

The Crafting of DIY Fatherhood

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ABSTRACT

Prior research shows that the social construction of gender evolves in relation to specific economic and social processes. This paper examines how the practice of DIY (do-it-yourself) making has become a productive frame for a collective of fathers in the U.S. to express masculinity, amidst increasingly precarious economics and shifting norms of gender and labor in the home. Drawing from a qualitative interview study with fathers (n=22) and visual analysis of DIY father blogs (n=29), we examine how DIY fatherhood was produced across the material and discursive practices of blogging. This paper contributes an empirical account of a contemporary phenomenon: the construction and performance of DIY practice as a category of fatherhood identity and domestic masculinity. Further, the paper describes how fathers engage in entrepreneurial thinking as a form of domestic male labor.

Author Keywords

Fathers; Dads; DIY; Blogs; Identity; Sociomateriality.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

Tim Allen, a famous stand-up comedian, starred in a U.S. sitcom called “Home Improvement” that explored “the negotiation of fatherhood in the 1990’s in the context of the cultural changes since the 1950’s” [30]. Tim played a father who starred in a do-it-yourself (DIY) show [30] and was fascinated by power tools and home improvement projects. Tim would involve his sons in “do-it-yourself task[s]” in order to instill his views of masculinity and shape their coming of age [30]. However, in later seasons, Tim’s wife, Jill, became employed, forcing him to make sense of his changing identity [30]. “Home Improvement” was a novelty in the sense that most prior sitcoms had portrayed fathers as sole breadwinners in the family [35].

The story of “Home Improvement” mirrors in many ways the shifts in gender norms and values and how they emerged in relation to America’s social and economic processes since the turn of the 19th century. Early polls in the 1930s, for instance, showed that men were opposed to women entering the labor force ([20] cited in [48]). Even as this outspoken resistance waned, women were expected to fulfill domestic responsibilities as they entered the professional labor market [32,48]. More recently, time-diary studies, surveys, and ethnographies have shown that while dual earner families constitute 63% of the American workforce by 2009 [41], mothers still take on significantly more household and childcare work than fathers [47,48]. The gap has begun to narrow [47], with more men taking on domestic responsibilities and the number of stay-at-home fathers on the rise [39]. Nevertheless, women continue to carry a greater combined workload [47].

As part of a larger and ongoing project focused on expressions of fatherhood in the digital age, this paper examines how a DIY approach towards fatherhood became a constructive subject position for a collective of father bloggers as they negotiated their domestic identities in light of the decline of the “sole breadwinner” economic model. In their blogs, the fathers documented projects relating to (1) self-sufficiency and home-improvement; (2) arts and crafts; (3) and innovative cooking, as well as their children’s participation in these DIY projects with them.

We draw from prior work on gender performativity and sociomateriality in science and technology studies (STS) and human-computer interaction (HCI), e.g. [10,46,58], in order to explore how DIY making, as an attitude and practice, became a productive frame for fathers to enact masculinity. We concentrate on the emergence of DIY as an expression of masculinity and its relation to recent and contemporary shifts in the U.S. knowledge economy. This work contributes to scholarship on gender and technology in the following three ways: first, it provides an empirical account of a currently unfolding phenomenon: the construction and performance of DIY as a contemporary category of fatherhood. Second, it moves from the frame of identity as something stable that people take on, towards identity as enacted and negotiated across both the digital and physical world. Finally, it follows a line of research that has articulated the ways in which changes in gender norms unfold in relation to specific historical, economic and political processes [24,35,42].

RELATED WORK

Bowker and Star [10] argue that social and cultural categories emerge in relation to specific historical processes. The enactment of social roles such as “father” or “mother”, for instance, unfolds in relation to socio-economic and geopolitical shifts (*e.g.*, the women’s right movement, World War II) [16,35]. In this section, we first focus on how the social meaning of masculinity, domesticity, and DIY have evolved leading up to the present day. Then, we discuss how sociomateriality has been used in analyzing the interplay between DIY and feminist ideals. Finally, we anchor this work in a broader trajectory of computing research focusing on fathers and technology use.

DIY and Gender

LaRossa argues that there are two kinds of domestic tasks in the home: *masculine domesticity* and *domestic masculinity* [34]. The former, masculine domesticity, LaRossa argues, includes “doing domestic activities in a masculine way.” An example would be caretaking in a manly way, such as fathers taking their sons hunting so that they become more competitive and aggressive, valued traits in a conventional view of masculinity. Other examples include teaching children, especially sons, how to use tools. In contrast, the latter, domestic masculinity, refers to work that might be identified as feminine which LaRossa argues could “increase men’s feelings of alienation and anomie” and to a sense of disempowerment [34]. An example would be the work of caretaking or housekeeping activities (*e.g.*, cooking or changing diapers).

LaRossa [35] proposes that acceptance of domestic masculinity has not increased in a linear fashion. For example, fatherhood norms after WWII reverted back to conservative domestic gender roles with fathers being expected to be breadwinners and mothers caretakers. He suggests that shifts in societal norms and values shaped by the post-WWII economic boom became manifest in the traditional father-as-breadwinner ideal. During this time, suburban home ownership was on the rise, further solidifying the sense of the nuclear family [35]. At the time, male domesticity was expressed through building and tinkering in the garage, shed, or attic.

The term DIY with respect to both masculine domesticity and domestic masculinity gained credence by the 1950’s with mainstream media outlets playing a major role in proliferating ideals of self-reliance and entrepreneurial practice in the home. In a 1952 article, *Business Week*, for instance, referred to the 1950’s as “the age of do-it-yourself” [25]. By the 1960’s, DIY as a form of masculine domesticity had become part of “suburban husbanding” [24]. Gelber [24] describes this period as a “neo-pre-industrial age,” with men taking on responsibilities in the home, decisively distinct from the responsibilities of women such as the working with “heavy tools” and fixing the home. “The association of tools with masculinity was

rooted in the predominance of male workers in 19th century centers of production, especially heavy industry” [26,45]. Goldstein notes that advertisers pushed tools as “quintessential ‘man gifts’” in the 1950’s [26] which depicted and reinforced men’s social roles during that period. Many of these writers were male as was a majority of their audiences and their articles invoked memories of the father figure as a hands-on DIY maker [54].

