Android

**The Penny Hoarder** @thepennyhoarder  
 Gyms, like other public establishments, are closing to help combat the spread of the coronavirus. Here's how you can build a home gym that will help you stay on top of your workouts — all for less than \$100.



8:15 PM · Apr 1, 2020 · Hootsuite Inc.

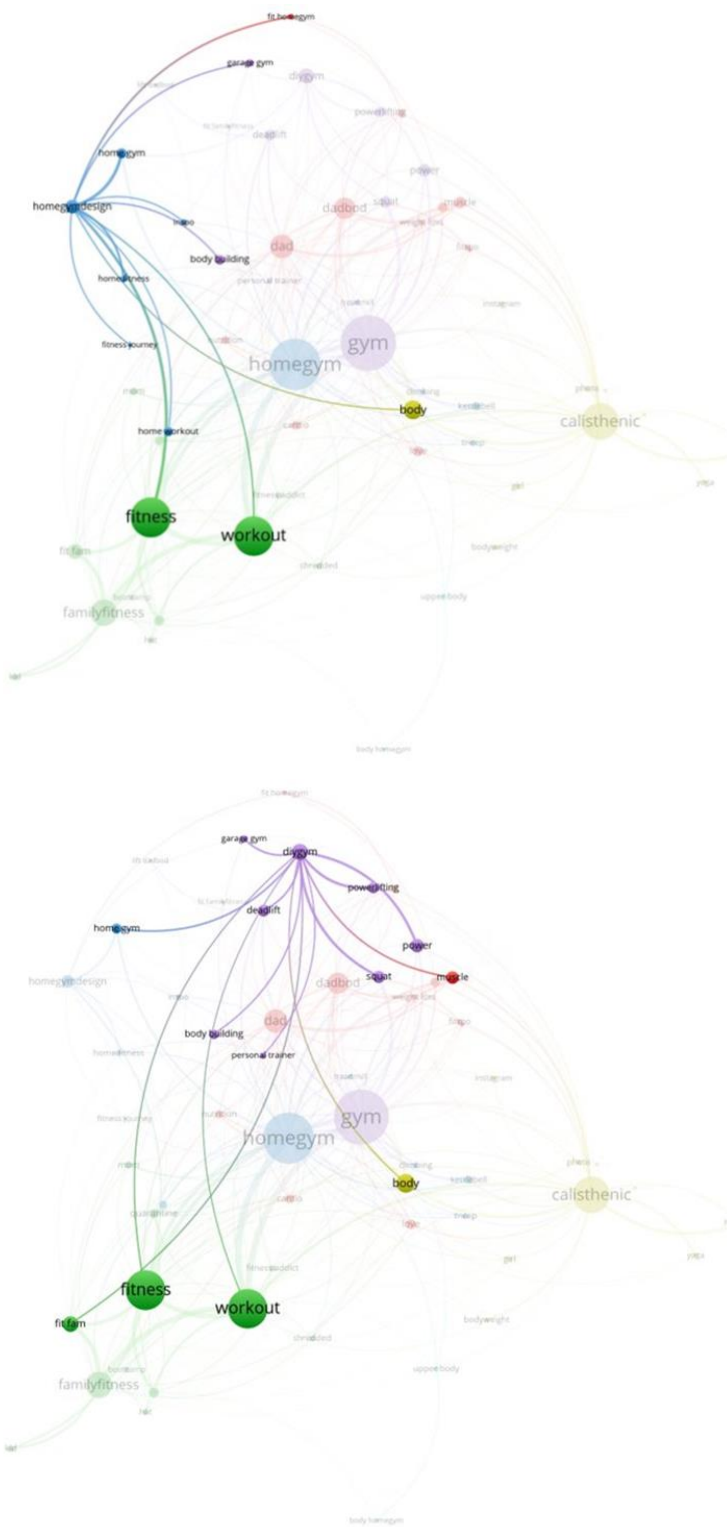
**M Dub** @MDubTX1987  
 Heyyy got my home gym set up!!!  
 #MakeDoWithWhatYaGot #BricksInaBucketasWeights #Jumprope #PrisonStyle #Quarantine #SOCIALDISTANCING #COVID19 @ Austin, Texas  
 instagram.com/p/B-U3CHepi7ad...  
 1:28 PM · Mar 29, 2020 from Austin, TX · Instagram

**Isaac Land** @IsaacLand2  
 So for anyone thinking about improvising a home gym during #COVID19 , esp in an apartment or small space: Here is my much-loved Bosu. Also, buy a bag of sand and create custom weights that you can tailor later. "Freeform" sand shifts around (fun, less boring than metal weights).



