In(ter)dependence.

An investigation into how independent magazines measure, compare and improve environmental impacts in their production and the relevance of environmental frameworks and certifications to do so.

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Abstract

This research aims to understand how independent magazine publishers measure their environmental impacts and how third-party audited environmental certifications and frameworks can support monitoring and reducing said impacts. It does this by analysing independent magazines' cultural context and environmental impacts and presenting existing environmental certifications and frameworks within the broader print and publishing industry. This inquiry reveals an apparent lack of literature on the topic, resulting in the proposed research which adopts a post-positivist and qualitative approach and employs two sets of semi-structured interviews to gain insight into the realities and opinions of the individuals involved. The first set focuses on printers as experts in the print production process and on their knowledge of third-party audited certifications and frameworks. The second set of interviews focuses on independent magazine publishers and aims to understand their environmental efforts and knowledge and identify opportunities for support.

The research reveals a general lack of knowledge on environmental impacts and monitoring within the independent magazine industry. It also shows that third-party audited certifications and frameworks are valid tools for measuring, monitoring and improving environmental efforts for printers. However, they currently remain inaccessible for independent magazines, partly due to their lack of resources, emphasising the urgent need for more funding. Moreover, the findings conclude that third-party audited certifications and frameworks are not valid tools for comparison due to their varying performance levels. However, B Corp is regarded as an exception and potential solution for independent magazines. The findings confirm that more legal pressure is regarded as necessary to drive environmental developments, and they further suggest that more education and information must be made available for independent publishers and end-users.

The researcher identifies the main issues concerning environmental monitoring for independent magazines, highlights apparent gaps in the literature, and suggests more research on the independent magazine sector, their supply chains and their environmental impacts. Furthermore, the feasibility of B Corp as a framework for measuring, monitoring and reducing environmental impacts for independent magazines needs to be validated. The researcher further suggests analysing the implications of legal pressure for environmental frameworks and possible funding models as incentives to drive environmental development in the independent publishing sector.

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1. INTRODUCTION

1.1 Rationale

Unprecedented heatwaves, apocalyptic floods and raging pandemics are just some of the many signs warning us how precariously close we are to irreversibly altering our planet's climate with devastating consequences for humankind and the environment. The IPCC's latest report states that "it is unequivocal that human influence has warmed the atmosphere, oceans and land" (Masson-Delmotte *et al.*, 2021:p.5) and speaks of a "code red for humanity" (McGrath, 2021:para.3).

The publishing sector, including independent publishing, is heavily reliant on natural resources and energy consumption in its production and prone to harmful emissions, all of which contribute significantly to the warming of the planet and accelerate biodiversity loss (Bullock and Walsh, 2013; Carver and Guidry, 2011; Kopnina, 2015). Though the publishing industry is improving its practices, it remains a challenging task to accurately measure and compare various publishers' impacts, especially in the independent sector (Le Masurier, 2020), and there is an urgent need to contribute more research on the subject.

1.2 Scope and aim

This dissertation focuses exclusively on the independent magazine sector, though many elements overlap with the broader publishing and print industry. This choice of focus is attributed to the specific knowledge and limited accessibility of the researcher concerning the publishing sector. A more exhaustive analysis of the publishing sector would require a more time-consuming research process, better suited to a PhD study. Given their growing popularity, the necessity for research on independent magazines and the facilitated access to the investigated subjects, it was deemed appropriate to focus on this niche.

This thesis aims to understand if and how environmental efforts are employed within the independent magazine sector and how they are currently being measured and compared by focusing on the use and relevance of third-party audited environmental certifications, accreditations and frameworks. Furthermore, it looks at

the necessity of transparent databases for independent publishers to access the vital information they need to change their impacts before creating irreversible environmental damage.

1.3 Research question

In light of the purpose of this investigation, the primary research question is as follows:

- How is environmental sustainability in the production chain of independent magazines currently being identified, measured and compared, and how can third-party audited certifications and frameworks support this?

Further research objectives include:

- What elements influence environmental sustainability in independent magazine production?
- What third-party audited certifications, accreditations and frameworks already exist concerning independent magazine production?
- How do third-party audited certifications, accreditations and frameworks help measure and compare environmental impacts and efforts?
- Where do independent magazine publishers need support to improve their environmental efforts?

1.4 Outline

The subsequent chapter presents the context within which the research takes place and looks at the current environmental situation, independent magazines, and the role of environmental accreditations and frameworks.

The third chapter presents a thorough literature research on the history and current status of independent magazines, their environmental impacts, and an outline of prevailing accreditations and frameworks, laying the basis for the conducted research.

The fourth chapter presents the research design before leading into the fifth chapter, which draws conclusions from the data analysis and proposes actions for further investigation.

1.5 Terminology

Throughout this dissertation, the author frequently returns to terminology essential to understanding the research. It is therefore vital to clarify their definition prior to reading.

Sustainability: Within this research refers to environmental sustainability if not stated otherwise and defines the practice of interacting with the planet responsibly by avoiding the depletion of natural resources, preventing irreversible pollution, and not compromising future generations' livelihoods (Inspire, 2021:para.7).

Publishing: If not defined otherwise, describes the worldwide publishing industry, including editing, marketing, producing and distributing printed and digital editions of books, newspapers, magazines and creative content (Collins Dictionary, n.d.:para.3).

Indies/indie magazines: Refers to independent magazines, describing a broad array of genres within the alternative and niche magazine sector that prioritise creative goals and quality over quantity (Atton, 1999; Le Masurier, 2020; Vinh, 2016).

Accreditations/Certifications: Used interchangeably within this research. Encompass third-party audited and awarded assurances and recognitions regarding conformity and competence of a product or step of production concerning the use of raw materials and sustainability standards (Murthy, 2017:para.2). Both terms go hand in hand with labelling, the practice of marking products or services with a distinctive label to communicate to consumers that they conform to specific standards (Auld, Gulbrandsen and McDermott, 2008:p.188).

