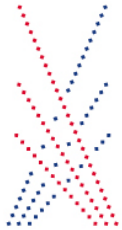

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"I never needed eyes to see": Leveraging Extreme Challenges for Successful Venture Creation

ABSTRACT

Challenge-based entrepreneurship is a nascent research area that has sought to tackle a longstanding issue of how entrepreneurs may overcome extreme challenges. We seek fresh insights into this issue by researching entrepreneurs who face one of the most extreme physical challenges, namely of acute sight loss ("blindness"). While this condition carries social perceptions of extreme physical incapacity and performance limitations, there continue to be examples of entrepreneurs- a number of them well known- with permanent blindness. How do blind entrepreneurs overcome barriers resulting from their impairment? By observing and conversing with two blind serial entrepreneurs, we offer preliminary answers to this question by generating insights into processes of opportunity formation in which ideas are conceived and developed out of the entrepreneurs' challenges. Our chief finding is that our blind entrepreneurs instrumentalized their impairments for commercial or social purposes by creating ventures that leveraged public perceptions of blindness and disability. Accordingly, in their ventures, our entrepreneurs drew on distinctive attributes of their physical and social challenges as a means of exploiting narrow conceptions of disabled people's capabilities. These entrepreneurs therefore overcame their challenges by capitalizing on public conceptions of their limited capabilities. The subsequent *Discussion* offers research opportunities in and beyond challenge-based entrepreneurship by considering a number of theoretical and practical implications of the adaptive skills and attributes of our entrepreneurs that have enabled them to engage with popular "ableist" and medical, or "tragic", perceptions of disability in original and positive ways.

Keywords: Challenge-based view; Disability; Entrepreneurs; Opportunity formation; Social model; Venture creation.

1. Introduction

Much of entrepreneurship research has sought to distinguish entrepreneurial success from failure on the basis of entrepreneurial characteristics. The subsequent, stereotypical illustration of entrepreneurial success has implications for often narrowly defined factors in research designs, most importantly in the selection of datasets. For example, little work has examined challenges that may have initiated or produced successful ventures. Challenges may take different forms, including socio-economic challenges arising from debilitating physical and mental impairments (Miller & Le Breton-Miller, 2017). Save for a few studies on attention deficit hyperactive disorder ("ADHD"), there remains a paucity of research on physically and mentally impaired ("disabled") entrepreneurs who face extreme challenges. This study takes a first step in filling this void.

Blindness is often viewed as the most extreme form of physical impairment[1], and consequently to be blinded would be a form of torture equivalent to a living death (Rose, 2003). Yet blindness has inspired notable achievements. Blind entrepreneurs such as Louis Braille and Francis Campbell continue to be remembered nearly two centuries later. There are blind performers today with their own enterprises, including well-known names such as Andrea Bocelli and Stevie Wonder. While their performances have been publicly acclaimed, few questions have been raised about the role of their blindness in their achievements. In this puzzling scenario, we were motivated by an overarching question of how disabled entrepreneurs may overcome their challenges. As entrepreneurship researchers, we focused on an extreme setting of late-onset blindness in which two entrepreneurs lost their sight during early adulthood. Extreme settings (Eisenhardt, 1989) such as physically-challenged entrepreneurship could be particularly suitable to learn how entrepreneurs are able to overcome significant social and economic barriers. This is because physical impairments have played a major economic and cultural role in many societies. For example, Homer and Milton were thought to have

[1] Blindness in many countries is legally defined (chiefly for benefits) as having a medically-diagnosed visual field of 20%, or less, and/or a central visual acuity of 20/200, or less, in the better eye: http://www.afb.org/info/blindness-statistics/key-definitions-of-statistical-terms/25. Blind persons are rarely sightless.

produced great poetry because of acute insights from their sight loss (Drake, 1814). Our study reflects this western classical thinking wherein blindness imposes lifelong physical disability. Yet there continue to be examples of high-achievers who are blind. In what way(s) does sight loss relate with entrepreneurial activity? How do visually-impaired entrepreneurs create new ventures?

For our first research question, ex-ante, we identified two mechanisms that may help to address this question. Above all, physical and mental disability hinders employment (Jones & Latreille, 2011). Consequently, physically impaired employees often seek self-employment in order to survive. However, a decision to be self-employed does not explain the opportunity-seeking behavior of blind entrepreneurs. Despite their record as entrepreneurs, we know little about them, or about disabled entrepreneurs as a whole. Consequently, our knowledge of entrepreneurship continues to be based on the experiences of physically and mentally healthy individuals (Kašperová & Kitching, 2014). It seems to follow that disabled entrepreneurs would need to overcome a range of barriers, in addition to their physical and mental hurdles, in coping with a sighted world (French, 2001). Blind entrepreneurs who successfully negotiate these hurdles may have developed coping strategies that minimize the constraining effects of their challenges (Breton & Le Breton-Miller-2017). Some of these challenges may be turned beyond coping into competitive strengths (Carver et al., 1989; Starr & Fondas, 1992), for example by leveraging public interest in diversity and equality to demonstrate the employability of "disabled" citizens of working age (Binc.).