2:41 PM · Mar 17, 2020 · Twitter Web App

Figure 7 Gym Budget: Tweets illustrating wealth disparity



**Figure 8 Hashtag Network Maps: #homedesign vs. #diygym**

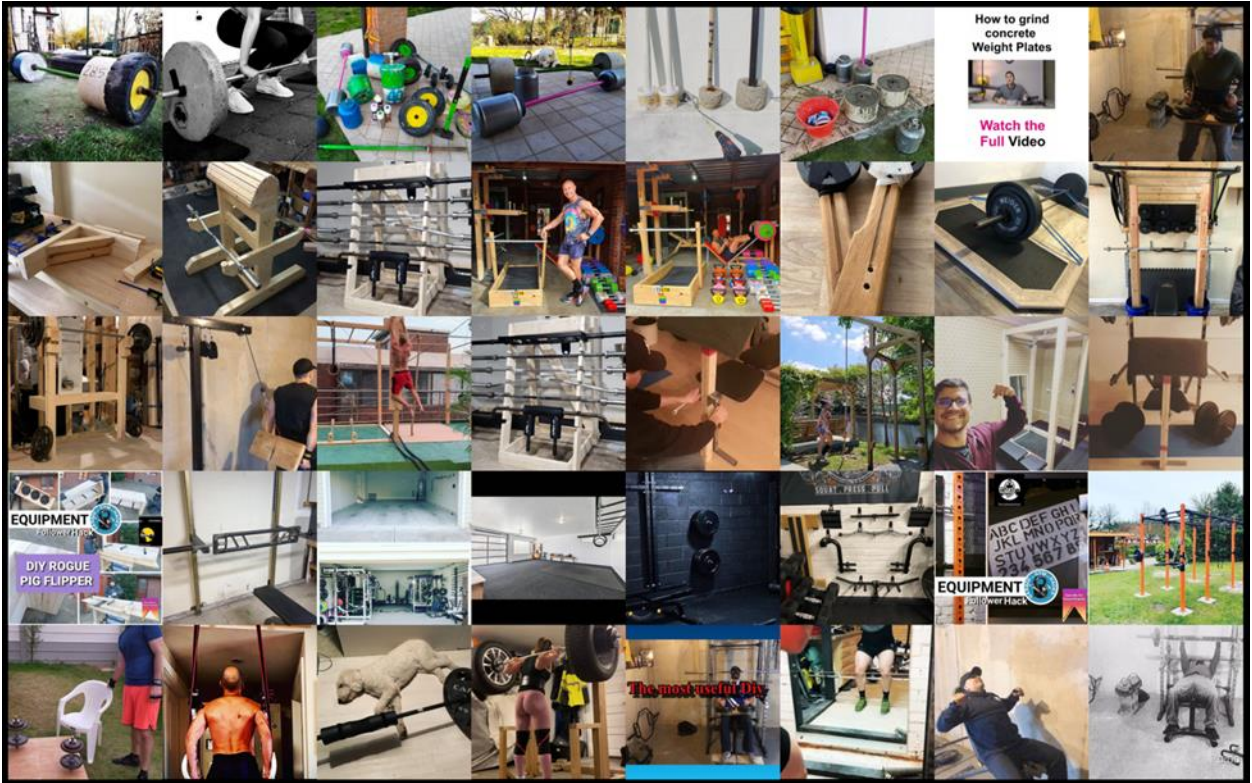
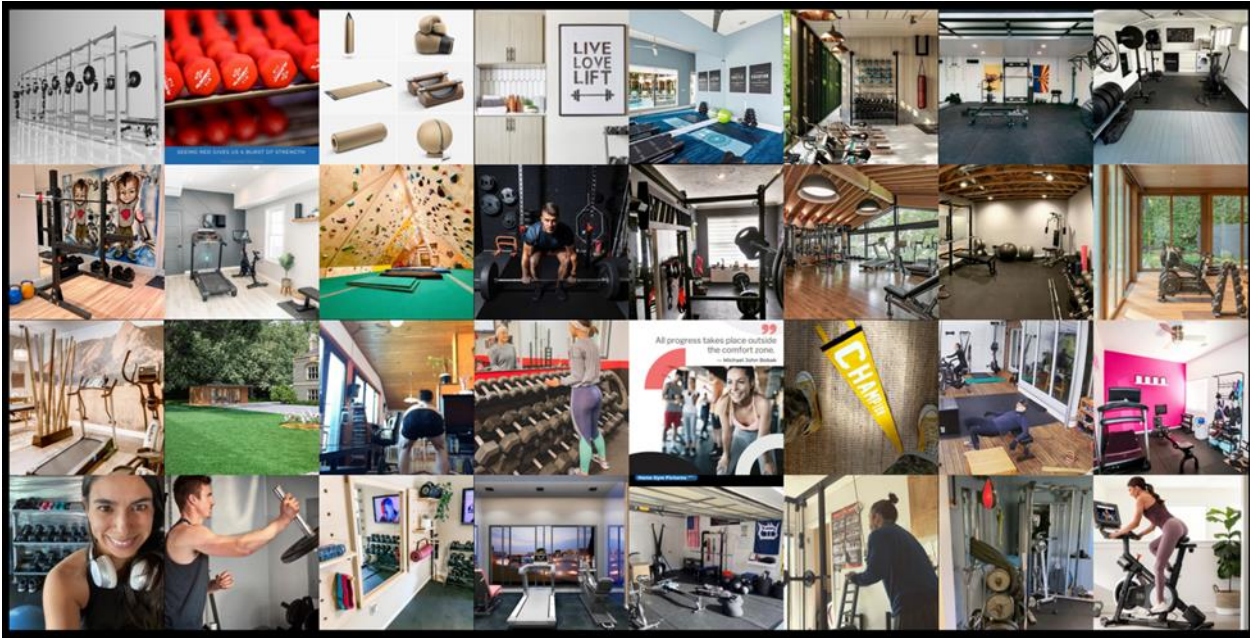


Figure 9 Image Quilts: #homegymdesign vs. #diygym

#### 4.4.2 Product Reliance

Many online users discussed the equipment they planned to source and displayed the equipment they could acquire or use in their fitness routines. However, at the other end of the spectrum, another subset of users demonstrates how they can engage in fitness activities with little or no equipment. Figure 10 shows sample Tweets that illustrate the tension. Also, see the ImageQuilt (Figure 11).

The #homegymequipment hashtag predominantly focused on highlighting the goods that users were able to acquire. Images displayed a variety of setups that people were able to create in their own spaces. In reviewing the images, a sense of pride of ownership came to the surface – some users would pose with their equipment, while others would demonstrate how they could use the equipment to develop their physiques. The creative use of space also emerged as visuals demonstrated ways to optimize small footprints or unconventional layouts. Interestingly, branded mentions were minimal in this subset, even though most of the equipment was purchased from manufacturers.

A review of affiliated hashtags did not have strong ties to related lifestyle categories but presented specific exercise-related tags, such as #glutes, #deadlift, and #squats. Following these tags could open complementary spaces where technique and form-related conversations arise.

The #calisthenics community represented the other end of the spectrum from those in the #homegymequipment space. Without any equipment, these users employed their body weight and the natural environment to participate in the exercise. Without the requirement to purchase equipment or have a dedicated space, these members can create opportunities wherever they find themselves. Imagery related to this hashtag demonstrated different poses and techniques, most often in an outdoor setting.

We found lifestyle intersections related to the #calisthenics community in outdoor fitness, street workouts such as parkour, the military and yoga. For example, hashtags such as #handstands, #strengthtraining, #bodyweight and #humanflag indicate how individuals can build strength and use their bodies to help them achieve their fitness goals.

## #homegymequipment

**System Unknown** @sysuwn  
20 Best At Home Gym #Equipment To Stay Fit & Toned While Stuck Inside As of March 17, 2020, 4,226 people are reportedly infected with coronavirus in the United States alone [YourTango] [systemunknown.com/20-best-at-hom...](http://systemunknown.com/20-best-at-hom...)

10:54 AM · Mar 22, 2020 · SystemUnknown

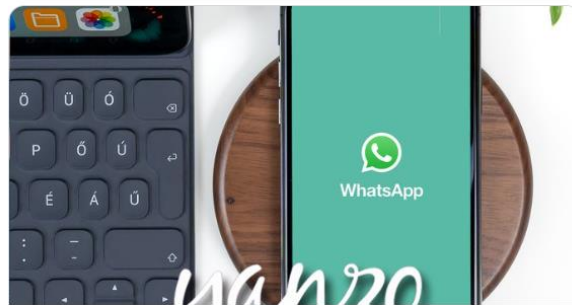


**Nathaniel Meyersohn** @nmeyersohn  
Instagram seems to be adapting to the coronavirus by serving up never-ending ads for resistance bands and home gym equipment

6:05 PM · Mar 21, 2020 · Twitter for iPhone



**Lubna Hamdan** @LubnaHamdan0  
It's not every day you hear of a start-up doubling its revenue during a global economic crisis, but Dubai virtual assistant Yanzo has seen a 60% rise in business since Covid-19. Among the most popular products requested? Home gym equipment @textyanzo



arabianbusiness.com  
Dubai firm sees 60% rise in business since Covid-19 outbreak - Arabian Business  
Yanzo co-founder says home gym equipment among most requested items following groceries, medicine Dubai firm sees 60% rise in business since Covid...

6:48 AM · Mar 23, 2020 · Twitter for iPhone



**Ha vik** @DazHavoc  
Lol people really ain't sh\*\* man, dudes really bought all the gym equipment around to mark it up and make a profit 😂😂 like come on son. I'm gonna wait until stock comes in or after this pandemic and get my equipment then for my home gym. Till then ima be fluffy 😊 #gym

11:28 AM · Apr 6, 2020 · Twitter for iPhone

## #calisthenics

**Craig Talent** @CraigTalent87  
One thing I have learned & appreciated during this pandemic, is that your body is a great piece of equipment, when ya have no home gym. #circuits #anywhereinthehouse #garden

7:01 AM · Mar 30, 2020 · Twitter for iPhone

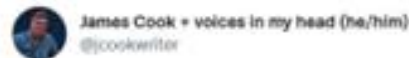


**Owner Built Design, Inc.** @OwnDesignBuild  
How to stay fit while staying at home. With gyms around the country closing their doors to combat the spread of COVID-19, fitness enthusiasts have had to get creative in their attempts to stay fit, while in quarantine.