Framework: Defined as "a basic conceptional structure (as of ideas)" (Merriam-Webster, n.d.:para.1) and within this research refers to standardised models used to measure and monitor impacts overarching more than one element of production.

2. CONTEXT

2.1 Current environmental situation

2.1.1 Status quo and contributing factors

The past two years have been heavily marked by the COVID-19 pandemic, exposing our unhealthy relationship with the natural environment and our lifestyles' impact on the planet (HSPH, n.d.; Kaneda and Greenbaum, 2020). While still bearing the weight of the pandemic, environmental hazards related to changing weather patterns also developed. Europe saw floods wreaking havoc and wildfires incinerating entire regions, while Canada witnessed an unprecedented lethal heat dome (Hill and Harrabin, 2021; Hills *et al.*, 2021). The overshoot dates presented are the earliest ever recorded (Utopia, 2021), with the global temperature rising steadily (Lindsey and Dahlman, 2021). These changes are not arbitrary but attributed to contributing factors such as depletion of natural resources through human consumption, rise in emissions through human activity and increase in human population. These factors further magnify a rise in temperature, resource shortages, biodiversity loss and changing weather patterns, which reduce overall natural resilience and destabilise our climate, heightening dangerous living conditions (Bullock and Walsh, 2013; Carver and Guidry, 2011).

2.1.2 Triple Bottom Line thinking

It is necessary to recognise the interlinked nature of different elements of our planet (Bullock and Walsh, 2013). Accordingly, this dissertation adopts a *Triple Bottom Line* understanding of sustainability, in which economy, society and ecology are related and cannot be resolved isolated from one another (figure 1). Environmental impacts are, therefore, impacts in all three spheres (Carver and Guidry, 2011).

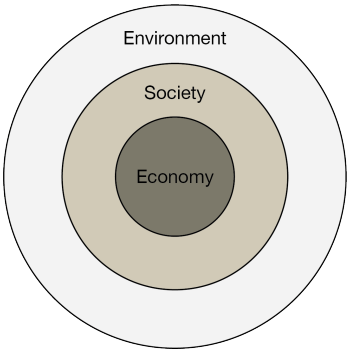

Figure 1: Triple Bottom Line (Carver and Guidry, 2011:p.6)

2.2 Publishing and the environment

2.2.1 Impacts on the environment

The wider publishing industry, including the independent sector, relies heavily on raw materials, especially virgin fibre for paper production, resulting in deforestation, loss of natural habitat and desctruction of indigenous lands and cultures (Kopnina, 2015). In addition, the use of environmentally harmful materials in production such as inks, glues and toxic additives that contain and release volatile organic compounds (VOCs) into the air and effluents contribute to environmental pollution and health hazards for workers (Bullock and Walsh, 2013; Carver and Guidry, 2011). As an industry heavily reliant on supply chain networks, distribution generates significant transportation emissions and energy consumption (ibid.; Chowdhury, 2010). However, it is essential to note here that publishing also plays an extensive role in educating and informing society on environmental issues such as climate change. Hence, the content and its broader social impact must be acknowledged when calculating impacts (Bullock and Walsh, 2013; Kopnina, 2015).

2.2.2 Indie magazines

The independent magazine sector has been continuously growing over the last decade (Hamilton, 2013; Le Masurier, 2012; Sax, 2016; Van Groll, 2014). Like most print publishing products, the impact of independent magazines in production

lies chiefly in the consumption of raw materials and emissions through print production and distribution (Kopnina, 2015). However, in contrast to most books, magazines contribute differently to the complex environmental issue, using more cycles in the same format and material and, particularly indies, adopting business models more accustomed to print-on-demand and smaller print runs (Le Masurier, 2020; Van Groll, 2014). While still complementing with digital, indies' focus on print provides a more conscious reading experience, valuing relevant and valuable niche topics that are educative and impactful within their audience (Abrahamson, 2007; Bennett, 2020; Kopnina, 2015). They also create valuable communities that support and inform each other, creating a fertile ground for environmental discussions and actions (Holmes and Nice, 2012; Le Masurier, 2014; Oakes, 2009; Van Groll, 2014).

2.3 Measuring impacts: the role of certifications and frameworks

Measuring environmental impacts in the independent publishing industry is a more demanding feat than it might seem. Many independent publishers rely solely on their own motivation and investment to improve their impacts, and with little external pressure, these efforts are often not regulated or accurately comparable (Le Masurier, 2012). In order to communicate, compare and control efforts, a wide variety of environmental certifications and overarching frameworks are commonly applied within the broader print and publishing industry. These require differing degrees of documentation, regulation, communication and third-party external auditing (Auld, Gulbrandsen and McDermott, 2008; Bullock and Walsh, 2013; Carver and Guidry, 2011). The research conducted within this thesis aims to understand how applicable these certifications and frameworks are to independent magazines.

2.4 Changing mindset

2.4.1 Movements

When considering humankind's environmental understanding, it is essential to emphasise how said understanding has greatly evolved over the past decades and how environmental concerns are rising in the public eye (Lampert, 2019; Thackeray

et al., 2020). Many movements such as *Extinction Rebellion* and *Fridays for Future* have influenced public perception of the problem at hand (Thackeray *et al.*, 2020). Younger generations, especially 18-30 year-olds, not only are more informed but demanding change, understanding that time is running out and action must be taken (ibid.; Barbiroglio, 2019; Frischmann, 2019). This changing mindset is indispensable in environmental development, as public pressure is among the most influential levers for political changes (Bass *et al.*, 2001; Leiserowitz, 2020). Publishers are also aware of this change and, consequently, adapting their production methods and chains. However, current approaches often focus on being less harmful and acting within minimum legal requirements rather than fundamentally transforming mindsets and production methods (Ramrath, 2021).