This latter point is closely related to an ex-ante explanation of our second research question. Generally, the loss of partial physical functions may be viewed as an "incomplete" challenge. Yet the fact that partially impaired people have faced significant challenges and have then developed adaptive mechanisms (Miller & Le Breton-Miller, 2017) suggests the development of cognitive techniques to exploit challenges. For example, Byrne & Shepherd (2015) explain how the shock of business failure may jolt entrepreneurs into developing new cognitive techniques that can chart more informed strategies. In this research, a combination of high positive emotions and low negative emotions served

as effective cognitive resources to make sense of failure and in seeking to avoid them (ibid.). In our own research, we explored a similar insight in which our visually impaired entrepreneurs exploited negative experiences of their physical impairment by developing new attributes, including cognitive attributes (Table 1). In a dominant public narrative of non-disability, socially adapted attributes of these disabled entrepreneurs may then produce unique competitive strategies (cf. Zahra et al., 2006).

2. Theoretical Foundations

In developing insights on our entrepreneurs, we drew principally on the challenged-based view of entrepreneurship (Miller & Le Breton-Miller, 2017). This was because of its promise in guiding understanding of new venture creation among entrepreneurs who face a range of often life-threatening challenges. Prior to our research, based on writings by and about disabled workers, we assumed that our entrepreneurs' challenges were substantially the same as the social, economic, and cognitive challenges that many other disabled people continue to face in developed economies. This assumption seems consonant with Miller & Le Breton-Miller's (2017) model of "underdog" entrepreneurs, which suggests how extreme challenges may compel adaptive skills and capabilities that, in turn, drive entrepreneurial initiatives. The subsequent process of creating opportunities would therefore involve a transformation of entrepreneurs' knowledge of their challenges into creative solutions for workplace issues in non-disabled organizations (ibid., p. 9).

In choosing this framing we have been sensitive to other, possible guiding perspectives, notably from the social model of disability[2]. The social constructivist basis of this model has enabled a nuanced discourse of impairment within a non-disability view that differs markedly from the conventional, medically-based view of disability as the "tragic" condition of an individual's physical impairments. Given this condition, any injury that the disabled individual suffers from using non-disabled amenities are her personal responsibility, as opposed to being a matter of social concern that

[2] Sensitive to the negative effects of both the "ableist" and "tragic" views of disability, we refer to "physical impairment" in lieu of disability, and we mention disability only in relation to socially constructed views of disability.

those amenities may not be set up for impaired use (Swain et al., 1993; French, 2001). The social model, by contrast, emphasizes environmental, structural, and attitudinal barriers that impaired people have to overcome in order to survive, for example, by securing employment in certain professions that accept impaired workers (French, 2001). In this view, disability is a socially constructed phenomenon founded on "ableist" (able-bodied) perceptions of impaired people's "disabilities" (Williams, 2018). Deviating from normative behavior can then produce oppressive consequences, including emotional trauma from social exclusion and intimidation, which the social model has made explicit in "lived" accounts of these experiences (French, 1998; French & Swain, 2006). First-hand narratives of typical barriers in the lives of impaired people have underpinned the social model's influence on disability research and practice (Williams & Mavin, 2012).

However, the social model of disability has been criticized for its ontological basis in a non-disabled worldview that reflects "normative expectation[s] of western, white, middle-class, non-disabled, hetero-sexual male[s]" (Williams & Mavin, 2012, p. 164). The challenge-based view may be similarly criticized as it fundamentally accepts the social model's socially constructed ontology as a workable setting for entrepreneurial activities among challenged entrepreneurs. However, while the challenge-based view includes challenges and conditions that are consonant with the medical model, there would be little scope for the success of challenged entrepreneurs without a social acceptance of the possible value of challenge-based activities, for example in producing creative work solutions (Miller & Le Breton-Miller, 2017, p. 9).

To date, there have been few studies in any field that have drawn on the social model of disability (ibid.). Although any attempt to develop a social model of entrepreneurship is beyond the scope of this study, the non-disabled environment of our entrepreneurs prompted us to accept the social constructivist basis of ableism as a given social context in which they lived and worked. Within this context, we then drew on some of the adaptive mechanisms of the challenge-based model to explore if and how our entrepreneurs' challenges related with their activities.

3. Methods

3.1 Research Context

Our article is based on a recent pilot study of two legally blind entrepreneurs in developed European economies. Prior to their venture activities, our entrepreneurs had enjoyed successful careers as paid employees, respectively, of public and private sector organizations in two European economies. These economies are examples of international trends in state policy towards minimal social intervention (Yates & Roulstone, 2013, in Jammaers et al., 2016). In this view, physically and mentally impaired citizens are employable because of their skills. They are therefore no longer viewed as passive receivers of benefits, and are not regarded merely as un-employable citizens who are legally entitled to employment (Berghman & Lammertyn, 2005).

One of the economies of our sampled entrepreneurs is the United Kingdom. Here legally blind people are included under the medical model of the Disability Discrimination Act (1995). This Act considers blind people to be physically limited in their ability to carry out "normal" day-to-day activities, and their employment is governed by provisions against discrimination on the grounds of their impairment (French, 2001). Furthermore, blind people in the UK, again like physically impaired people, are protected by the Equality Act (2010) that legislates against any form of discrimination based on nine protected characteristics, including "disability". This Act and its preceding legislation appear to have shaped a developing social view of disability in the UK that incorporates some of the assumptions of the social model, such as the socially constructed nature of barriers that the Equality Act (2010) obliges employers to "make suitable adjustments" for in hiring impaired people (UK Equality Act, 2010; cf. Williams & Mavin, 2012). In this setting, both entrepreneurs were able to choose suitable careers, and they expected to compete for their jobs.