[buff.ly/2vSnMrF](http://buff.ly/2vSnMrF)  
#Fitness #Health



8:15 PM · Mar 27, 2020 · Buffer



**James Cook** + voices in my head (he/him) @jcookwriter  
If you're stuck at home or your gym is closed due to coronavirus, my friend is giving away his calisthenic/bodyweight program: #gym #coronavirus #workout #bodyweight [superherojacked.com/2020/03/16/the...](http://superherojacked.com/2020/03/16/the...)

11:44 AM · Mar 18, 2020 · Twitter Web App

This Tweet is from a suspended account. [Learn more](#)

*The coronavirus is making the home gym an essential too. It's definitely honing I your dicispine (this is note mine I live in a condo) my work outs are calisthenics and bands <https://t.co/pCchCuElhz>*

**Figure 10 Product reliance: Tweets illustrating the role of goods**

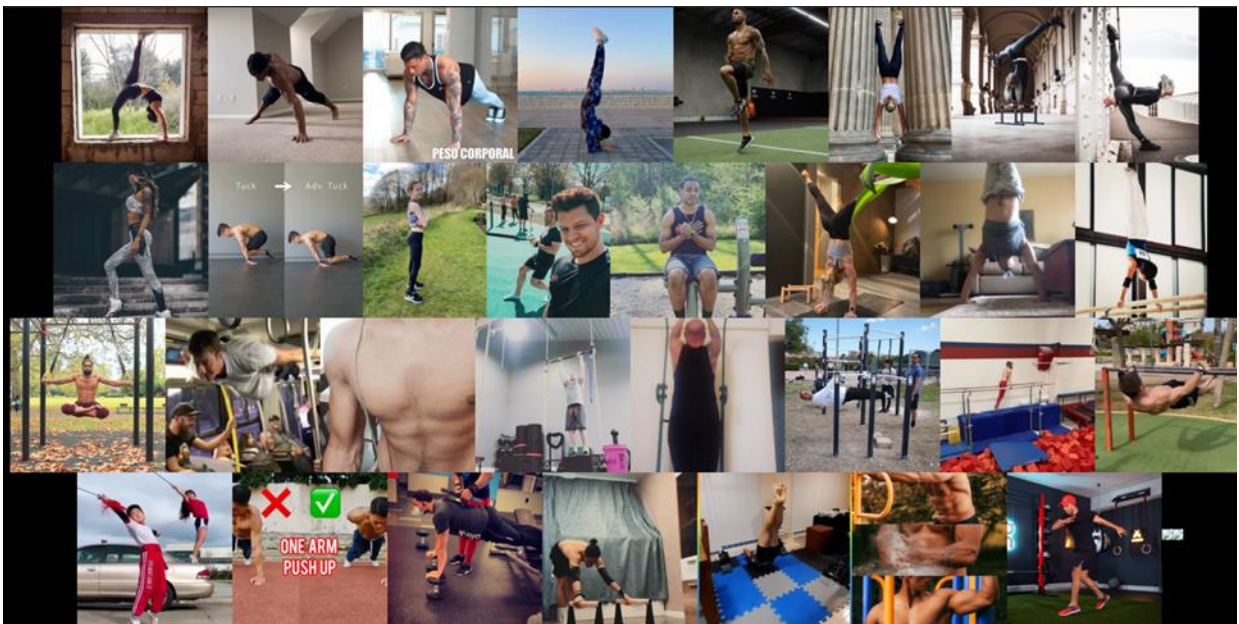
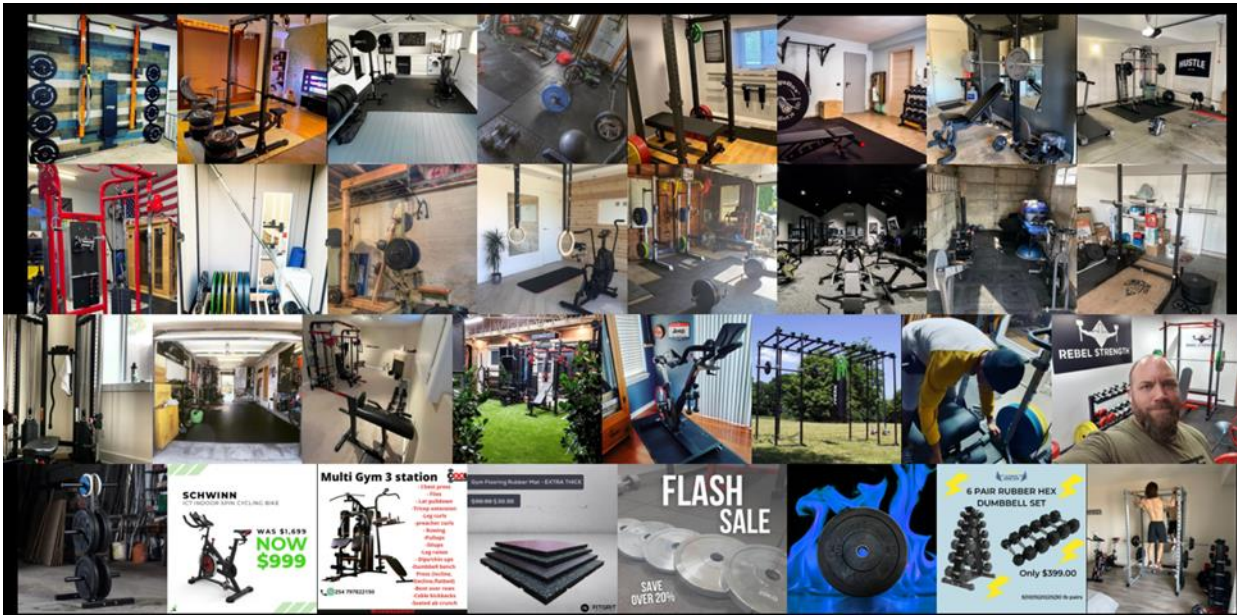


Figure 11 Image Quilts: #homegymequipment vs. #calisthenics

#### 4.4.3 Sociality

In the context of the COVID-19 pandemic, working out at home is often viewed as a solitary activity. However, another large group of users displayed how they worked out and their workout companions. Like traditional gym settings, at-home fitness can also be viewed as a social endeavour. Figure 12 presents sample Tweets that illustrate the two ends of the spectrum:

#dadbod

#familyfitness

**Tweet**

Hmm...this page doesn't exist. Try searching for something else.

[Search](#)

*"During a quarantine a home gym is really convenient... mainly because it is close to the kitchen, but convenient nonetheless. #DadBod #COVID19 #StayHome #quarantinefit" - @CoryMWilliamson*

← **Tweet**

You're unable to view this Tweet because this account owner limits who can view their Tweets. [Learn more](#)

*Trying to still get my workouts in throughout this quarantine. My little home gym does the job just fine! #homegym #chestday #coronavirus #bodybuilding #strengthtraining #weightlifting #dadbod #girdad" - @joe\_thegirdad*

 **Definingdadbod**  
@definingdadbod

Kids make good home gym equipment :)

[#definingdadbod](#) [#homegym](#) [#quarantine](#) [#COVID19](#)



GORILLA PULL UPS

31 views 0:23 / 0:59

10:29 PM · Apr 9, 2020 · Twitter for iPhone


1 Retweet 2 Likes

 **Dr. Arvanban**  
@arvanban


COVID19\_Home Gym work outs with my son... Thanks to "Corona Home Get Together", having a quality time with kids... Hope this would inspire many of you guys...