2.4.2 Solutions

There is a visible increase in environmental solutions and green technologies within the broader publishing and print industry (Braungart and McDonough, 2009; Bullock and Walsh, 2013; Carver and Guidry, 2011; FIPP, 2020). From certifications controlling sustainable production and raw materials to new printing technologies and substrates, development is moving along (FIPP, 2020), though not yet enough to eliminate the damaging effects of the industry. Nevertheless, this thesis looks optimistically towards future solutions to reduce the independent magazine sector's and wider publishing industry's environmental impact.

2.5 Conclusion

Solutions to reduce the environmental impact of independent magazines need to be further developed and supported, seizing the currently increasing environmental awareness and pressure as an opportunity to do so. This dissertation looks at how third-party audited certifications and frameworks can support independent magazine publishers in effectively measuring, monitoring and improving their environmental impacts.

3. LITERATURE REVIEW

3.1 Environmental concerns

3.1.1 Environmental awareness

As stated by Weyler (2018), awareness of human impact on the surrounding environment and the effects of pollution on human health is not a modern phenomenon but can be traced back to over 5000 years ago when societies across the globe began to understand concepts such as soil erosion and nutrient recycling in regards to their food production. However, the Industrial Revolution in the 18th and 19th centuries, with the emergence of large factories, propelled widespread human pollution and produced the first significant public response, with experts identifying environmental degradation and contamination. As a result, from the Romantics, all the way running up to the first Earth Day and UN environmental conference in the 1970s, environmental awareness and action in the form of organisations, legislations and scientific research has continually increased (ibid.).

With the help of digitisation and the subsequent expansion of information available to humankind, environmental issues have become an inevitable mainstream topic in the 21st century. As Yeomans (2020) recognises, activists and public figures such as Greta Thunberg and David Attenborough draw attention to issues such as climate change with the help of social media and digital platforms, amplifying the entire environmental discourse and awareness in the public eye through their work and actions.

3.1.2 The role of magazines

Prior to digitisation, however, magazines too, especially in the history of the 20th century, were important sources of environmental and social concerns, offering information and insight into the topic. Examples are *Time magazine*'s exposure of radioactive contamination from the 1940s, Ida Turnbell's article about Oil companies published in 1901 in *McLure* and *The New Yorker*'s entire issue dedicated to the legacy of Hiroshima in 1946 (Yeomans, 2020). Magazines even impacted decisions taken by the government on environmental policies by

promoting activists' and scientists' work, such as the coverage of Rachel Carson's *Silent Spring* in 1962. To this day, well-known magazines such as *The New Yorker*, *National Geographic* and *Time* continue to cover environmental issues with notable criticism and detail (ibid.). Committed to in-depth journalism and exploration of socially relevant issues, the independent magazine sector provides a particularly fruitful scene for environmental discussions, with entire magazines such as *It's Freezing in LA*, *Atmos* and *Icarus Complex* dedicated solely to the topic.

However, magazines are also sources of environmental concerns, consuming valuable raw materials and energy (Bullock and Walsh, 2013; Carver and Guidry, 2011), with CO2 emissions for worldwide journal publishing estimated at over 12 million tonnes annually (Chowdhury, 2010:p.939). Despite this, studies and literature on the environmental impact of magazines, including the independent sector, remain scarce (Rizvi, Shafi and Khan, 2012).

3.1.3 Looking ahead

It is important to note that the IPCC's 2021 report, though alarming, does not doom society into inaction. However, reaction needs to happen quickly (Masson-Delmotte *et al.*, 2021) and includes investing in existing solutions as well as developing new technologies and systems based on principles of circular economy, as proposed by Braungart and McDonough (2009; FIPP, 2020). Bullock and Walsh (2013) additionally suggest that tighter regulations and demanding customers are the drivers of *green publishing*, a term that describes the process in which publishers consider the entirety of a product's life from conception to end in terms of its environmental impact (Carrera, 2017; Martin and Haggith, 2018; Norrick-Rühl and Vogel, 2013) and represents the future of sustainable publishing, with evident benefits such as cost savings, waste reduction, improved working conditions and competitive advantage (FIPP, 2020).

3.2 Independent magazine publishing

3.2.1 History of magazines and their role in society

Magazines, to this day, "provide [one of] the most diverse forms of print media available (...) in terms of content, markets and formats, and are nearly as old as (...) newspapers" (Whittaker, 2008:p.15). Though debated, the first predecessors of magazines in Western Europe arose during the early eighteenth century and included *The Review* (1704-13), *The Tatler* (1709) and *The Spectator* (1704-14). Their function was satire and commentary on the world, preserved for the upper classes (ibid.:pp.4–6). The magazine as a mass product developed only after several technological innovations and the growth of photographic and typographic sophistication (ibid.:p.13).

Computers and desktop publishing radically changed magazine production, making it possible for fewer people to take on more steps from concept to final print faster and more cheaply (McKay, 2018). However, digitisation also drove down magazine sales and focusing on niche topics became a more appealing endeavour (Whittaker, 2008). As many voices emphasise, this allowed for the emergence of a significant volume of independent and niche magazines (Hamilton, 2013; Le Masurier, 2020; Oakes, 2009).

Magazines continue to survive thanks to their adaptable nature (Holmes and Nice 2012; Le Masurier, 2014) and because they hold a unique position within our cultural and social environment. As Abrahamson (2007) notes when describing the term *magazine exceptionalism*, magazines are both a product of society and culture and a creator of change. Looking at the appearance of late seventeenth, early eighteenth century periodicals and early twentieth century environmental magazines, one can see how they reflect but also actively contribute to shaping ideas of a cultural and social reality of a particular time (Holmes and Nice, 2012; Le Masurier, 2014). This has never been more relevant today, highlighted by the independent magazine sector.