3.2 Research Design

In our exploratory study of two visually impaired entrepreneurs, an interpretive case study methodology was developed to address our process-centered question (cf. Jammaers et al., 2016). As

the two entrepreneurs launched a series of ventures, our conceptual framework was the role of their respective physical impairments in identifying opportunities for their ventures. In this framing, our initial, natural inclination as researchers of visually impaired individuals was to consider their response in coping with a typical "ableist" social perspective in our research context where non-disability is practiced as *the* social norm. However, this perspective left our question of opportunity formation unanswered. Instead, while accepting the socially constructed nature of the environment in which our entrepreneurs sought to create successful ventures, we considered a research framework of their multiple challenges, and the relationship between their ventures and these challenges. As an exploratory study, we enquired openly about the sources of our entrepreneurs' opportunities, and we did not assume that they formed their opportunities in coping with their challenges as disabled entrepreneurs. This open approach proved important in generating our preliminary insights on the ways in which our entrepreneurs suggested that they exploited their challenges by identifying commercial or social opportunities without merely seeking to cope with their challenges (cf. French, 2001; cf. Jammaers et al., 2016).

3.3 Data Collection

The first author spent several years searching for a sample of physically impaired entrepreneurs. He attended meetings of a number of charitable societies in England for blind and disabled people. At these meetings, the names of visually and/or physically impaired entrepreneurs were introduced to him, including those of the sampled entrepreneurs, who responded to the first author's request for research.

One of the two entrepreneurs in this study, whom we call Adam, has been blind from his early twenties, and he was registered as a blind person prior to his employment. By contrast, the eyesight of our second entrepreneur, Ana (also a pseudonym), deteriorated during her employment to the point of legal blindness. Adam worked in his native country which has similar legislation to the UK. Moreover, he worked as a technician in a Higher Education institution that practiced positive discrimination in

favor of under-represented groups of employees. Reflecting a feature of the national economy, physically impaired employees were a prominent group that was under-represented in the university. The tightly budgeted R&D work also favored employees such as Adam, whose physical impairments had prompted him to develop a well-practiced approach to problem solving. Adam was therefore well suited to his role.

By contrast, Ana attended competitive interviews for a business consulting role in the UK, which was not her native country. A few interview procedures were amended to accommodate her visual impairment. For example, instead of an online aptitude test, Ana took the same test in a printed format. In the UK business consulting industry, major changes were still required to sensibly reduce the emphasis of the working environment on non-disabled employees. Many of these changes did not require significant funding, such as clearer signage (French, 2001). To this extent, Ana's working environment reflected the limited development of environmental, organizational, and attitudinal changes to accommodate physically impaired employees among UK industries generally (French, 1993, 1998). However, the environmental constraints that Ana experienced did not affect her consulting work, as the performance of this work did not depend on perfect sight, which was similar to a number of other industries that accepted visually impaired employees (French, 2001).

Based on our research questions, we sought to learn how the entrepreneurial activities of our two entrepreneurs related to their visual impairment. We explored the rationale and interest in some of the activities that they pursued, and the way(s) in which they were challenged in these activities by their sight loss. We observed and interviewed the entrepreneurs formally and informally about their ventures over an unbroken six-month period from September 2017.

Specifically, in this fieldwork we sought knowledge of the entrepreneurs' rationale and interest in selecting possible opportunities for implementation by one-on-one discussions with the entrepreneurs, usually in real time (Atkinson & Coffey, 2003). With both blind entrepreneurs, the authors learned about the entrepreneurs' activities by first gaining their confidence as a trustworthy

sounding board for their views (Holstein & Gubrium, 2003). Additionally, from field notes of project meetings and discussions of projects with each of the two entrepreneurs, the researchers began to compare the data by moving back and forth from the data to the adaptive requirements and outcomes of Miller & Le Breton-Miller's (2017) challenge-based model. The goal here was to articulate the nature and process of a sight-challenged form of opportunity formation within the non-disabled environments of the entrepreneurs. In this process of articulation, we acknowledge our co-creation of the entrepreneurs' stories that we then discuss. One way to explain this research stance would be to suggest that readers consider multiple readings of the data beyond our interpretation of the findings below (Woolgar, 1988). Accordingly, our portrait of two entrepreneurs who drew on their challenges to create ventures offers preliminary, theorized insights for venture creation that entrepreneurship and other readers may connect in their own ways.