2:47 PM · Mar 25, 2020 · Twitter for Android

 **Anthony B. Bradley, PhD**  
@antbradley


Last tweet tonight. Father + 3 sons + home gym equipment = dad, "the family #coronavirus #COVID19 #stayhomechallenge personal trainer." How brilliant is this??!! #FamilyFitness #does #Fatherhood



OH carries

9:01 PM · Mar 17, 2020 from Manhattan, NY · Twitter for iPhone

16 Likes

 **Bob Lonsberry**  
@BobLonsberry

Your kids' teacher is working out today. That sounds like a pretty good example to follow.

 **jmacalways** @jmacalways1 · Mar 26, 2020

Hey @TDade - how about we see how our @RCSDNYS family is keeping ourselves healthy during this pandemic? I'll start - thankful for my at home gym! #healthyRCSD #rcsdonfamily #bettertogether





10:28 AM · Mar 26, 2020 · Twitter Web App

Figure 12 Sociality of exercise: Tweets illustrating interactions with others

The #dadbod hashtag presented a distinct subgroup of men focused on displaying and celebrating their physiques. This subset exhibits lifestyle intersections with body art (tattoos), bearded men, and the LGBTQ+ community (specifically, gay men). For example, affiliated hashtags such as #dadswithtattoos, #beardeddad, and #bearcubsandbeards demonstrate crossovers in these related areas.

This theme often focused on the individual and their transformative journey: how they changed their bodies through bodybuilding, nutrition, and weight loss. In addition, motivational quotes that emphasize mental and physical perseverance emerge in the set of images (see Figure 13).

Opposing the #dadbod hashtag, we discovered the prominence of the #familyfitness subgroup. Images tagged with this hashtag focused on consuming together, as families participated in different forms of fitness activity as a collective unit. Usually, couples are shown working out together and parents with their young children in tow. In addition, motivational quotes, words of affirmation, and tips and tricks frequently surfaced, building a sense of encouragement and positivity around the occasion of getting to work out as a family.

Lifestyle intersections with this theme are most closely related to parenthood and community. Affiliated hashtags such as #fitfam, #crossfitfamily, #traintogether, and #groupworkout all point to the enjoyment of participating in fitness with others (See Figure 14).

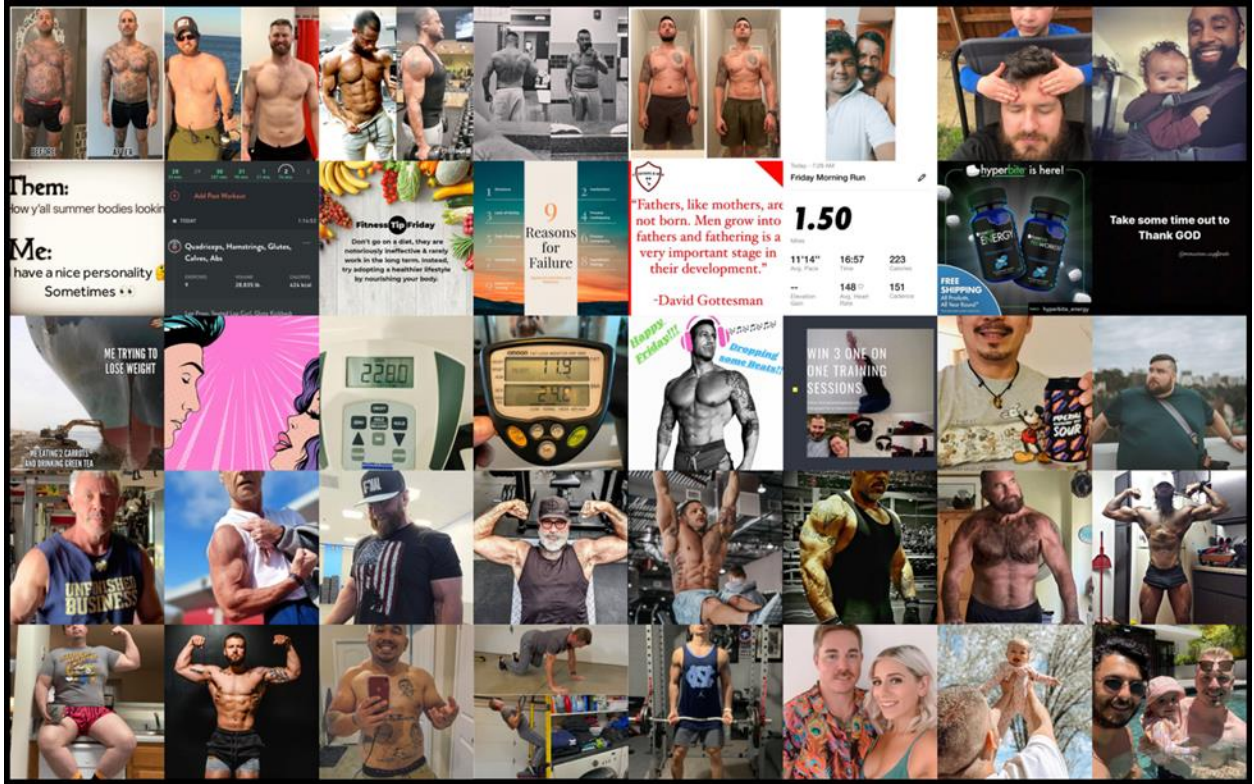
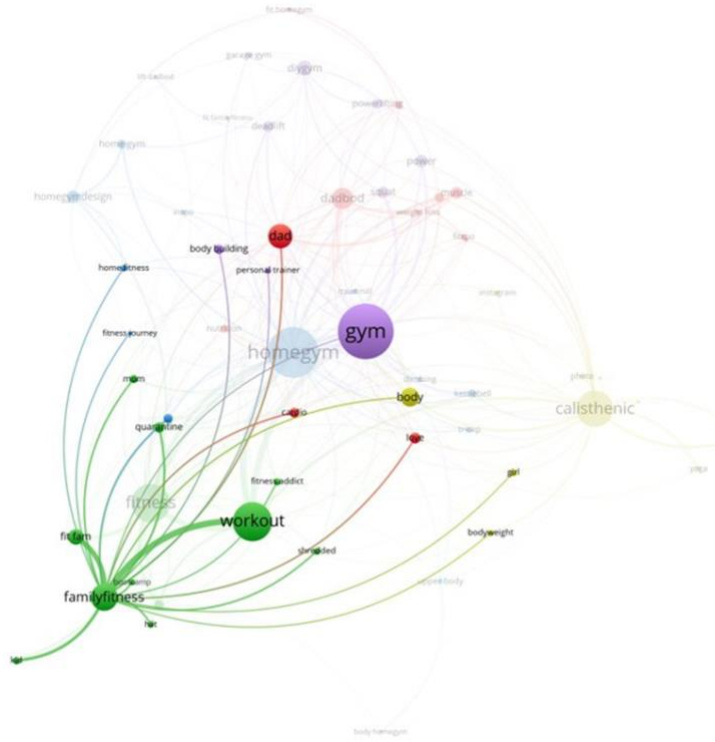
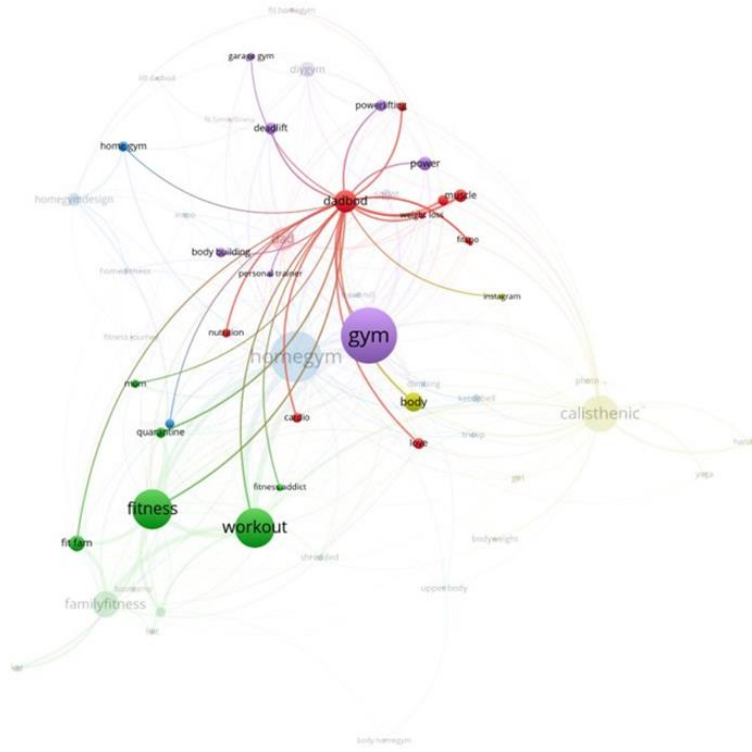