Despite the evidence that women were taking part in the “muscle work,” media and especially advertisements in the 1950s perpetuated the categorization of building and DIY making as masculine [26]. While mothers might initiate DIY projects and even buy the necessary materials, they were considered only helpers to their husbands who carried out the projects. This gave rise to what came to be known as “honeydo,” referring to when wives requested that their husbands carry out DIY projects [25]. However, despite the public perceptions and media narratives of the time, many women were in fact engaged in what was conventionally understood as masculine tasks (*e.g.*, welding) [26,45].

Today, DIY making, Lindtner shows, is often construed by advocates of the maker movement as carrying the means to be a good parent by training children in the kind of self-reliance, hands-on, and solution-oriented intervention and innovation thinking considered so necessary to address contemporary educational, social, and economic challenges [36]. Broadly, DIY making is portrayed as a site of individual empowerment by democratizing participation in technology production; “everybody can be a maker,” is a common phrase decorating the promotional banners of maker faires and the walls of hackerspaces. Despite the rhetoric of inclusivity, contemporary DIY making and hacking is often an exclusive practice, male-dominated and reserved for the affluent [54].

A series of women guild, craft, and hacker collectives have challenged and begun to counteract such tendencies. Indeed, Fox *et al.* [22], building on Gelber [25], show that DIY making is often understood as uniquely positioned to counteract gender normativity. The women they worked with in their research challenged dominant masculine framings of DIY by creating spaces for women to meet and hack on their own terms, constructing an “emerging DIY culture” [22]. In their study of the online movement “craftivism,” Bratich and Brush [11] note that crafting “merges with cyberculture to produce ... a new materiality,” and – we’d like to add – a site to come to terms with shifting gender norms and values. For example, DIY is seen as a way to express self-worth amidst rising unemployment [27]. Faulkner [21] argued that men gain a “symbolic compensation for a felt lack of power in other aspects of their lives” through vicarious identification with the power of technologies they build. In the current work, we investigate how DIY practices and gender identities interplay, and how they shape fathers’ engagement in domestic and childcare activities in the home.

Sociomateriality

The lens of sociomateriality, as developed in fields of STS and CSCW, takes as its starting point the notion that social and material worlds are co-constituent, produced and enacted through one another [46]. Van House [58], for instance, drawing from Judith Butler's concept of performativity, explores how identities in the digital age are negotiated and enacted (*i.e.*, performed) across a variety of sites, offline and online, and through both material and discursive means. Sociomateriality provides a potent theoretical lens to study how shifts in gender norms, economic, and social processes unfold in relation to one another by focusing on the ways in which through material production (including the producing of digital content like blogs), cultural meanings, social values, and norms are produced [6,14]. For the purposes of this paper, we deploy the lens of sociomateriality to analyze the material and discursive co-productions of DIY fatherhood. Specifically, we analyze the visual and textual articulations fathers produced on their blogs alongside and through their DIY practices in the home. A sociomaterial analytical lens allows us to investigate how broader societal shifts and value systems, the DIY identity being one of them, unfolds through a specific case study, thus providing an account of "specific material reconfigurings" [6] that in turn "constitute the world" [53].

Fatherhood & Online Discourse

With the rise of the knowledge economy or so-called "new economy" in the U.S. [8,44] and the continuous crumbling of the welfare state [8], the model of stable gender roles in the home and at work began to shift. As mothers started joining the labor force in increasing numbers, they faced what Pleck [48] referred to as role overload. Hochschild & Machung [32] described "the second shift" that mothers took on when they joined the labor force. While husbands were putatively supporting their wives in becoming part of the labor movement, Hochschild & Machung argued that fathers were not willing to shoulder the domestic work that still had to be done, leaving their wives to take on yet another shift at home [32]. The idea of the second shift has been extended into online spaces, depicted as a "third shift" that mothers take on in managing family life online [2].

In the 21st century, men still perform less domestic work than mothers but the gap is narrowing [39,47]. A growing body of literature has focused on fatherhood in digital spaces [4,5]. This work has shown that men face a shortage of father-centric spaces online [4]. Many fathers experience judgment and stigma around parenting, which they address by participating in closed Facebook groups and pseudonymous social media sites like Reddit [3,4]. This work also suggests that dad bloggers choose to blog because it allows them to document their fatherhood identities, roles, and experiences [4], a theme we explore in the current work.

Documentation of experience is a common motivation for bloggers to blog [43,52,57]. For example, mother bloggers engage in discussions about parenthood and building a community [40], and older adult bloggers engage in active creation of online content which enables them to express their values and a more meaningful involvement with others [12]. As they go through a process of documentation [43], bloggers produce "anthologies" [57] as they "think by writing" [52]. Van House [58] argues through their online posts, people engage not only in self-presentation, but they are also "constructing themselves." Van House [57] also notes that bloggers "see [blogs] as a transformative technology for building and maintaining an intellectual community," thus allowing blogs to easily spread norms. Ammari and Schoenebeck [5] describe how fathers post online projects related to DIY to garner social support and suggest it is a form of enactment of domestic masculinity. We extend this work here to investigate 1) how fathers engage in DIY as a form of masculine identity work, and 2) how they do so in the context of their broader social and economic roles.

METHODS

We draw from two datasets in this research. The first is an interview study with fathers and the second is a visual and content analysis of DIY father blogs.

Interview Study: We interviewed men who had at least one child under the age of 18 to learn about their online identities and fatherhood, and their experiences with DIY (see Table 1). The interviews were conducted between April 2013 and May 2015. We asked about what online sites they used, who they interacted with, and how they used the sites. We focused our questions on the context of fatherhood and how fathers might find information and support online. We did not introduce the language of "DIY" in our interviews. The participants used terms like DIY, projects, and building to describe work they did at home. After our first pass through the interviews, we found common themes relating to DIY work at home. The first author conducted a second pass to analyze how fathers discussed DIY projects on social media.