3.2.2 The indie

In the majority of the literature and industry, small-scale alternative or niche magazines are commonly referred to as independent magazines or indies. Jeremie Leslie (2015:p.11), author and art director of the London-based magazine shop magCulture, states that *independent* defines "a clear distinction from the mass, mainstream magazine market". This definition supports the notion of indies appearing as a reaction against commercial mainstream publishers and the speed of digital consumerism. *Mainstream* in this sense is understood as defined by Bailey, Cammaerts and Carpentier (2008:p.18) as: "large-scale and directed toward homogeneous audiences; state-owned or commercial organisations; hierarchically structured and staffed by professionals; and carriers of dominant discourses and representations". Leslie (2015:p.13) further suggests defining independent as a process in which economic and creative decisions are made together, but in which long-term creative goals remain the priority and quality prevails over quantity. Overall the term *alternative* or *independent press* encompasses a wide array of publishing endeavours and offers no simple definition (Atton, 1999; Le Masurier, 2020; McKay, 2018).

The growth of independent media is not a coincidence but reflects a cultural shift in how magazines are created and consumed as an alternative to mainstream mass media (Abrahamson, 2007; Van Groll, 2014). However, as distribution methods of indies vary and they are often short-lived endeavours, with few that go on to become successful media enterprises, it is very challenging to verify indies' increase in numbers as they often escape auditing systems. The increase in indies is a claim that remains an impression based on industry commentary (Hamilton, 2013; Le Masurier, 2012; Le Masurier, 2020; Sax, 2016).

Most indies start as passion projects, offering alternative views on topics and investing in high quality (Le Masurier, 2012; Rian 2002; Oakes, 2009; Vinh, 2016). As Phin (Phin, 2013:para.3) states, "a magazine is a curated thing" and he emphasises how its design is just as important as the content (Le Masurier, 2012; Whittaker, 2008). Indies' decisions to predominantly use print range from the experience of finitude in the light of the unlimited internet to the value and

collectibility of the object and the slower pace of magazine production and consumption in times of fast-paced mass media (Baker, 2018; Le Masurier, 2012; Phin, 2013; Sax, 2016; Whittaker, 2008). Reading on print also allows for greater attention and credibility (Bennett, 2020; Sax, 2016) and is often more profitable due to higher reader devotion (Le Masurier, 2020). This focus on print in light of digitisation has its roots in the changing media landscape (Sax, 2016; Whittaker, 2008), highlighting Thorburn and Jenkins' (2003) theory of older media taking on new roles and audiences in times of technological and cultural change. In indie magazines, print and digital co-exist, and indies could not exist without this media convergence (Jenkins, 2006; Le Masurier, 2020; Van Groll, 2014). It enables the promotion of print through digital platforms and extends indies' vital networks (Le Masurier, 2014; Oakes, 2009).

In contrast to other alternative media, like zines, indie publishers realise that they cannot be separated from commerce entirely (Bennett, 2020; Le Masurier, 2012; Le Masurier, 2020), managing a delicate balance between earning enough to produce the next issue and not compromising authenticity through sponsors (Bennett, 2020; King, 2014; Van Groll, 2014). To succeed financially, indies rely on forging highly engaged audiences (Van Groll, 2014; Vinh, 2016). The *community*, defined as the community of an indie's audience and the indie community as a whole, is one of the essential elements for their survival (Holmes and Nice, 2012; Le Masurier, 2014; Oakes, 2009; Van Groll, 2014). Their focus on niche topics brings together like-minded people with common interests from across the globe (Abrahamson, 2007; Le Masurier, 2012; Oakes, 2009). Additionally, in contrast to mainstream business models, indie magazines are not competitive and support each other by sharing detailed information about production, distribution and content (Le Masurier, 2012; Le Masurier, 2020) through initiatives such as *The Publishing Playbook,* a free guide on indie publishing created by Kai Brach, founder of *Offscreen* (Melbourne).

However, as Le Masurier (2012) notes, the indie business model does not remain unproblematic, especially concerning its economic viability. Often being almost completely unfunded by evading or reducing advertisement and sponsors,

they regularly rely on free contributions, which constitutes a problematic endeavour of exploitation.

3.3 Independent magazine production

There is very little literature available when identifying the independent magazine production process and its impacts on the environment. Therefore, due to its similarity, the researcher refers to literature focusing on the book and commercial magazine industry.

3.3.1 Identifying the production process

By merging definitions of Bullock and Walsh (2013), Carver and Guidry (2011), and Stam and Scott (2014), we can identify the steps of the independent magazine production process as follows:

- Creation of content
- Design
- Printing
- Finishing
- Distribution
- Recycling

3.3.2 Impacts

Identifying and addressing environmental impacts is beneficial for all publishers as it increases their social, environmental, and economic value (Bullock and Walsh, 2013; Hristov and Chirico, 2019). Kopnina (2015:p.2) differentiates between *direct impacts*, related, for example, to the use of raw materials which impacts deforestation, and *indirect impacts*, such as international policies concerned with forest protection or raw material prices and are significant in "shaping the context in which choices are made". The following chapters highlight a selection of the most significant direct and indirect impacts in independent magazine production.

3.3.2.1 Raw materials: paper production

One of the most discussed impacts in print publishing is the use of raw materials for the production of paper (Bullock and Walsh, 2013; Carver and

Guidry, 2011; Kopnina, 2015; Rizvi, Shafi and Khan, 2012). To date, the literature reveals two contrasting opinions on paper's impact: TwoSides (n.d.), an organisation focused on clearing up misconceptions on print and paper production, claims paper is one of the most sustainable materials available thanks to sustainable forestry and recycling schemes, a notion supported by many in the print and paper industry. However, Martin and Haggith (2018:p.3) from the Environmental Paper Network state that paper production worldwide is growing at an unsustainable rate with considerable impacts on the environment, a concern also raised by Chowdhury (2010) and the Book Industry Environmental Council (BIEC and GPI, 2016).

Paper is made from soft- and hardwood fibres. This has implications such as clearing of virgin forests for harvesting or creation of mono-cultured pine plantations, which lead to an increase in pesticide and fertiliser use, water consumption, biodiversity loss, soil erosion and release of terrestrial CO2 stocks in trees (Bullock and Walsh, 2013; Carver and Guidry, 2011). The removal of ancient forests also impacts and violates the rights of indigenous communities that live in and depend on them (Carver and Guidry, 2011). Furthermore, paper manufacturing includes the process of pulping, a procedure that frequently contaminates effluents and supports the growth of toxic algae, which destroys aquatic organisms. It further releases harmful volatile organic compounds (VOCs) into the air and consumes significant amounts of water and energy (ibid.; Bullock and Walsh, 2013; Kopnina, 2015; Rizvi, Shafi and Khan, 2012).