Figure 13 Image Quilts: #dadbod vs. #familyfitness



**Figure 14 Hashtag Network Maps: #dadbod vs. #familyfitness**

## 4.5 Vantage Points on Consumption Constellations

In reviewing the Tweet, ImageQuilts and Hashtag Network Maps for each of the tensions outlined above, our goal is to integrate the findings and reconcile them with theory. We observed in our findings that there is a considerable amount of diversity in how to approach the "home gym" category and how consumers think about and represent their home gym-related content to others on social media platforms. As illustrated by Google Trends, interest in the topic of "home gym" spiked at the onset of the COVID-19 pandemic, and as a consequence, so did the demand for available equipment. Retailers quickly ran out of stock, and waitlists grew well into 2020, as those who could not get their hands on equipment took their place in line for the next release of inventory (Buckner, 2020). In Canada, exercise equipment sales increased by 42.5% in 2020 (Statistics Canada, 2022). While many consumers flocked to their sports retailers and grabbed what they could, this option was neither accessible nor desired uniformly across the market. More often than not, one's opportunities are dictated by many extraneous factors: access to monetary resources, skills, and space considerations, among others. We wanted to capture this variability and understand how consumers entered the home gym market when just about everything was in a state of transition.

In tracing consumption constellations, we wanted to try to find entry points into the conversation. Looking for patterns, anomalies, or peculiar elements in the dataset served as a way to illuminate a point of departure. With the shortage of home gym equipment featured prominently in the Twitter conversations and the news, we decided that observing the distinctions in product-related communications would be an appropriate first point of departure to understand the formation of the overall consumption constellation.

### 4.5.1 Products in Consumption Constellations

In order to conceptualize and understand [product-related] meanings within our dataset, we looked to the Forms of Capital, as proposed by Pierre Bourdieu (1986). Bourdieu puts forward that there are three forms of capital:

- 1) Economic capital: any material asset that an individual owns which can be easily converted into money, such as land, property, and any form of financial resource.
- 2) Cultural capital: contains three subdomains – *embodied* (long-lasting preferences and behaviours, often learned through socialization), *institutionalized* (recognition of one's standing, often observed through academic qualifications), and *objectified* (reflected in artifacts that serve to represent an individual's preferences, observed through acquisition and consumption behaviours).
- 3) Social capital: the network of relationships that an individual has amassed and their membership within a particular social group.

Honouring these three views, we can begin to understand that in consumption environments, an individual's possibilities are shaped mainly by the resources available to them – whether that be the money and space they have (economic capital), the knowledge that they have within a particular domain (cultural capital), or the connections that they have within that space (social capital). In Figure 15, we map out the links between the hashtags we have observed and how they relate to the forms of capital described by Bourdieu (1986). We select two forms of capital, economic and cultural, and one of the hashtags, #homegymequipment, as a baseline. While we select these two forms of capital to illustrate this particular example, different combinations can be achieved based on the hashtags that are being studied. From this configuration, we can retain a few key observations:

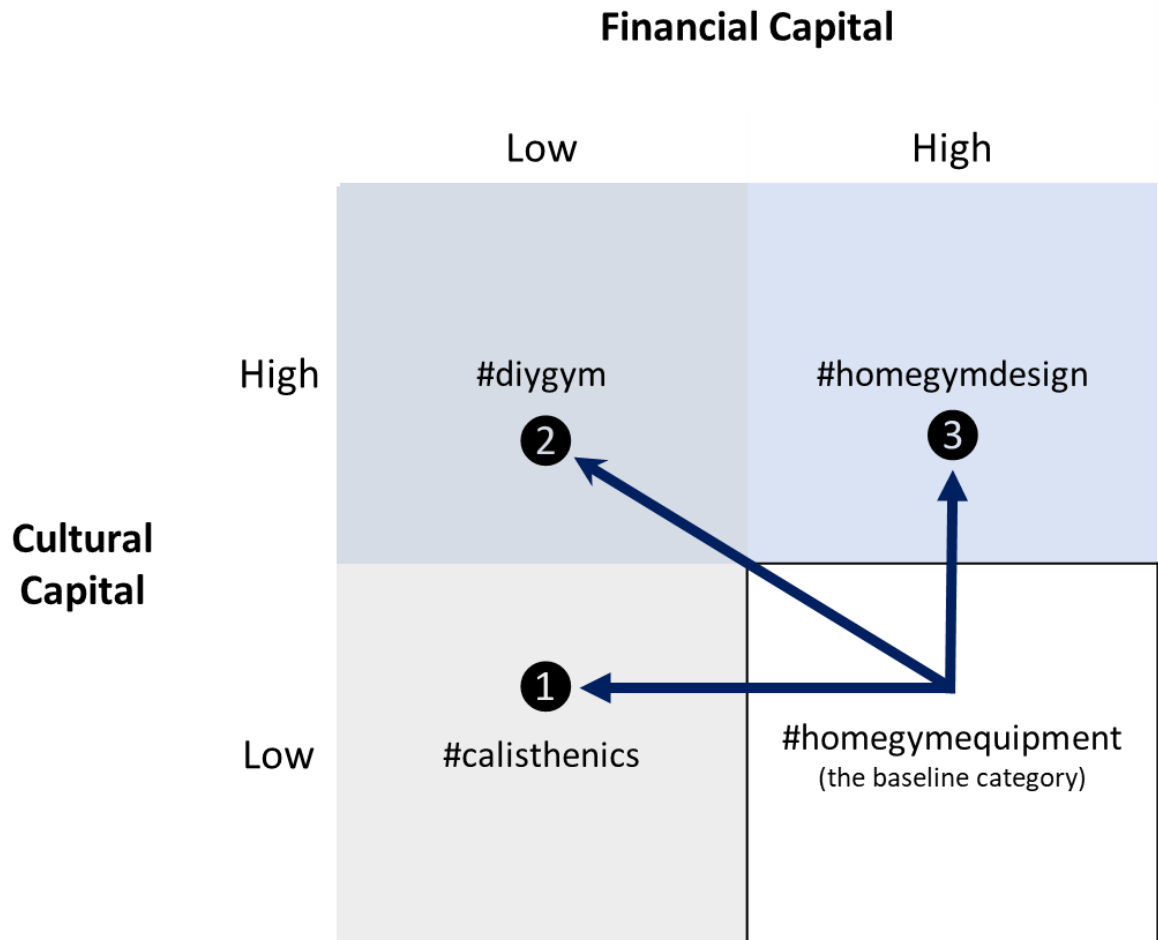
- 1) Material requirements differ: Not all consumers have the resources, the desire, or the opportunity to participate in the marketplace by buying directly from conventional producers. Some consumers who lack the financial resources and have low knowledge of the gym space may even actively resist and choose to embrace minimalism instead. This can be observed with the hashtag #calisthenics, which denotes a form of anti-consumption as consumers choose to forego material requirements altogether.
- 2) Consumer versus producer roles: The distinctions between producers and consumers are not as defined as they may appear to the outside observer. Traditional retailers still have demand for their ready-made solutions from those who are willing to put forward the money. However, those who may not have the resources (or do not want to spend them),