For the current analysis, the 22 participants were selected from a broader research study (n=86) of fathers and online behavior. This subsample was selected in order for us to conduct a close analysis of their described DIY practices. The subsample we chose involved a set of participants whose employment status tended to be stay at home or working part time (*i.e.*, not working a full time job out of the home). Most participants were married (n=18) while three identified as either divorced or separated. All had at least 1 child below the age of 18 (and had an average of 2.2 children among them). Thirteen identified as stay-at-home-dads (SAHDs). Of all SAHDs, some also held part-time jobs (n=5). Seventeen of participants' partners worked full time.

	Marital Status	Degree	Employment	Partner Degree	Partner Employment
F1	Married	BA	FT	BA	SAHM
F2	Married	HS	PT/SAHD	PhD	FT
F3	Married	HS	FT	HS	SAHM; Homeschool
F4	Married	HS	FT	HS	PT
F5	Div (resident)	MA	FT	MA	FT
F6	Separated	BA	FT	BA	FT
F7	Married	GED	FT	MSW	FT
F8	Married	PhD	FT	M.Ed	FT
F9	Div (primary custody)	MA	FT	NA	NA
F10	Div (split custody)	BS	FT	Cert	FT
F11	Married	GS	PT/SAHD	GS	FT
F12	Married	GS	PT/SAHD	GS	FT
F13	Married	GS	PT/SAHD	CO	FT
F14	Married	SC	SAHD	GS	FT
F15	Married	CO	LW/SAHD	GS	FT
F16	Married	CO	PT/SAHD	GS	FT
F17	Married	CO	SAHD	MD	FT
F18	Married	GS	PT/SAHD	GS	FT
F19	Married	GS	FT/SAHD	MD	FT
F20	Married	CO	SAHD	GS	FT
F21	Married	CO	SAHD	MD	FT
F22	Married	GS	SAHD	MBA	FT

Table 1. Interview participant demographics. SAH[D/M]: Stay-at-home-[dad/mom]; HS: High School; SC: Some College; GS: Graduate Degree; CO: four-year college; MD: Medical Degree; LW: Looking for work; PT: Part-Time Work; FT: Full-Time Work.

This research was approved by the research team's Institutional Review Board. Fathers were recruited using father online support groups, father Facebook pages, and the research team's personal Facebook and Twitter accounts. Two of the interviews were done over the phone and twenty were done over Skype. The interviews were transcribed and coded using an inductive coding approach [55] to investigate the relationships between their use of the Internet and social media and their identities as fathers. Team members discussed emerging themes from the interviews as part of the broader research goals.

Visual and Rhetorical Analysis of Blogs: In the interview study, a number of fathers told us about their public blogs about fatherhood. In addition to these blogs identified in our interviews, we expanded the sample of father blogs using outlinks located in those blogs. We also conducted searches on Google using sets of salient terms from the interview data, such as "DIY," "Dad," "Daddy," "Blog," "Crafts," "Lunchbox" etc. The 29 blogs we selected for analysis represent a broad but not comprehensive sample of father bloggers and DIY practices.

We began our blog analysis by studying the content of the blogs, using an ethnographic study variation [31] of blog content analysis as introduced by Nardi *et al.* [43] and Schiano *et al.* [52]. We carefully read the "About Me" section, if it existed, to understand fathers' depictions of themselves and their families online. We read the very first blog post in each blog to determine fathers' motivations for blogging. We also read most of the recent content (within the last year) especially as it related to DIY. Depending on the blog design, we also read the most popular posts and some relevant older posts.

Out of a total of 29 blogs, 13 bloggers described themselves as stay-at-home fathers. Our oversampling of this demographic is likely to do with a focus on diverse employment roles in our interview recruitment. It may also be that fathers who stay at home are more likely to blog about their experiences at home and doing child care work. All but three blogs were single author blogs; the remaining three were collective blogs that were co-authored by multiple fathers. We analyzed the written content, identifying themes and topics that emerged within and across blogs, in order to understand what fathers share online and how they express their roles and identities in these online spaces. We also analyzed visual artifacts on the blogs including banners and pictures attached to posts to investigate imagery related to fatherhood, masculinity, and DIY. We pair these data with the interview data to better understand their motivations for participating in and producing DIY blog culture.

Interview participants are referred to using a participant number (e.g., FXX) while blog content is quoted without a participant number. When discussing bloggers in text, the title of the blog is used. Prior work suggests that parents, including fathers, place great importance on their children's privacy online [2,4]. All blog content in our analysis is publicly available; however, we chose not to reproduce photos of children or identifying information about children from blogs in order to protect their privacy.

A Note on Language

Throughout this paper, we use a number of terms that merit additional explanation.

Fathers or Dads: We typically use the term father throughout this paper but we also use the terms "dad" and "daddy" in cases where the interview participant or blog author used those terms. We use "father" to be consistent with scholarly norms versus "dad" which is used more colloquially in everyday conversation. However, it is important to note that the term father actually refers to biological parents who are males [15]. The term dad, on the other hand, refers to those who, whether biologically related or not, provide a parenting figure for children [15].

Throughout this paper, we use "father" instead of "dad" for readability and consistency. It is likely that many of the blog authors we study used "dad" in their blogs because

they strongly identified with their social role and identity as a parenting figure. We also use “stay-at-home father” unless a blog author refers to himself as a “stay-at-home dad” – the terms appear to be used interchangeably in prior work. We use “father” here to make clear connections to prior scholarly literature; in presentations to non-academic audiences we use “dad” to connect to the public (e.g., families).