3.4 Two Stories

Adam is a white man in his mid-thirties who was blind in one eye from a birth defect. He then progressively lost sight in the other eye. Since 2010, Adam has also become paraplegic and confined to a wheelchair following an accident that resulted from his blindness. Adam's activities grew in number and focus following this accident. Between 2015 and 2017 he launched four commercial ventures to raise funds specifically to discover a medical cure for the physical impairment of paraplegia such as his own. One of these ventures, in collaboration with a local university, was established to improve mobility for paraplegics by stem cell transplant, while another venture offered paraplegics temporary mobility by wearing a bodysuit that enabled movement from paralyzed legs:

> "I started ramping up my activities after my fall. It took two years for my body to recover and then another two years mentally. So it was around 2015 when I was able to think clearly again. When I did I thought I'm still alive by some miracle but I can't live a proper life as I've now got a full-time carer and can't do the simplest things on my own. For the first time in my life I felt disabled. I lost sight in one eye when I was

five and I was told to look after my other eye and keep away from contact sports. This situation spurred me on to be adventurous and different which I obviously was. So I went to college and got into rowing pretty intensely. In my twenties I lost sight in my other eye. But this didn't hold me back. It spurred me on. I wanted to prove I could still do the things I did when I was sighted. I carried on rowing and started adventure trekking and mountaineering. I went to the Himalayas and did both Poles. But all this was shattered when I fell. I couldn't do anything after my fall. I needed to fix my disability. To do this I started a few ventures to raise funds, but I hadn't anticipated the most basic problems. One of these problems was getting volunteers: Why would anyone work for someone who couldn't work? Moreover, we were broke. Before my fall I was earning a decent living, but I spent all my savings on rehab after falling. So it was a new chapter in my life when I got paralyzed. But I was sure this wasn't going to be a dark chapter. I was going to get myself and other paralyzed people on our feet. I raised money for stem cell research and worked on a bionic suit that paraplegics could wear to walk again. The research continues to explore how to reverse paralysis. Because paralysis just kills you. The activities you asked about are all related to these ventures. Back in 2015 I was known as an adventurer more than as an entrepreneur, and because of this and because some of our activities were new, people weren't rushing to invest. But the more obstacles that cropped up, the more I wanted to see through my ideas. To achieve this, I clicked that my disabilities could actually be my biggest asset. If I could sell my story publicly and put my disabilities at the center of this story then people might get hooked on what I had to say. I didn't like talking about myself. But I put together a story of how I'd used my disabilities to build new lives for paraplegics. My role was then to find financial backers for my ventures. This was my motive for the movie and together with my TED talk these activities have become crucial tools for

fund raising and other ventures."

(Adam, compilation of conversation notes, May-October 2017)

By contrast, the pilot study's second participant (Ana) is a white woman in her late thirties who was born sighted. However, Ana carried a genetic condition that caused significant sight loss in her mid-twenties. Ana had begun her schooling with sighted children, conducted "normal" activities as a sighted teenager, and began working as a sighted employee of an international business. Ana left this employment when she started to lose her sight and was then compelled to re-consider her future. Following a long sabbatical trekking in remote locations, she realized that this future was as a social entrepreneur raising funds for the development and employment of disabled people. Ana set up a series of social ventures to implement this objective. Because of her public activities, she has become known internationally as a paid speaker and fund-raiser for these social ventures. While Adam continued with an adventurous lifestyle despite his blindness, we researched Ana because she suffered significant sight loss following a sighted early life and well-paid consulting role. All this changed with her sudden blindness, following which she gained her social calling. Adam too suffered a life-changing experience, although this experience, of his own passion to cure paraplegia, followed from a catastrophic fall when he could no longer conduct his adventurous lifestyle. Adam and Ana therefore form contrasting cases of blind entrepreneurs with early sight loss, on the one hand, and late, sudden blindness, on the other. We consider the implications of this difference in our *Discussion*:

"Most of my current partners know me as a colleague who had worked with them when I was sighted. I grew up sighted, … went to college, graduated, and got a great job. But a couple of years later I got undone. I lost sight and in a very short time I couldn't see. I had to resign. But I wasn't depressed. Quite the opposite. I took time off and started to do something I really wanted to do. I went trekking for a year, on my own. I found that I didn't need eyes to see. During this trek, I also found what I wanted to do. I knew there were a ridiculous number of blind and disabled people who couldn't get a job.

> They couldn't live because people thought they couldn't work. But they can work, and when I started researching I realized there are 1.3 billion so-called disabled people who are totally healthy; and yet most of them have no job. When I lost sight, I started to see lots of things very clearly. Like the 285 million blind people who are thought to be employable only in a small number of really menial jobs. So, my main ventures are about creating employment opportunities for disabled people and about showing businesses how disabled employees can actually be a very valuable resource. Because they've lots to give to businesses that can also change the landscape of disabled employment. For example, foresight is a skill disabled people typically have. Why? Because many disabled people have gained a sense of how to avoid mistakes, often through painful experience. Businesses could use this skill to significantly reduce mistakes in many areas. Recruitment is one such area. Disabled employees could impact hugely in companies because they can work naturally and independently in a range of support services. So they can bring unusual foresight to these roles. Foresight means hiring people with the grit to succeed but who aren't always impressive at interview. You listen to the character behind the words and put together an image of the guy's fit with his words. You focus on his attitude and not his presentation. I got respect for my foresight, and the people who respect this are my greatest supporters."
>
> (Ana, compilation of conservation notes, February-June 2017)