but possess the skills to create their own solutions, can transcend the producer/consumer barrier. As we observed in #diygym, creativity and skill came together to create home gym solutions that allowed consumers to bring their visions to life – in the process, removing equipment suppliers from the equation.

- 3) Aesthetics and style matter: Working out is not just about getting in shape. There is a whole market segment that not only possesses the knowledge of what equipment is top-tier but also has the financial resources to afford these options. These consumers' higher-end taste in equipment is also reflected in their thoughtfully curated spaces. The hashtag #homegymdesign showcases the luxurious, often aspirational, side of the home gym space where knowledge of products and availability of resources collide.

#### 4.5.2 Identity and Social Value in Consumption Constellations

We also noticed that identity and social values were reflected in the hashtags we examined. Again, observing how our distinctive hashtags connect with forms of capital within Figure 15, we can begin to see the user emerging from behind their content. Social values are encompassed within social capital, because they help to identify how an individual thinks about their membership within a broader social stratification and relationship to or with other consumers. Relating to identity and social value concerns, we can identify the following conclusions:



**Figure 15 Resource alignment of capital with #homegym lifestyle pursuits**

Path 1 - Inclusive Exercise: Maintaining one's fitness level does not have to mean putting forward the financial resources to invest in gym equipment or having the space for it. As we observe with #calisthenics, some consumers have quickly adapted to a form of fitness that eliminates the reliance on equipment or space. Barriers to entering the market are removed, as virtually anyone can participate in this form of exercise anywhere. Those who resist material culture are content with embracing simplicity and minimalism. With these consumers, identity is often rooted in pragmatism or practicality.

Path 2 - Sweat Equity: Entering the home gym space can be taken into the hands of the consumer with a dose of creativity and some handy skills at their disposal. The hashtag #diygym helps us uncover how consumers circumvent traditional retail offerings in favour of their creations, which offer a seemingly endless array of customization opportunities. While consumers in this area do bring forward a considerable investment of their time and effort and must have the tools to get the job done – in doing so, they are proud to demonstrate the mastery of trade skills such as woodworking or welding.

Path 3 – Luxe: For some consumers, nothing but the very best will do when it comes to fitness and, likely, other aspects of their life. Where domain knowledge and availability of resources come together, we observe high-end, aspirational home gym setups under the hashtag #homegymdesign. Harmony between top-tier equipment and luxurious, sleek surroundings demonstrates the importance of consistency for these users, similar to the Diderot Effect. But, again, status and class consciousness come into play here: these consumers have the wealth to be able to afford the best, and they want to exhibit their sense of taste to the outside observer.

#### 4.5.3 Place Value in Consumption Constellations

Commercial gym closures rendered a once relied-upon place inaccessible. Accordingly, many gymgoers initiated a search for a substitute place or space to sustain exercise practices. This finding figured prominently in the dataset. We took this as our next departure point to observe the formation of consumption constellations. Above all, we recognized that the context and setting in which consumption activities unfold bears meaning – establishing an environment that enhances perceived value. Similarly, places and spaces are important factors that dictate how individuals and groups consume. Next, we re-examine each distinctive hashtag and consider the sources of place value.

At the most basic level, the adoption of #homegyequipment delivered convenience value whereby individuals could work out at home, eliminating commuting to a commercial gym – offering convenience and saving time and opening the possibility of shorter or more frequent workouts. Likewise, there is pride in ownership in having one's own place – especially when that space is customized or personalized according to one's taste, as evidenced in #homegymdesign. Some individuals derive pleasure from and appreciate aesthetic consistency or despise the

ugliness of its negative counterpart. Place value may also derive from the status signals communicated to others who visit and form impressions of the home gym.

Beyond the six distinctive hashtags already discussed, we found other examples of how place matters. For example, we noted many posts showcased gyms people built in their garages, often with the door open, blending an indoor space with the outdoors. Interestingly, the pictures included in Twitter messages were diverse and sourced worldwide. However, a search for #garagegym on Instagram returned images posted by a commercial gym named Garage Gym. The social media posts showcase the gym’s industrial chic style, using place and design as brand image elements (see Figure 16).

Anthropologists have long favoured in situ visits to consumers’ homes to study the meaning of goods, as McCracken (1989) did in mapping the properties of “homeyness.” However, we believe that social media platforms such as Twitter and Instagram hold great promise for studying place meanings in consumption constellations as they offer entry into consumer places and spaces. In particular, sharing photos and videos are invaluable data sources, giving researchers a window to observe consumption constellations in ways that were once impossible.

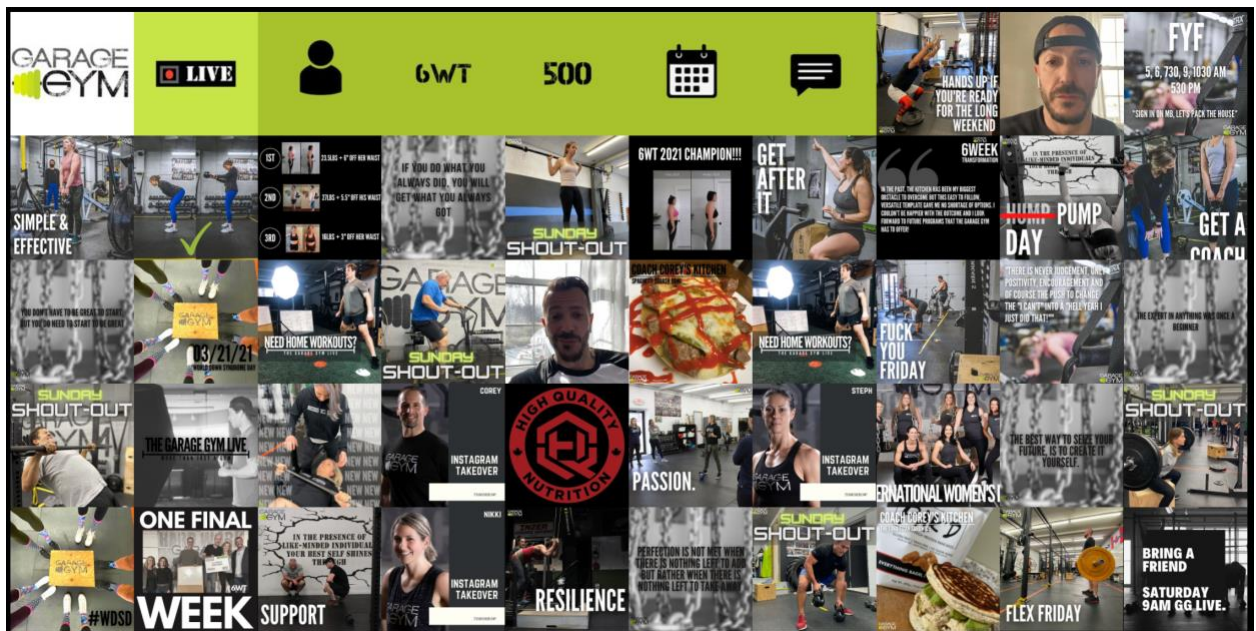


Figure 16 #Garagegym Instagram photos

## 4.6 Discussion of the #homegym Findings

This research investigated the following questions:

- (1) How can hashtags in social media be analyzed in new ways to understand the meanings of lifestyle product categories?
- (2) What insights can we derive into product complements, consumption constellations, and Diderot unities from a system of hashtags associated with a lifestyle product category?
- (3) What implications do the findings hold for marketing management of lifestyle product categories?

Our study aimed to leverage the power of easily accessible, widely available online conversations to understand how a category is defined and expressed. Using home gyms as a case study, we observed how consumers engage with an emergent category in real-time by noting the hashtags they use in their content to follow conversations. Also, we identified the boundaries of the conversation by identifying distinctive threads and tracing affiliated hashtags to reveal related conversations. In doing so, we mapped the landscape of the #homegym category at a time of significant transition, answering the first research question.

The strength of our approach comes from our cross-platform method, as we harnessed the power of both text and visual mediums. For example, Twitter conversations helped us identify individuals' words and phrases used to discuss the topic, providing us with hashtags to trace conversations. Using the distinctive hashtags to source relevant imagery from Instagram, we obtained greater insight into how users capture and express these themes. In reviewing the imagery, we gained a greater understanding of foreground and background elements related to the topic and an enriched perspective on contextual factors, such as setting. Finally, using Inffact, we developed a list of affiliated hashtags that helped us to identify related domains to see how seemingly unrelated groups of consumers may be connected.

From our exploration of the #homegym leisure space, we submit the following insights:

***Tags and images reveal diverse lifestyle product category assemblages.*** Echoing Fournier's (1998) words, consumers do not simply buy products; they choose lifestyles. Consumers choose products and gear to support their activities, but ultimately, they buy into a particular lifestyle

and support a/n (emerging) culture. Mapping out tensions helps to understand what is consumed, how it is consumed, and by whom. By identifying distinctive consumption groups within the category via hashtags, we could observe who these individuals are and how they express their participation in the #homegym space. Assembling and reviewing tagged images within ImageQuilts allowed us to observe how a variety of important meanings converge and manifest for each subgroup: from the product, identity and social value, and place. Understanding the interrelatedness of these meanings can shed light on how products and services are consumed. Further, having a grasp on how products are related to one another can help to indicate new or emergent complementary pairings that consumers require in order to accomplish a variety of aims – whether functional, aesthetic, social, symbolic, or otherwise.

*Consumers pursue distinct lifestyles using products from the category.* Through our distinctive hashtags, we observed that the consumers drawn to the space come from different backgrounds and interact with the space in unique ways. Varying degrees of economic, cultural and social resources demonstrate various possibilities within a consumption category. An off-the-shelf solution, as evidenced by #homegyequipment, hardly captures the preferences and approaches of the market. Some consumers know how to navigate the production process independently and want to create their own solutions (#diygy). Others will seek out and display the best money can buy (#homegydesign), while others will find ways to interact with the space without purchasing (#calisthenics).

*Social value marks product lifestyle categories.* While working out is often seen as an individual pursuit, we discovered relational qualities within the category. Despite similar end goals (i.e., to stay in shape), the way that routines are carried out can differ significantly based on who is involved. Some consumers are happy to keep the focus on themselves, demonstrating their fitness routines and progress (#dadbod). However, the importance of others in consumption activities cannot be overlooked. Working out takes on a whole other meaning when the collective takes part, such as when family and friends become integral components of the activity (#familyfitness).

Together, our findings successfully answer our three research questions in the context of home gyms. Next, in the final chapter, we discuss the more general theoretical, managerial, and methodological implications.

## Chapter 5

### 5 Discussion and Implications

Although successful new product introductions can be attained within industry-defined categories, opportunities for growth and innovation are likely to originate in consumers' perceptual categories. Therefore, one needs to understand how the consumer defines the category to effectively reach them and provide value. The naturally occurring messages on social media do just that – by tapping into the consumer mindset and entering conversations like never before (Boegershausen, Borah, & Stephen, 2021; Arvidsson and Caliandro, 2016). Furthermore, analyzing hashtags and images enriches this understanding by surfacing symbols and actions not vocalized.

The challenge that marketing managers and brand strategists face is that business planning enacted on the firm side tends to be at odds with how consumers utilize products and services. A traditional firm-centric view is based upon siloed "vertical" thinking – benchmarking against competitors producing a similar offering. However, consumers tend to buy "horizontally" – making decisions based on the harmony between elements within the whole (Solomon, 2021). By taking a step back and observing interactions and representations in situ, our method allows the consumer's perspective to lead the trajectory unobtrusively – revealing the consumption constellation to the keen observer.

Attentiveness to some of the more peripheral points in the constellation unveils new, promising exploration directions (Reeves, Goodson, & Whitaker, 2021). Since hashtags connect to broader communities, perusing related tags can discover untapped opportunities by entering related conversations. Just as purchasing a product may reinforce an existing unity, it may inspire consumers to reinvent themselves anew (Davis and Gregory, 2003). The forces that lend structure and coherence to consumption constellations are broader than previously construed. Equipping marketing and branding strategists with an agile approach to keep a pulse on market shifts allows for gaining insights quickly and affordably.

An integral part of our study hinges upon existing theory to help make sense of our findings. In offering a method to trace the consumer view of a product category, we bring forward Solomon's

(1988) consumption constellations and McCracken's (1988) Diderot unities to support the notion that consumption does not occur in isolation within categories. Instead, consumers seek out complementary products to fulfill a particular goal. As connectors of disparate conversations online, hashtags helped us to discover the different segments within a category and enacted consumption practices – which can cast a more comprehensive view of the diversity of products used in these practices. Weaving in Arvidsson and Caliandro's (2016) notion of the Brand Public, we also demonstrate how hashtags can effectively identify disparate conversations in the far reaches of the online world. Identifying and following up on affiliated hashtags can help to discover new customers – potentially unearthing untapped demand.

While the impetus for engaging in home gym purchases largely stemmed from environmental factors (COVID-19 lockdowns and restrictions), our ability to observe the meanings manifest in user-generated content can indicate several key departure points from which consumers choose to engage with a product or service. For example, Song, Gonzalez-Jimenez, and Belk (2021) highlight how changes in the self can initiate a string of new purchases that create new Diderot unities. In addition, focusing on the value placed on products, social and identity concerns, and places and spaces enhances our understanding of how new consumption patterns may emerge.

In conducting this research, we have aimed to equip market researchers, brand and category managers and interested onlookers alike with an agile approach to studying online conversations to keep a pulse on the changes in a category as they evolve. We also wanted to emphasize the importance of understanding the interrelatedness of different products and how they come together to bring the consumption experience to fruition – in doing so, we want to give observers the tools to be able to analyze how consumers (as opposed to producers) identify and express their product assemblages.