DIY: “Do-it-yourself” has been in use since the early 20th century to refer to work that one does without the help of professionals, especially with regards to repair and maintenance work at home [25]. The term was also used to describe hobbies that required manual dexterity. These hobbies were considered more appropriate for males and usually comprised working on creating a new object, or fixing something that is broken at home [24].

Makerspaces and Hackerspaces: These provide the physical space and tools, which can be complex and expensive (e.g., laser cutters), for people who are interested in doing DIY projects [23]. The physical location also enables “community operated” experiences for people to “meet and work on their projects” [23]. For example, Toombs et al. [56] argue that makerspaces do not only reflect the rugged individualism central to neo-liberal ideals, but also constitute social spaces where newcomers are socialized into the community of makers. The term “hacker” is often associated with computer programming and the first hackerspace, “c-base,” was created in 1995 in Germany by programmers who shared a physical space [23]. However, with the rise of hackerspaces, maker and open source hardware tools and projects, maker enthusiasts and tech media like *Make Magazine* began proliferate the term maker and makerspace in order to appear as an all-inclusive and often decisively family-oriented project [38]. While some argue that the term hackers refers to technically proficient individuals, the differences are not a focus in this paper and we use both.

FINDINGS

In the first section, we describe why fathers blog and what they blog about as a means for crafting their identities in online spaces. Then, we describe fathers’ relationships with their children as it relates to DIY practice. Finally, we describe online communities for fathers and DIY practices.

Crafting a DIY Identity

Dad bloggers posted about three major areas: (1) self-sufficiency and home-improvement; (2) arts and crafts; and (3) healthy and enjoyable food. Some bloggers viewed work done fixing the house or otherwise creating value through saving money as a DIY project. Others viewed any project that allowed them to interact with their children to produce something (be it arts and crafts or a home-repair project) as a DIY project. Bloggers saw cooking healthy meals for their family as a DIY activity in its own right. In the following sections, we will describe what motivated fathers to blog about their lives, what led them to start

blogging, and how they chose the kinds of DIY projects they shared with others.

Blogging “to change the face of fatherhood”

F6 had lost two marketing jobs by the end of 2008 and found himself in a different experience from his prior life which he characterized as “ha[ving] a job that was great and paid well.... making plenty of money.” In addition to unemployment, F6 was facing an impending divorce and estrangement from his son. He attempted to grow his technical skills through software coding, and as part of this, he co-founded an online dad blogger community. He described designing and implementing the online community as a “dream venture, at the time not knowing how successful it was going to be.”

I was collecting unemployment...I was actually starting to code [a dad online community]... It’s also been the most rewarding and the best... work I’ve ever done in my life in terms of its impact, and what I think it can achieve philanthropically in the world... It’s absolutely made me a better more involved parent and wanting to share my success as a parent... and my failures, too. F6

F1, a comedian and entrepreneur, was a father of two children who shared parenting responsibilities with his wife. One of his children became ill at a young age and he blogged about his child’s condition, in addition to cooking tips general parenting tips. He injected humor into his blogs. One of the many things he produced included, for instance, a YouTube tutorial video about swaddling a child using a game show motif. The video portrayed the father as competent and capable, engaging in an everyday task (baby swaddling) with comfort. Noticing the scarcity of dedicated websites and digital space for fathers, F1 eventually decided to set up a community blog with F6.

We feel like we’re kind of changing the face of fatherhood ‘cause I feel like today’s dads are more proud and happy. It used to be the case where dads were working full-time and didn’t spend as much time with their kids. Now, it’s like you see a lot of stay at home dads. There’s a lot of situations where both parents work. So, the dads are just as hands on these days in many situations as possibly the moms are. F1

This view echoes that of the creators of another community blog for dads called Dadcentric [59].



Figure 1. Blog Banner for Dadcentric [59].
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The blog banner of “Dadcentric: Join the Movement” (see Figure 1) depicts a beer and a baby bottle crossed over each other, a play on the aesthetics of communist revolutions.

The revolutionary tone of the visuals was reflected in the tone of writing and contributions by its bloggers, who express strong commitment to altering normative views of fathers as sole breadwinners. What they proposed, as the alternative, was the father as an engaged, active and creative figure, or as the blog stated on its front page:

DadCentric is a junta of smart, edgy, and talented writer-dads, at the forefront of a revolution whose purpose is to overthrow the outdated notions of Fatherhood.

Dad bloggers wanted to change what they viewed as out-of-date normative views of the father as uninvolved breadwinner into an involved and caring parent. Some viewed this as a socially and economically transformative process; other dad bloggers saw blogging as part of a process of learning how to be a good father. For example, F3 grew up in what he referred to as a “broken home” and blogged about fatherhood as part of his efforts to become a better father. F3 noted that he was “not making any money [blogging about fatherhood], but just doing it as a labor of love.” Another dad blogger, DadIsLearning [60], echoed the importance of discussing parenting issues. In his first blog post, he wrote that “life is about learning and one of the best ways to learn is through sharing experiences, thoughts and observations” [60].

For these fathers, the learning process was not only about DIY work, but also about crafting their own identities as fathers. Whether the goal was explicitly aimed at social and economic transformation, as in DadCentric, or a more pragmatic endeavor oriented towards advancing their skills sets or both, for participants the outcome was, as F1 put it, “changing the face of fatherhood.”

Producing the “Crafty Dad”

Most of the blogs we analyzed (21 out of 29) stated their involvement and identification with DIY on the front page or “about” pages. For example, DIYDad [61] described his day job in management at an architecture company. He elaborated how he “always loved ‘building things.’ As I was growing up, I was lucky enough to have someone take me under their wing and teach me...about building and maintaining a house.” One of the two co-authors at dadand [62] similarly explained that “he loves being a designer, but his true loves are his daughter, Emily, from merrypad.com [DIY enthusiast], technology, science, gadgets, nerdy crap.” One of the contributors to the blog defined the contents of the blog as a “mashup of all things dad-, and dude-related. DIY, repairs, cars, gadgets, cooking” [62]. Other fathers depicted broad skillsets in their depictions of themselves. For example, the homesteaddad [63] blogger identified himself on his blog as “an NRA certified instructor” who can “also sew, knit, and even cook, albeit not too well.”