As paper production is the apparent focus of the industry, many options for recycled paper are available (Bennett, 2020). Recycling also requires energy, use of chemicals and additives for bleaching and de-inking and to date is a process of continuous down-cycling until the paper eventually lands in landfill or has virgin fibre added to it (BIEC and GPI, 2016; Carver and Guidry, 2011). However, the overall environmental gains from recycled paper outweigh its impacts and range from not felling trees and preventing loss of ecosystems and biodiversity to avoiding products ending up in landfill where they leach

chemicals into the soil and emit greenhouse gases (Bullock and Walsh, 2013; Carver and Guidry, 2011; Kinsella, 2012; Powell, 2020). Despite this, demand for recycled paper is still not met (BIEC and GPI, 2016; Bullock and Walsh, 2013). The production of organic and synthetic fibres as alternatives to wood fibres is also an option. However, considerations on raw material consumption, energy use and waste production still need to be drawn on alternative fibres, as they are less researched and monitored (Carver and Guidry, 2011).

3.3.2.2 Printing and inks: VOC emissions, water and energy use

The most common printing methods for independent magazines are *digital* and *lithographic offset* (Bullock and Walsh, 2013; Carver and Guidry, 2011). Lithographic offset is capable of producing large print runs fast, cheaply, and of very high quality. However, it requires a lot of upfront energy and preparation, creating waste for set-up (make-ready) and contaminating water and air with volatile organic compounds (VOCs) through its use of various solutions and inks (ibid.). Digital printing uses either toners or inkjet technology, which are often petroleum-based and emit VOCs. Also, the cartridges are not recyclable (Bullock and Walsh, 2013). However, digital needs no set-up time, has no make-ready and does not require large amounts of cleaning solutions. It can print single copies on demand and location and therefore uses less raw materials and produces less toxic emissions and contaminated effluents (ibid.; Carver and Guidry, 2011). Recent developments are significantly improving digital's quality, expanding its print run size and improving recycling options for cartridges, making it a viable and more sustainable option to lithographic offset (ibid.). A possible solution to both lithographic offset and digital printing is *waterless offset* printing, which eliminates the water used in conventional printing and does not require dampening solutions and continuous cleaning, decreasing its make-ready, VOC and wastewater emissions (ibid.). Other alternatives include *risograph* printing when deemed suitable, as it has a low environmental impact, and opting for *gang printing*, a process in which separate clients print in the same run,

optimising paper and energy use. *UV* printing technology also reduces necessary solvents, VOC emissions and overall energy consumption, but can contain allergic components (ibid.).

Conventional printing inks emit significant amounts of VOCs that cause air pollution and often contain valuable non-renewable resources that must be extracted from the earth. If deposited into landfills, their toxic components will leech into soil and waterways (Bullock and Walsh, 2013). Alternatives using bio-derived renewable materials that reduce VOC content and are less toxic, such as soy and algae inks, are available. However, even if their VOC content may be lower, their reduction in VOC emissions is often negligible (Michelsen, 2013:para.14–15). Also, they can be harder to de-ink in the paper recycling process and consume more energy to dry (ibid.:para.22).

3.3.2.3 Distributing to a global niche

One of the leading environmental challenges several indies face is a global audience, creating a problematic environmental impact when shipping singularly packaged copies across the globe (Le Masurier, 2012; McKay, 2018). Some voices argue that this issue is balanced by their low print runs, avoiding returns and high pulp rates. Additionally, their collectable nature leads to less waste and many indies, though distributing globally, support local specialist magazine stores (Le Masurier, 2012; Sax, 2016; Webb, 2019). However, solutions for distribution impacts still need to be considered. Possibilities include consolidating with other publishers for bulk shipments and adopting recyclable or compostable packaging solutions (Bullock and Walsh, 2013; Carver and Guidry, 2011).

3.3.2.4 Content

One of the inherent impacts of publishing, as illustrated in chapter 3.1.2, is the content conveyed and its social relevance and economic viability in light of the environmentally harmful methods used to make it. This calculation includes considering costs in light of the Triple Bottom Line thinking (Carver and Guidry, 2011; Kopnina, 2015). Particularly indie magazines can impact value

systems and promote genuine lifestyle changes, significantly influencing the reader's knowledge about environmental impacts and opportunities (Kopnina, 2015). Design decisions also fundamentally influence all impacts later on in the production chain and the designer's responsibilities lie in transforming content into a physical object and making sound choices beforehand to reduce waste and pollution during the production process (Braungart and McDonough, 2009; Bullock and Walsh, 2013; Carver and Guidry, 2011; It's Nice That, 2019). Considerations include choices on typeface; type size; leading; margins; image quantity, positions and resolution; colour choices; format; binding; paper type and weight; all of which influence options in printing methods, recyclability and financial possibilities (Carrera, 2017). In contrast to most book publishing, these points need to be fixed for a series of issues and conformity in style (McKay, 2018:p.125).

3.4 Measuring and monitoring impacts: third-party auditing

Creating adaptive systems with indicators to measure and monitor environmental development in publishing is essential for improving impacts (Carver and Guidry, 2011). As stated by Kopnina (2015), indirect environmental impacts such as mandatory reporting can have the most significant influence. Third-party audited certifications and frameworks can provide a helpful tool by setting environmental performance indicators and defining key areas of impact, collecting data and communicating efforts with increasingly well-informed consumers (ibid.; Bullock and Walsh, 2013). They are usually developed by "non-state actors, such as environmental nongovernmental organisations (NGOs), industry associations, and social groups" (Auld, Gulbrandsen and McDermott, 2008:p.188). However, their creation involves a complex interaction with legislation by pressuring policymakers and reinforcing laws (Bullock and Walsh, 2013). Governments are elemental to the development of certifications, signalling their legitimacy by approving them (Auld, Gulbrandsen and McDermott, 2008:p.197) or lacking supportive structures for them, limiting their effectiveness and full potential (Stupak, Mansoor and Smith, 2021:p.46).