3.5 Data Analysis

With data from conversations, field notes, and websites, the researchers began to make sense of the data. Firstly, we recorded relationships attributed by our entrepreneurs and ordered them preliminarily against possible challenges based on our perception of their closeness-of-fit with each challenge. Here we drew loosely on Miller & Le Breton-Miller (2017)'s typology of challenges, as the four types of challenges are generic and not exclusive to these authors (for example, Baron (2000) also

discusses cognitive and social factors for entrepreneurial success). Similarly, our conception of challenges concerns a range of phenomena that have provoked positive, negative, and/or no reactions in *any* participants, impaired or otherwise. Participants who are provoked by any challenge feel urged to react (Miller & Le Breton-Miller, 2017). Subsequent attributes that our entrepreneurs called on in their reactions were based on a primarily economic or social reaction of our entrepreneurs to their sight loss. By economic we mean for-profit objectives based on creating taxable ventures (although sponsoring organizations could be charities, as with Adam). By contrast, social ventures often have charitable status and typically involve fund raising for non-profit causes (Martin & Osberg, 2007). In researching the online, public profiles of each entrepreneur, we distinguished the nature of their ventures based on the involvement of their respective audiences, either in paying for their activities (for-profit venture) or in raising funds, for example to promote disabled employment (social venture).

We reflected on various challenges faced by the entrepreneurs (Table 1, Column 1), their ventures (Column 3), and qualities of each venture ("attributes", Column 4) that the entrepreneurs demonstrated as they conducted and discussed their ventures. We began analyzing our data by identifying the discursive practices with which our entrepreneurs engaged with each challenge (cf. Jammaers et al., 2016). Drawing on challenge-based and social disability literatures, the first author set out a number of keywords that stood as proxies for each of the four types of challenges. Further keywords (in parentheses) were added as data were collected based on the frequency of, and emphasis on, certain words favored by each entrepreneur:

Economic- profit, gain, return(s), financial, low productivity, "materialistic",
Social- cause, change, impact, low productivity, "fund-raising", "employability",
Cognitive- motivation, skills, capabilities, "empowered", "self-belief", "powerless", and
Physical- impairment, disability, low esteem, "respect", "powerless", "limits/limited/limitless".

These words formed parts of answers to our questions, or were inserted as our interpretation of our respondents' meaning, on possible challenges faced by the two entrepreneurs (cf. Ng & Al-

Shaghroud, 2018). We also asked the entrepreneurs how challenges related with their impairments, and the ways in which each entrepreneur reacted to the challenges they articulated. A number of words applied to more than one challenge, which prompted the researchers to build a homogenous narrative of each entrepreneur's process of venture creation based on conjoined attributes that motivated their reaction to their combined challenges (Findings below).

Secondly, we conducted a critical discourse analysis, focusing on the discursive and argumentative structure of excerpts around our keywords. Drawing on axial coding (Jammaers et al., 2016), the authors jointly identified two ways in which the fragments of discourse around selected words related to the entrepreneurs' respective, perceived challenges. Firstly, Adam's reaction to his physical challenge of paraplegia was a profit-seeking opportunity, while Ana perceived the possibility of impactful social outcomes from a typically poorly informed and yet sympathetic public perception of disability. Secondly, all of the textual fragments from both entrepreneurs suggested an opportunity-seeking approach that sought to exploit public notions of the entrepreneurs' "disability" in various ways and for either for-profit or social purposes.

In this analysis of fragmentary data, we acknowledge our co-creation of our entrepreneurs' stories. One way to present this approach would be to suggest that readers consider multiple readings of our findings beyond our single interpretation (Woolgar, 1988). Accordingly, our portrait of two entrepreneurs who created ventures out of social perceptions of their impairments offers readers a basis for understanding opportunity-seeking behavior under extreme challenges that readers may then develop in their own ways.

3.6 Findings

Perhaps our most striking finding was that the venture creation process of both entrepreneurs was not driven by a self-employment motive. The ventures created by the two entrepreneurs involved high-risk projects. However, the persistent way in which our entrepreneurs continued to seek

opportunities out of the ordinary requirements of a "sighted" world (such as where performance at interviews is about presentation and appearance- Ana) exposed a determination to produce impactful ideas that achieved clearly defined goals, consequent upon either their paraplegia or blindness:

- Insert Table 1 About Here -

For our entrepreneurs, the debilitating nature of their condition was viewed as a positive, motivating resource for venture creation. Hence, visual impairment became the basis for generating new opportunities, and the desire of both entrepreneurs for creating impactful ventures drove the identification of simple ideas that would connect mainly with large western businesses. Their entrepreneurial motivation seemed to originate from, and draw on, the suddenness of the "disabilities" that spurred each of the two entrepreneurs to create ventures, namely, Adam's paraplegia, and Ana's late-onset blindness. Ana's declaration that she "never needed eyes to see" then became a powerful mantra for engagement with disabled people who also possess unusual but often overlooked attributes, for example to see, by implication in ways that sighted people, who need eyes to see, cannot.

By contrast, Adam pursued physical adventures that defied his early sight loss, and his most ambitious ventures were motivated by the physical burden of paralyzed limbs. While Adam's blindness was incurable, his paraplegia from an accident that resulted from his blindness was more likely to secure a treatment for recovery during his lifetime. Thus, following his paraplegia, Adam's entrepreneurial energies were focused on finding a cure for paralysis that he viewed as a temporary constraint to his adventure lifestyle. Notably, both entrepreneurs found motivation for venture creation *only* when they experienced physical impairments that compelled a change of lifestyle. Yet there was a notable difference in the connection between their respective impairment(s) and entrepreneurial activity: Whereas Adam did not accept the permanence of his paraplegia and sought to reverse it, Ana's blindness inspired her to pursue radically new activities. It seemed therefore to follow that were Adam to successfully reverse his paraplegia, then his entrepreneurial passion would decline. For Ana however, her blindness liberated a new, passionate social calling on behalf of the world's disabled.