The concept of a DIY dad was also produced and reified through the visual design of the blogs themselves. For example, Crafty Dad [64] used a banner showing a wooden

background with a short statement on the foreground, depicting him both as a father and a maker of things (see Figure 2). Through this banner design, he made salient his view of craft as a particular approach to fatherhood.

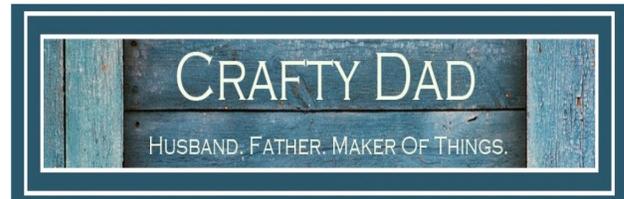


Figure 2. Blog Banner for Crafty Dad Blog [64].
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Another blog, Dadbloguk [65], featured a graphic (see Figure 3), where a cartoon figure resembling the author holding a baby bottle in his left hand and a wrench in his right hand with one arm crossing over the other. This image is reminiscent of common DIY maker imagery circulating online and in periodicals like *Make Magazine*, depicting both men and women in firm poses with tools in their hands.



Figure 3. Blog Banner for Dadbloguk [65].
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Blogging, across these sites, was in part about as F21 put it “mak[ing] sense” of what it meant to be a “good” father and parent, which in the examples above was mostly about “craftiness,” creativity, and a hands-on engagement with children and life more broadly. In addition to discussing crafts and DIY work, a subset of blogs focused on exploring what it meant to be a stay-at-home dad, as visible here:

We started fixing up an old house in [state in the U.S.]... where I was a stay-at-home dad for the first time, when he was six months old..... Trying to convince my 80-year-old neighbor that I was a stay-at-home dad and what that meant... I do the same things as a stay-at-home-mom. I'm just not a woman." F21

While F21 blogged about his experiences fixing an old house, he also talked about the unique issues that he faced as a stay-at-home father, especially around interacting with people who did not understand this choice. Other fathers also indicated that such DIY “projects” at home provided a way for them to interact with their children while at the same time engaging in DIY work. For example, F11 described how he worked on remodeling their home bathroom with his son. He said that he posted pictures of them working together. F11 said he took pictures of his son “painting the first coat” for the remodel. Introducing his blog, Daddydoodledo [66] shared in his first post how he was “rediscovering how to be a full time daddy again” and becoming “the man of the house doing and fixing everything inside and outside our humble abode” [66]. F17 similarly left his job and then started blogging about DIY projects, which allowed his family to be more self-sufficient. F2, who was a musician with flexible working hours, started blogging when “the kids were babies” and he was spending a lot of time at home with them while his wife worked full time. He blogged about his parenting, his musical work, songs he wrote for his children, and his DIY projects. For F2, blogging enabled him to alleviate isolation and connect to other like-minded fathers.

Self-Sufficiency and Crafts

A number of dad bloggers shared money-saving tips and approaches for self-sufficiency. For example, when F17 became a stay-at-home dad, he began blogging about cost cutting and self-sufficiency tips, such as farming on small scales to provide produce for his family. F17 used his blog to document the projects he was attempting:

To me it's almost like a diary, “Hey, I did this project on this day.” If I wanted to go back and look I can search the blog and find out what I did this time last year and things of that nature. F17

The blogger Honey Do This! [67] echoed this view of DIY projects. He described himself as a “Stay at home daddy by day, DIY’er by night.” One of the projects he shared gave a point-by-point guide to installing a streaming service to avoid cable and Direct TV. In addition to being cost effective, he noted that his “girls don’t have to sit through mind-numbing amounts of product pushing while watching a twenty-minute show.” He posted a photo of himself holding a measuring tape with a header describing his installation process and his choice to “ditch cable” (see Figure 4).

F14 and F7 both blogged about arts projects they worked on with their children. F13 worked on crafts projects with his son, which he posted to Etsy, a peer-to-peer craft community. F13 blogged about making these crafts with his 3-year-old and posted pictures of them working together on social media. F22, a teacher by training, also worked on arts and crafts projects with his children. He emphasized both cost-saving benefits and the parenting value of doing these projects.



Figure 4. Installing a new streaming service [67].

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For example, F22 crafted The Hammer of Thor with his children from recycled materials when they asked for the toy. He later posted step-by-step instructions on his blog describing how to craft the hammer. Dadlabs [17] blogged about crafts projects he worked on with his son. In the first of these blog posts, he defended posting about crafts on a dad blog: “I love to craft. Yes, I have a penis. Unbelievable right? I know I’m venturing into territory generally reserved for MomBloggers, but Dad’s Craft Lab will be another semi-regular segment here at DadLabs.” He then linked his love for crafts to his childhood experiences, explaining that his mother was a “seamstress...and crafter” and his father worked in a cardboard factory and provided much of the material he used in crafting as a child.

Performing Masculinity & Entrepreneurial Attitude

Some blogs focused specifically on the creation of “innovative” and “nourishing” food choices for their children. “Lunchbox Dad” [68], for instance, blogged exclusively about how to make food more enjoyable for his own and other children (see Figure 5).



Figure 5. Innovative Lunchbox ideas from Lunchbox dad [68].

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He started the blog in order to share the special lunches he was preparing for his daughter in kindergarten. He wrote blog posts and created YouTube videos about creating lunchboxes that were both interesting and “semi-healthy” or “hacks for picky eaters.” On the “About Me” section of the blog, he notes that “I want to help you make lunch time fun, connect with your kids, and show you products that make

your life as a busy parent easier.” F13, in addition to working on crafts and selling them on Etsy, also posted about cooking with his child as he was working on his culinary certification at a local school. Other fathers came to cooking as an activity they did not particularly enjoy, but viewed blogging as a mechanism to try to engage with it. For example, F22 found that posting to his blog about cooking, an activity he emphasized enjoying the least, pushed him to move beyond his comfort level and become more creative in his day-to-day cooking attempts.