Within the broader print media sector, there are many environmental frameworks and certifications already in place. However, there is an apparent lack of research and understanding concerning their direct applicability to independent magazines. The following chapter outlines a small selection of the most widely used certifications and frameworks directly and indirectly relevant to independent magazine production (a more extensive list can be found in Appendix A).

3.4.1 Accreditation and certification bodies

3.4.1.1 Paper

One answer to gaps in the law causing rising deforestation issues are practices of responsible forestry that protect forests, biodiversity, land rights of indigenous people, and commercial and social needs of local communities (Bullock and Walsh, 2013). Auld, Gulbrandsen and McDermott (2008) state that the forest sector is the most advanced in sustainability certifications, though not without criticism on significant flaws.

The Forest Stewardship Council (FSC) is the most widely used certification scheme available and one of the only ones endorsed by key environmental NGOs, WWF, Greenpeace and the Woodland Trust (ibid.; Bullock and Walsh, 2013; Carver and Guidry, 2011). It is based on a two-part system, including responsible forest management and a chain of custody (CoC), both assessed by independent third-party certification bodies, and holds different certifications with varying degrees of certified and recycled fibre content (FSC, n.d.). However, it is regularly in the spotlight of criticism due to its shrinking credibility that has arisen through reported falsification of documents, illegal authorisations, bias in favour of government groups and corporations and neglect of indigenous communities' land rights (Auld, Gulbrandsen and McDermott, 2008; Bullock and Walsh, 2013; Lee, 2009).

Alternatively, the international non-profit Program for Endorsement of Forest Certification (PEFC) also provides certifications for forest management and chain of custody (PEFC, n.d.-c). However, it focuses more on the ability to certify small forest holdings through a group certification approach by

identifying central sustainability benchmarks but allowing countries to create local priorities and forest conditions (Bullock and Walsh, 2013; Carver and Guidry, 2011; PEFC, n.d.-a; PEFC, n.d.-b). Nevertheless, over the past, PEFC has also revealed gaps in forest management approaches regarding land-use conversion and indigenous rights (Bullock and Walsh, 2013; Carver and Guidry, 2011).

3.4.1.2 Inks

To date, low levels of certification exist for environmental sustainability in inks and it remains one of the least developed elements in the print production chain, highlighted by the little research available (Carver and Guidry, 2011; Glas, n.d.). Exceptions include the Greenguard certification, created in 1996 to protect human health and improve indoor air quality. Its focus lies on certifying services and products that significantly reduce VOC emissions (McKeegan, 2020; UL, n.d.). Additionally, the US-based printing industry group National Association of Printing Ink Manufacturers (NAPIM) created the bio-derived renewable contents label (BRC label) in 2009 as part of the BioRenewable Content (BRC) program, which is focused on the environmental impact of printing ink (NAPIM, n.d.). The BRC label identifies the percentage of bio-derived renewable materials in inks that replace petroleum options (Jedlicka, 2010).

3.4.1.3 Carbon

Carbon, on the other hand, offers a significant amount of offsetting schemes, measurement standards and certifications (see Appendix A) (Ecolabel Index, n.d.), of which two are worth acknowledging. The Green House Gas Protocol is a voluntary global reporting scheme and standardisation developed by the NGOs World Resources Institute (WRI) and World Businesses Council for Sustainable Development (WBCSD) (Bullock and Walsh, 2013; Greenhouse Gas Protocol, n.d.-a). It is officially recognised as the basis for carbon accounting and reporting (Bullock and Walsh, 2013) and offers a variety of certified standards (Greenhouse Gas Protocol, n.d.-b). Additionally, the

ISO16750 international standard provides a framework for carbon calculators monitoring the emissions from printed media and is globally applicable to all sectors producing printed media (Bullock and Walsh, 2013; ISO, n.d.-b).

3.4.2 Overarching frameworks

3.4.2.1 EMS and environmental policies

An environmental management system (EMS) or environmental policy serves to identify the goals and methods for environmental progress and impact reduction within a company (Bullock and Walsh, 2013; González-Benito and González-Benito, 2005). It serves as a company's internal method of record-keeping and represents the first step towards environmental commitment (BIEC and GPI, 2008). An EMS or environmental policy should include areas of impact, proposed actions, the baseline for each impact and the targets. It also identifies timeframes, responsible individuals, costs, and the short- and long-term environmental and social values, all of which should be regularly reviewed (Bullock and Walsh, 2013; González-Benito and González-Benito, 2005). Implementing an EMS can be simplified by complying with widely recognised standards, such as ISO1400 or EMAS (González-Benito and González-Benito, 2005; Morrow and Rondinelli, 2002).

3.4.2.2 ISO 14001

The ISO14001 standard certifies that an organisation addresses all environmental impacts within a company's direct control and influence. Its framework is globally applicable to any organisation (ISO, n.d.-a; Morrow and Rondinelli, 2002), and it has a very high level of uptake with printers and paper manufacturers due to its recognition by influential companies (Bullock and Walsh, 2013; González-Benito and González-Benito, 2005). The standard's success can also be attributed to the fact that it functions as a significant potential source of income for consultants and improves relationships with stakeholders (ibid.; Morrow and Rondinelli, 2002). However, it does not set

performance levels, implying that impact levels between different ISO14001 certified companies, suppliers and products can vary enormously (ibid.).

3.4.2.3 EMAS

EMAS, developed by the EU in 1993, is a global and voluntary management instrument for companies and organisations to evaluate, report, and improve their environmental performance and ISO14001 is an integral part of EMAS. Therefore, for organisations already compliant with ISO14001, EMAS offers an extension that focuses on meticulous data collection, third-party auditing and mandatory, publicly available reporting (European Commission, n.d.; Morrow and Rondinelli, 2002).