Our approach demonstrates how managers can derive consumer insights into a product category's meanings and sources of value. We specify four key implications for marketing researchers and practitioners:

***Gather meanings across social media platforms.*** There is utility in combining the strengths of diverse approaches. We advocate for analyzing consumption phenomena by drawing upon textual and visual insights, harnessing both features to understand what is occurring in the online space. For example, tracing hashtags across Twitter conversations and Instagram imagery allows

us to observe explicit and implicit meanings produced within user-generated content. By sourcing affiliated hashtags from Inflact, we can see how far-reaching conversations are and understand how subdomains of consumers are connected. By grasping these meanings as they emerge, marketing managers can keep a pulse on category activity in order to ensure that their product or service offerings are in line with the current needs of consumers. Identification of related subdomains of consumers can shed light on new market segments who may be interested in what a company can offer.

***Seek agile research insights into the consumer journey.*** By using and developing tools to follow and analyze online conversations, we aim to equip marketing professionals with the resources to make sense of real-time conversations quickly. Moments of disruption, such as the COVID-19 pandemic, force consumers to pivot and adapt their preferences, creating new ways of consuming. Capturing these moments allows for a deeper understanding of how consumers enter and exit consumption categories – what brings them into the space, how they decide to engage with it, and how they might eventually exit.

***Adopt an expanded view of value in product categories.*** We show how consumers define product categories using their terminology via hashtags used to tag user-generated content. Firm-defined categories often do not go far enough in considering how products are used together – instead, they focus on differentiating themselves from competitors who offer similar offerings. We answer the call to expand the scope of how product categories are viewed and defined – by thinking holistically about how products relate to one another when consumption is enacted. To do so, we employ Solomon’s (1988) framework of consumption constellations and McCracken’s (1988) Diderot unities to make a case for widening the focus of how we observe consumption practices. Being carefully attuned to linguistic and visual selections helps to provide a window into how consumers think about and engage with products and services. Collating evidence and observing patterns helps to identify meanings. Further, observing related meanings can illuminate how products are used together to engage particular social roles.

***Study consumer innovation in practice.*** Our three-phased approach (exploration, enlargement and refinement) can help brand or category managers understand how consumers express themselves in these moments of change. By employing the methods we have outlined within each phase, managers can gain a deep, multi-faceted perspective on how the words and images

that consumers select can indicate both their desires and the realities they face – highlighting ideals, pain points, and creative solutions. With this intel, they are positioned to be able to introduce their offering as a viable solution to consumers in a moment when existing patterns shift.

## 5.1 Generalizability and Future Research Directions

As with most research endeavours, ours is not without its limitations. First and foremost, leveraging the benefits of observational netnography provided quick and easy data access, but it has shortcomings as we did not interact with any of the users. Following up with specific users would enable us to probe for additional details that could assist in developing a more nuanced understanding of user goals and motivations, along with the opportunity to verify whether our interpretations accurately reflect their realities.

Further, we demonstrated our approach using a relatively small sample size to generate our initial insights (1000 Tweets) within a finite period (11 days). Extending the number of data points and expanding the time window of data collection can provide a much more fulsome, intricate representation of the array of consumption possibilities. Nonetheless, our approach shows that a larger dataset is not necessarily a prerequisite to deriving timely insights.

In addition, the tensions that we identified may not neatly map onto every context. Instead, our goal is to provide market researchers and practitioners with an example of how they can analyze online spaces, employing tensions to trace conversational boundaries. The distinctive hashtags and accompanying tensions identified by users of our method will vary depending on the online conversations and context within their investigations.

Finally, it is worth noting that social media content often presents an edited, curated version of reality – as users can select and modify nearly every detail that goes into their posts. Just as users can select the words that comprise their hashtags, they can also intentionally choose certain angles, elements to include or exclude, and filters to apply – all of which may obscure the context. We expect the ability to corroborate posted social media content with in-situ visits (if and where possible) can help to bridge gaps between the online and offline worlds.

## 5.2 Future Research

While we lay the groundwork for using hashtags to trace consumption constellations, there are possibilities for future work to help extend our research in the following ways:

***Mapping the customer journey.*** Changing contexts and marketplace disruptions are inevitable in the consumption environment. Dominant perspectives on customer experience management emphasize the “smooth journey model,” also known as “loyalty loops,” where a series of predictable patterns lead to increasing customer loyalty (Siebert, Gopaldas, Lindridge, & Simões, 2020). However, according to Siebert et al. (2020), engaging in planning that incorporates novelty and unpredictability may capture customers more effectively. By shifting from predictable “loyalty loops” to “involvement spirals,” introducing elements of excitement and variability piques the interest of consumers. Future research may seek to understand how companies in the leisure space embrace disruptive forces and embed them within the path to purchase.

***Tracing the genesis (or origin story) of consumption.*** Despite the ubiquity of the consumption constellation theoretical perspective, there is considerably minimal work investigating the origins of these constellations. The existing theory has defined and documented the consumption constellation, but where do these constellations emanate? While our research does aim to understand the boundaries of consumption constellations, additional work is needed to understand where and how consumption constellations originate.

***Opportunities for brand and category management.*** We noticed a particular absence of branded mentions or content in our dataset. From our data, we observed that consumers appeared to be more involved in creating and displaying their own home gym set-ups as solutions than highlighting the specific brands included in their acquisitions. Perhaps, “invisible brands” (Coupland, 2005) of gym equipment are considered mundane and blend into the household environment. Given this absence, it may be possible that since consumers had such an integral role in executing their home gym solutions, they felt a particular sense of ownership over the process instead of attributing the result to a brand. Alternately, it may be possible that consumers with the resources to procure higher-end equipment may engage in conspicuous consumption – displaying their branded products without explicit mention (Ferraro, Kirmani, & Matherly,

2013). Moments of disruption allow brands to become a part of the consumer's consideration set, shedding old ways of consuming and allowing new ones to form. Equipped with the tools to understand the social and cultural dynamics at play in a turbulent and changing environment, what strategies can brands employ to establish themselves as the frontrunner in the minds of consumers? In particular, are there subtle ways that brands can insert themselves into the consideration of consumers who oppose material goods (as we observed in #calithenics)? Conversely, how can brands defend themselves from the threat of attacks on their product category?

***Investigating algorithm-influenced interest.*** As consumers interact with online platforms, they leave “online traces” that can become valuable data used to understand consumer needs or demands and inform what content audiences see (Kozinets, 2021). By collating evidence of what consumers may or may not be interested in based on previous online behaviour, algorithms can bring forward the type of content that will likely engage consumers. Essentially, consumers become entrenched in a feedback loop where the algorithm anticipates and shows more of what they want to see. This spiral means that distinct users are likely to see a unique compilation of posts tagged with a specific hashtag, given that their search behaviour and online engagement differ. In future research, it would be interesting to look at how observed meanings within a user community differ based on exposure to content within their social media periphery. Further, studying how users engage with new content introduced in their social media feed based on algorithmic recommendations could help illuminate new points of departure for consumption constellations.

### 5.3 Conclusion

In lifestyle product categories, consumers rarely use products in isolation. Instead, products are often consumed together with related offerings creating consumption constellations and unities. This thesis investigated the power of hashtags to convey meaning and developed methods to investigate the connections, components, and conflicts that mark the symbolic contours of a lifestyle product category. We hope this modest work offers new perspectives on consumption constellations and the relations between goods, their users, and the places where consumption experiences unfold.

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