Here, potentially, it also seemed to follow that scholars and managers in and beyond entrepreneurship have more to learn from the "foresight" of Ana than the personal interests of Adam, which involved repairing a debilitating condition. That foresight potentially links creative outcomes of opportunity formation, for example in the identification of little-known networks and skills of disabled people (Miller & Le Breton-Miller's (2017) model, p. 9, Column 4) that may be drawn on as rare, useful organizational capabilities.

The nature of new venture creation undertaken by each entrepreneur differed fundamentally based on the nature of their sight loss. For Adam, his early-onset blindness reinforced an adventurous personality trait where he appeared to defy his blindness by participating in physically demanding team sports in competition with sighted colleagues. This defiance deepened when Adam lost sight in both eyes, and he could no longer participate in team sports. Despite this blindness, Adam now engaged in individual, extreme pursuits. However, all his activities ceased abruptly when he became paralyzed. When Adam found that he could no longer pursue his adventure lifestyle, he began creating charitable and for-profit ventures to enable him and other paraplegics to walk again.

By contrast, Ana was inspired to launch a number of social ventures to raise awareness of disabled unemployment following her own, sudden sight loss. While this condition compelled an immediate change of career, Ana quickly learned to use her new condition positively. She discovered that she did not need eyes to see. Moreover, because of her sight loss, she could now see the urgency of establishing social ventures for disabled employment. Ana was therefore motivated to embark on a new career of venture creation *because* of her sudden blindness when she discovered a new vision as a social entrepreneur. Like Adam, she then developed a number of attributes out of her condition, such as her candor, following her sight loss, to speak to an international audience on behalf of disabled people (Table 1, Column 4). This use by both entrepreneurs of their respective challenges as strategic and marketing resources for venture development potentially changes the nature of social challenges for disabled entrepreneurs as Adam and Ana exploited public perception of their disability to capture

public attention. In this scenario, challenges were drawn on whenever the entrepreneurs needed to craft stories for their audiences, with different emphasis on different challenges in crafting either Adam's bionic suit story or Ana's disabled employability narrative for corporates.

4. Discussion

4.1 Implications for Theory

Our findings have a number of theoretical implications, principally for the challenge-based view. This view represents a major stride toward classifying different challenges, while bringing together several hitherto unconnected research streams. Chiefly, the respective conditions of both entrepreneurs inspired expansive entrepreneurial endeavor that paid little attention to social norms of disabled people, such as their traditional employment in low-paid, menial work. Instead, our research yielded insights on processes of opportunity formation based on the adapted skills of the two entrepreneurs in exploiting, as opposed to passively reacting to, their personal challenges (Table 1, Columns 1&2). The subsequent, market-oriented ventures of the two entrepreneurs suggest that their activities can throw light on processes in which valuable goods and services are produced for targeted end-users, specifically for physically challenged people that entrepreneurship scholars know little about, but also for non-disabled entrepreneurs who typically face challenges. Here, we have suggested how different drivers for a severely challenged form of entrepreneurship may produce different types of ventures with personal goals that satisfy the sponsoring entrepreneur (Columns 2&3). Accordingly, by understanding and enabling drivers of new venture creation, it may potentially be possible for both disabled and non-disabled entrepreneurs to develop suitable attributes for producing successful outcomes of for-profit and social ventures (Column 2).

In respect of opportunity formation, the challenges faced by Adam and Ana did not merely prompt the development of adaptive needs. Instead, the positive and negative experiences each entrepreneur faced consequent upon their respective impairments proved to be a vital resource that both entrepreneurs returned to when they needed venture funding and networks, initially in launching

their ventures, and then in sustaining their public impact. This insight offers a fresh perspective of the social model that locates the source of disability in public perceptions. Our study suggests instead how the popular, punitive weakness of disability in a non-disabled world in fact became a lucrative source for the access to funding and networks that were critical for the two entrepreneurs' venture success. Here, we have expanded the challenged-based view and related with entrepreneurial network literature (for example, Larson & Starr, 1993) by offering possible, antecedent mechanisms for venture formation as well as entrepreneurial success (Columns 3&4).

Following opportunity formation, the way that our two entrepreneurs leveraged their physical challenges as marketing resources for venture funding and development suggests how opportunities may then be transformed into potentially successful ventures. Here again, an outstanding driver was the desire of both entrepreneurs to exploit public perceptions of their disability. Other drivers such as the respective financial and social welfare interests of the entrepreneurs also impacted on the entrepreneurial process and outcomes, for example, in the activities and type of created ventures. This focus on various drivers for new venture creation seems distinct from findings on ADHD, where impairments were attributed to entrepreneurial outcomes (Wiklund et al. 2016, 2017).

Subsequently, the ventures that each entrepreneur chose to pursue contained several constituent features (Column 3). These features were based primarily on "special attributes" with which the entrepreneurs could relate with their impaired communities as well as with public audiences (Column 4). Moreover, in the outcomes phase, the two entrepreneurs applied their respective personal skills to alter their ventures' strategic and marketing approaches to capture changes typically in the preferences of a wider, international market whose support they needed to meet their objectives. This ambitious appeal to the wider market beyond disability contrasts with the personal networks perspective of entrepreneurial behavior where entrepreneurs are thought to have limited knowledge of their product market based on eclectic information channels (Patel & Fiet, 2009) and their poor, local networks (Sarasvathy, 2001).