3.4.2.4 Certified B Corporation

B Corporation, or B Corp, was created by the non-profit organisation B Lab and is a private certification of for-profit companies. It certifies social and environmental performance standards as well as public transparency and legal accountability (Certified B Corporation, n.d.-a; Henkel, 2020). Its focus lies on businesses within a sustainable economy (Certified B Corporation, n.d.-a). Consequently, the certification does not measure product or services but a company's entire social and environmental achievements through assessment and mandatory reporting, based on a point scoring system (Certified B Corporation, n.d.-b).

3.4.3 Greenwashing, power dynamics and transparency issues

Greenwashing describes the conveyance of misleading information regarding a product's or company's sustainability efforts without providing evidence (Kenton, 2021:para.1). As a consequence of widespread greenwashing, the overuse of the words *green* and *sustainable* has stripped them of their meaning to the public eye. Therefore, the value of third-party audited certifications and their labels increases (Carver and Guidry, 2011), as they play an essential part in communicating environmental impacts and efforts to clients and end-users, giving them a potential

choice of action (Bass *et al.*, 2001). However, for this to work, said certifications must be comparable, transparent and trustworthy.

A company's commitment to sustainability can be both a promotional tool and a model to effect change. Hence, audits are only valid if they openly share information and demonstrate a company's genuine commitment (Carver and Guidry, 2011). Despite their swift and broad uptake in the past decades, not all certifications allow for transparent fact-checking and are rigorous to the same extent as to be comparable between producers, resulting in notable variability in their quality (ibid.; Auld, Gulbrandsen and McDermott, 2008; Bullock and Walsh, 2013; Morrow and Rondinelli, 2002). Because they often secure benefits and drawbacks for certain members, often disadvantaging small and medium enterprises and developing countries, they are not neutral (Auld, Gulbrandsen and McDermott, 2008). Therefore, certifications yield a certain power regarding costs, market demands and compatibility and their eligibility criteria can imply a company's financial assets rather than the determination to reduce impacts. Indie magazines are well known for their financial limitations and investing in measuring and monitoring systems is often not feasible. Additionally, the lack of available figures on indie magazines implies they often escape most forms of auditing (Hamilton 2013; Le Masurier 2012; Oakes 2009). With no parameters and benchmarks available, new systems need to be implemented to measure indies' impacts and collect relevant data.

Additionally, McDermott, Noah and Cashore (2010:pp.47–48) state that the overwhelming amount and complexity of different certification schemes with contradictory claims about their legitimacy contribute significantly to the confusion regarding which systems are valid or not. The print production process is also rich in misinformation and contradictory evidence on its impacts, with different voices pointing to different data. As Kopnina (2015:p.7) recognises, the profitable businesses of environmental consulting and ecolabelling intensify these issues. The question arises if certifications are at times not just alternatives to more restrictive regulations and used by companies to exploit the trustworthiness they gain from third-party auditing.

3.5 Conclusion

The above literature review confirms that research has been done on the environmental impacts of the broader publishing and print industry and identifies how third-party audited accreditations are applied to various degrees in different areas of the supply chain. It is clear that the responsibility lies not only with the publishers but all the stakeholders involved (Chowdhury, 2010:p.941) and that working collaboratively to reduce environmental impacts is the only way forward.

However, the literature also reveals a lack of up-to-date research on independent magazines and environmental sustainability in the production of independent magazine publishing. Therefore, the researcher draws on research analysing the broader publishing and print industry which is, however, also outdated, despite its size and effect on the environment (Rizvi, Shafi and Khan, 2012). Though research on specific accreditations, certification schemes, frameworks, and environmental KPIs exists (Morrow and Rondelli, 2002), it again refers to other industries and exposes a complete absence of literature on the relevance of third-party audited frameworks for independent magazines. The existing literature highlights the complexity and heterogeneity of monitoring frameworks and certifications and shows that more research needs to be performed on their validity and comparability. It also reveals a complete lack of insight into independent magazine publishers' views and opinions on environmental sustainability within their work, leaving a significant gap in the comprehensive understanding of how their environmental impacts could be reduced.

4. RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

The following chapter outlines, validates and reflects upon the research designed to collect primary data. The previous chapter reveals a great need for up-to-date research on the environmental impacts of independent magazine publishing and the validity of third-party audited frameworks to measure, monitor and improve said impacts. It also unveils that a deeper understanding of independent magazine publishers' difficulties and thoughts on the topic is needed.

4.2 Purpose of research

Based on this conclusion, the research aims to

- assess independent magazine publishers' efforts and knowledge to become more environmentally sustainable;
- understand the usefulness of third-party audited certifications, accreditations and frameworks to measure environmental impacts;
- identify potential opportunities to support independent magazine publishers' on measuring and improving their environmental impacts.

4.3 Paradigm and interpretative framework

The researcher applies an exploratory approach and adopts a post-positivist and interpretivist worldview associated with the qualitative research employed.

Post-positivist paradigms stand opposed to positivist views and challenge the traditional understanding of absolute truth of knowledge regarding human behaviour (Creswell, 2015; Phillips and Burbules, 2000). Post-positivism and interpretivism refuse the notion that a researcher can adopt a neutral approach and understand that human behaviour is affected by its knowledge of the social world. Accordingly, the researcher interprets experiences and constructs meanings from them (Davies and Hughes, 2014; Whisker, 2008). In contrast to positivism, post-positivism allows for qualitative data collection, recognising the value of quantitative collection of data, but also its limitations in its applicability to social sciences (Flick, 2009). Post-positivist research, therefore, embraces the subjective reality of qualitative data collection

without claiming scientific objectivity (Davies and Hughes, 2014:p.179; Henderson, 2011).