In other cases, fathers’ accounts of parenting focused on activities that might be interpreted as conventionally masculine. For instance, GeekDad shared movie reviews and their suitability for children. F3 told us:

I go to geekdad.com. It’s talking about dungeons and dragons, and Legos... One of my favorite things about the website is that they give honest movie reviews. And they tell you, in their opinion... Will your kid like this movie? Will you like this movie? When is the best time to take a potty break? Should you pay extra to see it in 3D? And then what is in the movie that parents may have an issue with? F3

Another blog, Manmadediy [62] (see Figure 6), whose author describes himself as a “postmodern male” advancing “creativity and handmade life,” provided how-to guides for other fathers such as home improvements, arts and crafts, as well as “food innovations.”



Figure 6. Manmade Blog Banner [69].
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DIY fatherhood

We now explore the ways in which children were featured in fathers’ enactments of a DIY identity. Engaging children in DIY projects was understood as a form of education that instilled “healthier” behaviors and “innovative” thinking like cooking your own food instead of eating out, or building your own toy instead of purchasing a new one. Many of the blogs displayed images of fathers working with their children via myriad photos and textual accounts of the projects and the children’s reactions.

These included accounts of cooking and craft projects, but also coding sessions and technological hacks fathers performed with their children. Often this included additional work as many produced vivid digital accounts of activities they undertook with their children. F6, for instance, produced a digital performance of projects with his son:

He [my son] is interested in code. If you ask him what he wants to be when he grows up, he says he wants to be a coder. So I’ve been kind of sharing my passion for, my technical knowledge of code with [him] ... and developed a show out of it, and my son loves the show... I toss on the record button that he is aware that he has an audience and wants to perform well for [them]. F6

The kind of DIY practice performed with children varied and many of the men we interviewed drew upon knowledge they had obtained in a prior job or they were eager to self-improve on. F15, for instance, was laid off during the dot com bubble in 2001. He used a music mixing site that enabled people to share and mix each other’s tracks and shared his sons’ mixes online.

Other fathers described their efforts to actively avoid technology. F22 stressed that art projects would “get [children] involved in activities that are away from technology all the time: Doing things outside, getting creative, using their imagination.” For example, one of the members of a father online community shared content about simple crafts projects that other dads could work on with their children without electronics. He wanted to share the experience of creating crowns with his daughters.

One of [our] partners in [father online community]...[does] arts and crafts, and some of the art... He, every week, has a different art or craft project that he...does crafts with [his daughters]. F6

F22 shared tips on using recyclable materials to produce toys children would enjoy, emphasizing the reuse of materials around the house.

Kids always want that stuff, but you don’t always have the money...So I’m just providing like a fun thing that you can do with your kids, and it’s something that you could do with them that’s cheap. You probably have these materials in your house, so it doesn’t really cost you anything. You’re recycling what you already have to create something new with your kids...I call it like “a toy treasure from trash.” F22

Similarly, the blogger Lunchboxdad [68] wrote about meals parents could create along with their children. In one post, he noted that his daughter was interested in French culture so he created a marshmallow Eiffel tower with her and posted it online (see Figure 7).

DadNCharge [70] drew on ideas from Pinterest to work on projects his children. One such idea was based on DIY kits created by another dad who “resorted to crafting to “disengage his son from electronics.” DadNCharge found these kits to be a great way to engage with his children on “creative play.” DadNCharge used the kits to collaborate with his son on creating art and traditional crafts projects. Dad’sLifeOverC’s [71] echoes this sentiment, declaring that his blog is the “place to talk about all of the cool things we do as a family. I try to include my girls in all of my

projects is some way... We do Karate together, read together, work together..."

1. Build Your Own Eiffel Towers



Figure 7. Working with children on marshmallow Eiffel Tower [68].

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F16 blogged about the challenges of managing an architecture business from home, while taking care of his children. He decided to blog about "the process of designing things with kids in mind, or with the input of kids." This joint identity of father and entrepreneur was shared by many participants. For example, TrepLifedad [72] posted about how "stay-at-home working parent...find[s] time to get work done *and* look after the kiddos." His entrepreneurial work as the founder of a new tech company is intermingled on the blog with his parenting experiences (e.g., parenting anecdotes and cooking recipes). He referred to dads who shared similar interests as *dadpreneurs*, and linked to other entrepreneurial father sites such as StartupDadHQ [73].

Collective Identities

Many of the men we talked to either belonged to a group blog or linked to other father blogs via their own blog. F3, a self-described "geek," routinely visited GeekDad, a "community blog made up of parents from all over the world, seeking to raise their kids in their own geeky image" [74]. Blogs like Geekdad.com, for instance, cross-posted to other online media sites such as Wired. At the same time, media sources such as *Make Magazine* linked back to a number of father bloggers [75]. Throughout these blogs, DIY site content would be interspersed with sports news, technology reviews, and other "male-centric" media content.

Online DIY spaces provided a platform for fathers who were working on DIY projects at home. *Make Magazine* [75] links to a number of dad bloggers. Some of these bloggers review other father bloggers' DIY projects and link back to those projects. For example, a *Make Magazine* blogger shared one of the projects produced by DIYDad [18] on *Make Magazine* [76] both as an illustrative case of DIY and of a project that dads can do with their children. The *Make* article focused on both the technical lessons that can be learned from it and on the salience of the project in the father-child relationship. *Make Magazine* construes DIY

fatherhood as a larger utopian project carrying the potential to democratize technology production [54]. Celebrating dads as makers is a central trope in the Magazine, hinting at the male-centric audience. Many DIY dad blogs also linked their content to Wired Magazine in order to position fatherhood in relation to technological and innovation thinking. For instance, Geekdad frequently featured technology products including posts about new apps and products for parents.