Accordingly, the public-oriented focus of the two blind entrepreneurs appears to have altered the adaptive, "coping" responses of the challenge-based model into new, adapted attributes of new venture creation. The skills that the two experienced entrepreneurs then developed with each attribute (for example, an ability to assess high-risk opportunities in apparently speculative ventures, such as in researching a cure for paralysis) appear to have prompted them to actively seek opportunities out of their experiences. In turn, the opportunity-centered focus of these experienced entrepreneurs has produced distinct narratives of their journey as disabled entrepreneurs.

4.2 Implications for Practice

Our study has practice implications from the ways that the two entrepreneurs leveraged their physical condition to discover novel opportunities. For example, our study contributes to emerging understanding of the empowerment of disabled people. Lorenzo et al. (2007) reports on a community project in South Africa to overcome employment barriers. Similarly, Ana sought to re-conceive the organizational view of disability. In place of the ableist assumption that her blindness is a disability that *must* limit her activities, she proposed a new social construction based on her own special attributes. A key attribute was her creative business view of disability in which she sought to showcase the unusual skills that she believed disabled people had. Here, we suggest that our core insight of this research may prove useful, also for severely impaired people. This insight is that if "disabled" activity is viewed not in terms of a reactive, "coping" exercise, but as a persistent, opportunity-seeking endeavor, then it may be possible, instrumentally, to identify and develop suitable skills to capture perceived opportunities for venture creation, regardless of physical impairment. This is because physically impaired people have, through daily experience, acquired close understanding of the non-disabled world in which they must live. The opposite is not the case- unless able-bodied people develop late-onset impairments. Hence the persistence of a socially constructed, "bourgeois" view of disability. In this view, because the socially constructed view reflects psychological and emotional beliefs (Williams & Mavin, 2012), it may theoretically be possible for most, if not all, impaired people to

possess, or to develop, special attributes. Similarly, our entrepreneurs sought to leverage their physical impairments as a principal resource for creating new ventures (Borzaga & Defourney, 2004).

Finally, we expect our study to stimulate public debate on the nature of entrepreneurship. For example, can novice entrepreneurs be taught to create successful ventures (cf. Byrne & Shepherd, 2005)? If so, how can challenges be created that drive impactful entrepreneurial activity?

4.3 Constraints on Generality

In this research, we have no reason to believe that our findings and discussion of "blind" entrepreneurship depend on characteristics of the participants, our research context, or on any factors other than those that have been set out in our *Research Methods* (cf. Simons et al., 2017). There are however significant, clear constraints on the generality of this exploratory study, and we should articulate or re-capitulate them here. These constraints stem chiefly from the nature of the environment in which the two entrepreneurs lived and worked, their profile, and the type of access that the researchers were able to obtain.

Principally, our entrepreneurs were highly educated individuals with middle class backgrounds, and they were respected professional managers in the advanced, western economies in which they operated. These economies provided regulatory and legal standards that safeguarded disabled people from open discrimination. The researchers conducted their research in this western, professional research context where the two entrepreneurs were comfortable with the presence of academic researchers, who were not known to the entrepreneurs before their research, and with their questioning over many months. The researchers therefore expect that further insights in and beyond challenge-based entrepreneurship can be generated from research on disabled entrepreneurs in the same type of research context. Apropos, we do not expect research on disabled entrepreneurs outside similarly regulated, western environments to produce similar, useful findings for entrepreneurship theory and practice. Above all, this is because the economic and social barriers faced by disabled

entrepreneurs- for example, in China (Palmer, 2014)- would appear to be insurmountable without legal protection against workplace discrimination and social prejudice against disabled people.

4.4 Future Research

This exploratory study offers opportunities for further research in at least five areas of entrepreneurial activity. We consider that our insights may: a) Shed light on generic processes of skills adaptation and development, b) Illuminate possible origins and sources of entrepreneurial motivation, c) Help to empower disadvantaged people, d) Offer new areas of study in entrepreneurial education, and e) Provide examples of how unique strategies are created, without disabled entrepreneurship serving merely as an example of social diversity and tolerance. Firstly, blind, and more generally disabled, entrepreneurship may involve an identifiable, homogenous process of skills adaptation and development. In our study, we have demonstrated how this process can shed light on possible ways in which game-changing ideas among disabled entrepreneurs may be systematically created. To achieve this goal, process studies of disabled entrepreneurship may be conducted by exploring possible drivers and adapted skills of opportunity-driven behavior among disabled entrepreneurs. Those drivers and skills can then be drawn on in developing "special attributes", perhaps most influentially in the empathetic relationship between blind entrepreneurs in this study and their non-disabled audiences that enabled our entrepreneurs to leverage their challenges for personal goals. Here, research may be conducted to compare the behavior of entrepreneurs with congenital or early-onset impairments and those with late-onset impairments. This work could expose the important issue of the relationship we have suggested between impairments and entrepreneurial endeavor, and ultimately of success. For example, following research suggesting that bigger experiential "shocks" may produce more effective learning (see Byrne & Shepherd, 2005), could bigger shocks resulting from late-onset impairment produce more successful ventures than the endeavors of early-onset entrepreneurs?