Many fathers shared a sense of challenging traditional fatherhood norms, and many complained about the dearth of dedicated online spaces in comparison to mother online spaces (e.g., mommy blogs). F1, a co-founder of a dad online community, distinguished the community he co-founded from the social norms he saw proliferate through more mainstream social media like Facebook.

I guess it's different than Facebook because it's a lot more niched. It's for dads and we also don't have the 20 billion dollar budget that Facebook has. So, those are your differences. But...a member can...find other dads, connect with other dads, share stories, anybody starts on blogs. F1

A co-founder of the site, F6, discussed the importance of creating this "entertainment hub... social network for fathers... to kind of come and share their voice and share their story with the world." F17, whose personal interest is focused on cost-savings and home improvement, echoes the importance of sharing experiences and notes that in the dad "blogosphere, you find people that are like-minded and are kind of encouraging." He used this safe space to "bounc[e] ideas off of people" which allows him to "get pointers before I [get] started."

Through cross-referencing and sharing interests related to fatherhood, parenting alongside other interests such as technology, geekdom, and making, the blogs we documented here were central to shaping a sense of collective identity. This was important for fathers who felt isolated and seaked a community of trusted allies. This collective identity was in part performed through references made to prominent categories such as the DIY maker. The category of DIY making, in other words, provided resources for dads to negotiate their own roles and situate and assert themselves in a changing climate of what counts as good fatherhood and parenting, i.e. creative problem solving, self-reliance, and inventiveness, articulated across blogs and by interviewees.

DISCUSSION

We began this paper with an account of the ways in which gender norms and performativity are contingent on and evolve in relation to historical shifts in economic and social processes. We now return to the question of how a broader orientation towards a DIY identity manifests in relation to the performance of gender norms and identity. We also

discuss how a new kind of entrepreneurship has evolved within fatherhood and DIY practice.

Crafting Fatherhood and Owning DIY

Much like members of feminist hackerspaces [51], the fathers in our study mostly did not seek to resist or disrupt conventional gender norms. Instead, they deployed DIY values and practices to legitimize their work and skills commonly classified as women's work or domestic masculinity. For example, Lunchboxdad portrayed his cooking as an innovative approach to food preparation and parenting (e.g., "parent hacks for picky eaters" [68]). This finding is in line with previous work by Doucet [19], who noted that SAHDs legitimized their care work by emphasizing things like award winning cakes and "home-made" nature of baby food. Others like DadLabs [17] defended blogging about crafts and arts projects by making salient his masculine identity ("yes, I have a penis"). The merging of references to DIY, craft, and innovation thinking with visual metaphors of masculinity (e.g., wrench, woodwork, tools) constituted a way to test out a masculine fatherhood identity built on activities formerly associated with women's labor.

In her study of *Make Magazine*, Sivek argues that maker practices remain male-dominated [54]. Similarly, literature on hackerspaces has "largely account[ed] for narratives of hobbyist engineering culture driven by men" [51]. Rosner and Fox describe how mothers hacked culture by creating feminist hackerspaces that were safe for mothers and their infants, and where the meaning of the term hacking was itself negotiated [22]. However, they were careful to point out that the members of these hackerspaces "did not deny current male distributions of power," but instead used "the language of hacking, and its emerging discourse of digital production, to define and legitimate women as hackers and, accordingly, as relevant actors in high technology markets" [51]. Through the physical design of the makerspace itself, identity workshops and less technical work such as weaving, members of feminist hackerspaces were hacking not only technology, but also their identities [22]. In this paper, we have demonstrated how DIY practice has allowed men to "move out of the shed" and legitimize their house work and care work as just as masculine, if not newly masculine. Many emphasized the innovative capacity of their work and the unique environment it provided for their children's coming of age and learning in a digital age. Through their DIY makings and articulations thereof, fathers created "specific material configurings" constituting the world [6,53].

What this shows, we argue, is that DIY fatherhood has evolved as a category, which Bowker and Star have described as "historically situated artifacts" that are learned through participation in communities of practice [10]. Our findings show that fathers identified with DIY practices and movements, which in turn helped shape their roles and identities amidst a climate of economic and social change.

Bowker and Star proposed that "assigning things, people, or their actions to categories is a ubiquitous part of work in the modern, bureaucratic state. Categories in this sense arise from work and from other kinds of organized activity, including the conflicts over meaning that occur when multiple groups fight over the nature of a classification system and its categories" [10]. DIY fatherhood is such a category, we argue, produced in action and continuously negotiated as it spans diverse practices and boundaries at home and online and elsewhere. DIY and making, in other words, played a role in the articulation of a masculine father identity through labor that has been historically characterized as women's labor or care work.

Hartley argues that social norms are constituted in part through storytelling in mass media (e.g., Television) [28]. Digital media, on the other hand, are often understood as sites to create and "gain some control over... their own cultural productions" [50] through "peer to peer emulation" [29]. Through shared DIY performances on their blogs, the fathers we worked with articulated a particular identity through a confluence of material and cultural co-production. Reitmaster and Zobl argue that "DIY culture "encourages individuals to make their own culture, rather than simply consuming what is mass-produced" [50]. In a similar vein, digital practices are not only acts of self-presentation, but constitute sites to construct oneself [57]. Extending from these prior works, we have shown how fathers crafted identities materially (creating DIY projects), and discursively (by writing and sharing DIY and parenting blogs.) [14,58].

Dad bloggers sought to portray themselves as "crafty" both in the DIY domain and in their roles as a parent. Crafting, while often construed as a feminine activity (e.g., knitting, sewing) [11,13,22], was here appropriated in ways that validated both the term itself (as now a masculine activity) and the diverse activities it prescribed. For example, when fathers blogged about cooking, fathers legitimized it as a practice that men now also do by making it about innovative nutrition intake and creative intervention in their children's lives. When fathers created videos of the DIY projects they worked on with their children, they carefully crafted images of what it means to be a good father in the postmodern age. In other words, when fathers engaged in DIY making, they not only crafted with paper or baked cakes, they also crafted a particular subject position – that of the crafty and entrepreneurial dad.

Much of what we have reported in this paper cannot be divorced from the specifics of American history and culture of masculinity and their contestations [24,32,48,49,54]. Similarly, the practices we observed are shaped by a contemporary turn towards DIY making as carrying the potential to individual empowerment, social change and economic development. This current shift is visible just as much in Obama's celebration of DIY making as enabler to bring back "made in America" as in the proclamations of

making's innovation capacity in contemporary tech media outlets [54], marking a much broader proliferation of neoliberal values of self-reliance, flexibility, and resourcefulness [8,44].

To blog was in part about conceiving a safe environment and social space where one's identity and role in society could be tested out. Prior research demonstrates that spaces like the shed constituted a site of cultural practice, providing men with a space for domestic labor [9]. Similar to the shed, DIY practice is not only about building tools and things with children. Rather, for the people we worked with, it constituted a mode of cultural production, one that was entangled with broader societal shifts in the US towards entrepreneurship, creative thinking, and self-reliance.

Dadpreneurs: DIY Entrepreneurship in the "New Economy"

An extensive body of work on the "new economy" has demonstrated how ideals of knowledge production and creative work go hand in hand with promotions of a new kind of citizen: the flexible citizen, the entrepreneurial thinker, the creative, the innovator, and so on [44]. In this paper, we show how DIY fatherhood was situated within and emerging from these ongoing politico-economic processes. DIY making framed as entrepreneurship and a creative and productive form of labor allowed fathers to enact a form of masculinity in the home, all the while they engaged in practices of care work, typically construed to be feminine qualities.

The rise and proliferation of ideas of a so-called "new economy" [44] brought with it a reliance on contingent work [8], personal risk-taking, and entrepreneurship [44]. F3 declared that blogging about parenting issues is a "labor of love" and F6 dubbed his efforts to create a father blogging online community as "a successful venture." Both F16 and TrepLifeDad [72] explicitly described how their outlook on fatherhood roles was enhanced by their work as entrepreneurs as well as their identity as fathers. Much like earlier "true believers" in the "new economy" who at the dawn of the dot com era were using DIY mechanisms to create their own "zines" online [44], the men we worked with created their own dad blogs in order to position themselves in relation to shifting social and economic processes. The blogs constituted a safe space to connect with other like-minded people to negotiate shifting gender norms, share DIY tips, and express respect for each other's points of view [57]. A number of fathers saw the creation of an online community for fathers as a DIY project in its own right.

While some blogs were more topically focused on DIY, all of them shared the practice of documenting and sharing their particular stance towards fatherhood. Tremendous work went into creating these online sites and carefully crafted images: fathers, in other words were not just consumers of digital content, but also producers of cultural

imagery that was continuously in the works and unfolding through different forms of production: writing, crafting, cooking, video editing, etc.

The DIY movement is often portrayed as an entrepreneurial practice: selling crafts on Etsy, setting up hackerspaces in China or hardware incubators in the U.S. are all tied to new forms of economic labor and production [1,36,37,44]. Here, we describe a different kind of entrepreneurial practice among fathers. Being a good dad was enacted in a variety of ways among our participants: through inventive ways of engaging children in hands on projects, through the production of digital accounts like videos that would signal their parenting to others, and through approaching day-to-day chores like cooking in new and inventive ways. What these material and discursive productions crafted was an imagery of the *dadpreneur*, a term coined in popular culture construing what counts as fatherhood through the ability to act entrepreneurial.

CONCLUSION AND FUTURE WORK

We made the decision to conduct a close study of fatherhood and DIY. In the same way that studies of motherhood are important to study in their own right, we do that here for fathers but recognize the importance of understanding DIY in family life more broadly as well. As one example, some literature has explored the concept of the mompreneur—mothers engaging in entrepreneurial work because of its flexibility [33] — future work could investigate entrepreneurial practices in family life in more depth. Likewise, the participants in this study are mostly well-educated middle-class heterosexual males; future work could examine how DIY and fatherhood relate among different demographics.

Fathers are facing evolving economic paradigms which challenge their ability to fulfill the father-as-breadwinner norm. In this paper, we described how fathers engage in DIY practices in the home and through blogging online. We showed how fathers broaden the definition of DIY work to include not only home improvement projects, but also innovative cooking, crafts, and arts projects. Through this practice, entrepreneurial fathers, or "dadpreneurs," document and share their experiences as men, as fathers, and as domestic workers. By physically working on DIY projects and blogging about them, fathers engage in gender performativity and reconstituting new sites and meanings of domestic masculinity.

This work furthers a set of research agendas focusing on fatherhood, technology, and DIY practices. Our results highlight a number of contributions for CSCW scholarship: depicting the "dadpreneur" offers empirical evidence of how DIY practices interplay with social and economic changes over time. Though design implications are not the goal of this work, our results highlight the importance of considering the construction of gender identities and social roles in online spaces. For example, fathers enact and experiment with masculine domesticity via blogging, yet

parenting websites (e.g., Parenting.com, BabyCenter.com) continue to be largely designed for and marketed to women [77]. This work also highlights the nuances of gender and social roles amidst the rhetoric of inclusivity and participation in maker and open culture. Many maker and hacker spaces exhibit values around technosolutionism, innovation, and democratization [7,37]; we might envision new kinds of DIY spaces that highlight domestic labor, routine childcare activities, and femininity.

Finally, this work highlights how engaging in design practice—design of crafts, lunchboxes, or costumes—allows fathers to present and advocate for themselves as involved fathers in their children’s lives. Gender norms and parenting are shifting in relation to economic, political, and technological processes. We have shown how practices of making and DIY have become a site to negotiate and come to grips with exactly such shifts. Put differently, a study of cultures of technology production like DIY making can provide important insights into the day-to-day and lived experiences of contemporary social and economic shifts.

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