Research on "triggers" of entrepreneurial activity could also take a broader dimension by exploring other types of impairment. For example, mental disability has attributed emotional

symptoms of ADHD (for example, impulsivity) as a potential factor in triggering entrepreneurial activity (Wiklund et al., 2016). Similarly, in our study, physical impairments from paralysis (Adam) and sudden sight loss (Ana) triggered a rush of entrepreneurial activity. A notable difference, however, among our disabled entrepreneurs was that the persistence of entrepreneurial activity depended at least partly on the irreversibility of their condition. Apropos, opportunity-seeking behavior weakened when Adam sought to reverse his physical impairment.

Our learning of the ways that sudden sight loss may motivate a change in priorities resonates with a number of fields including entrepreneurship education. Here, knowledge of potentially different approaches to new venture creation among disabled entrepreneurs may run deep among entrepreneurship students who are trained to develop and launch innovative ventures (Kuratko, 2005). Entrepreneurship scholars now know that entrepreneurship education can have a significant, measurable impact in creating more and better entrepreneurs (Martin et al., 2013). Accordingly, the innovativeness and motivation suggested by our two entrepreneurs may form an important part, for example, of a psychology-driven framework of attributes that can predict future success in new venture creation (Kickul & Gundry, 2002). Moreover, the creative problem-solving focus of blind entrepreneurs may offer salutary lessons for entrepreneurship scholars and practitioners as their permanent impairment compels them to seek innovative solutions to life-and-death issues of mobility (Adam) and employability (Ana). Processes in which blind entrepreneurs build entrepreneurial skills, such as in creative thinking and use of technology (Kuratko, 2005), as tools to thrive as entrepreneurs in a sighted world could therefore become core components of entrepreneurship education.

5. Preliminary Conclusions

Despite its major constraints, the study's extreme context offers a wealth of opportunities for entrepreneurship research and practice. For example, our context prompts researchers to examine venture creation processes that extend beyond the often stochastically driven models of entrepreneurship. Here, the perspicacity of our context for a range of subjects in the antecedents of

entrepreneurship, such as motivation, resonate with core entrepreneurial processes of new venture funding and development. The power of this context may therefore lie in its ability to relate largely un-connected literatures, here on disability and entrepreneurship. This is an important endeavor that may help to reshape models for addressing our query on challenge-based entrepreneurship.

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Table 1: Summary of Findings- Challenges, Drivers, Opportunities, & Special Attributes

Personal Challenges	**Possible Drivers of Venture Creation**	**New Venture Opportunities** (not related exclusively to any specific challenges)		**Special Attributes of Adam & Ana's Created Ventures**
Economic: Adam-Limited career prospects Ana: Enforced change of career	Adam: Financially driven outlook Ana: Social-welfare-driven outlook	**Adam** Commercial fund-raising events for research to cure paralysis from paraplegia Development of Exo-skeleton bodysuit to enable temporary (paralyzed) limb movement Stem cell research to reverse paraplegia Cross-disciplinary medical and psychology research of adaptive sensory capabilities of physically impaired people Paid motivational & problem-solving talks to business organizations	**Ana** Business sponsorship to increase employment across industries of physically impaired workers with generic & special skills Social fund-raising for skills development among physically impaired people Research & dissemination of capabilities of visually impaired employees for organizations Scientific research on problem-solving capabilities of employees with different physical and mental impairments	"I never needed eyes to see" (Ana): Ability to assess & accept high-risk activities *despite* sight loss (adventure lifestyle- Adam), & *because of* sight loss (new public candor, following her sight loss, to speak to an international audience on behalf of disabled people un-fettered by social expectations of her limited capabilities as a sight-impaired individual- Ana) Outcomes driven- more materialistic attitude (focused on financial goals because of passion to cure his paraplegia- Adam) Process driven- less materialistic attitude (focused on social welfare goals because of poor employment opportunities for disabled- Ana) Passion for continuing venture creation. Adapted employment skills from long-term sight loss. (Adam) High self-belief in own skills & capabilities (Ana) Empathetic relationship with non-disabled audiences to leverage social perception of
Sociocultural: Adam & Ana: New social perception of "disability" following UK Equality Act (2010)	Adam & Ana: Desire to interact with public audiences sympathetic to "disability"			
Cognitive: Adam: Nagging sense of physical inadequacy following paraplegia Ana: Sudden sight loss enabled entrepreneurial development	Adam: Urge to reverse paralysis. Refusal to accept immobility & change of lifestyle following paraplegia Ana: Sense of "liberation" from constraints as employee			
Physical & Emotional: Adam: Loss of mobility from paraplegia & consequent trauma.	Adam: Personal sense of "disability" from paralysis. Urge to "cure paralysis", but not sight loss			

Personal sense of "disability" Ana: Sense of exhilaration & anxiety from life-changing sight loss	Ana: Self-driven pressure to achieve social goals following sight loss		Public motivation & educational talks	disability for profit (Adam) & social welfare (Ana) Commercial exploitation of non-disability views of blindness by developing blind skills for the non-disabled (Adam) Ability to build distinctive public identity by leveraging social trends for equality & diversity (Ana)