The researcher adopts this paradigm by employing qualitative research methods in the form of interviews. Qualitative research involves an interpretive approach to practices, attempting to understand phenomena concerning the meanings and experiences individuals bring to them (Davies and Hughes, 2014:p.9). The research is exploratory as the researcher seeks to build knowledge of the little-studied subject based on the participants' opinions (Creswell, 2015). Interviews provide a detailed insight into independent publishers' subjective opinions and experiences and allow us to understand their views and difficulties within this highly complex matter beyond facts and figures.

In order to gain reliable and relevant insight, multiple perspectives are used to access the researched phenomenon, also known as *triangulation*. This method allows the researcher to expand the research focus and produce a more comprehensive picture by using multiple data sources (ibid.; Flick, 2009; Hatch, 2002; Marshall and Rossman, 2011). The researcher applies this system by engaging with two different sets of interview participants from two different perspectives in the industry to better understand how environmental impacts are measured and monitored. The first set of interviews concerns printers, having identified them as experts in the broader publishing and print industry and as a converging point of many production processes. The second set of interviews samples indie magazine publishers, the main subjects under investigation, and aims to understand their outlooks on the issue.

4.4 Rationale of research design

The use of qualitative research is based on its exploratory nature and its research problem characteristics defined by Morse (1991:p.120) as a) an "immature" concept due to lack of literature and research; b) considering the existing theory may be incorrect or biased; c) a necessity to explore the issue and develop a theory; or d) the topic may not be suited to quantitative research methods (Creswell, 2015:p.152). As a poorly researched topic with limited literature and data available, qualitative interviews representing two different perspectives would allow acquiring deeper and

broader knowledge than quantitative data collection, which would be very limited in respect to the subjective exploration. The chosen methodologies allow the researcher to gain fresh insights by producing new information, and small samples enable them to create a deeper examination of a highly heterogeneous topic (Davies and Hughes, 2014; Whisker, 2008). Quantitative data can not reveal the complex dynamics behind environmental matters and fails to acknowledge the intentions and motives behind independent publishers' figures regarding environmental production.

4.5 Research method: interview

The semi-structured open interview was selected for both sets of interviews which took place virtually over the video-conferencing platform Zoom and via e-mail. The researcher acknowledges Scheele and Groeben's (1988) definition of semi-structured interviews, which reconstructs subjective theories and understands that interviewees have a complex set of knowledge about the topic under study, which the researcher wants to examine and reconstruct (Flick, 2009:p.170). In their definition, the subjects' knowledge includes explicit assumptions that interviewees answer with open questions, complemented by implicit assumptions extrapolated through specific types of questions, such as confrontational, theory-driven and hypotheses-directed questions. The goal of the interview is to express existing knowledge through answers and make that knowledge available for interpretation (Flick, 2009:pp.171–174). The qualitative interview in a postmodern approach covers both factual and meaning levels and is defined by Brinkmann and Kvale (2019:pp.8,15) as a "construction site of knowledge". This description is supported by what they term the *Traveller Metaphor*, which understands the interviewer as a traveller on a journey, unfolding meanings of and interpreting the stories they collect and then delivering them to their audience when back home (ibid.:p.19).

Semi-structured interviews provide numerous questions that can be altered as required and allow for follow-up questions for deeper exploration of themes arising during the conversation without sacrificing the data's comparability and overall integrity (ibid.:pp.63–65). This method also permits alterations and improvements from interview to interview (Whisker, 2008). Essential to constructing a good

interview is acquiring a conceptual and theoretical understanding of the issue being investigated to establish a foundation on which to construct further knowledge (Brinkmann and Kvale, 2019:p.43).

To ensure the validity of the questions, the researcher conducted a pilot study on industry professionals and peers and identified potential ethical issues outlined in chapter 4.6 prior to starting the interviews.

4.5.1 Structure of printer interviews

Printers are situated within many converging paths of the production chain of indie magazines and are technical experts within the print industry, aware of most legal requirements and third-party audited certifications and frameworks and of the technologies and solutions implemented to reduce environmental impacts.

The printer interviews seek insight into the factors that influence indie magazine production, what solutions are currently employed and developed to make the print production process more environmentally friendly, how impacts are currently measured, where improvements are necessary, and how relevant third-party audited certifications and frameworks are. The interview questions are based on the fundamental questions the researcher wants to answer, which are the following:

- Who are you?
- What elements influence environmental sustainability in independent magazine production?
- Where can sustainability efforts in production be improved? Are you trying to improve them?
- What frameworks, standards, certificates already exist concerning print production? What are the processes to obtain these certificates?
- Are these frameworks a valid way of measuring and comparing efforts?
- How easy is it for newcomers in the industry to navigate these certificates and standards?

- How transparent are publishers and producers in their sustainable efforts? How much do they care?
- Is environmental sustainability economically viable?

Each question and point of investigation is broken down into several subquestions (see Appendix B), generating the final interview questions which could be selected based on each interviewee.

As interview partners frequently react negatively to questions that require critical reflection of their workspace (Stokes, 2013:p.101), the questions extend to the broader printing industry, and anonymity is guaranteed by removing all references to names and places.

4.5.2 Sampling of printers

The chosen sampling method for both interview sets uses a mixture of *convenience* and *purposive* approaches (Davies and Hughes, 2014:pp.61–62). Convenience sampling describes the practice of taking what samples are available without knowing to what degree the information or ideas expressed represent the actual population (ibid.:p.61). Purposive, or *strategic* sampling, targets specific individuals believed to represent the population, which can help the researcher develop their understanding of the issue and research question further. These samples can be 1) typical cases, chosen based on maximal variation and intensity of features relevant to the research; 2) critical cases; 3) politically important or sensitive cases; and 3) convenient cases with easy access (ibid.:pp.62–63; Flick, 2009:p.137). Both methods stand opposed to *random* sampling of participants typically found in quantitative research (Creswell, 2015; Davies and Hughes, 2014).

Both convenience and purposive samples are also known as *non-probability samples* because they are not based on randomness and probability distribution of the population they are drawn from – in this case, printers (Davies and Hughes, 2014:p.64). This implies that the results drawn from these interviews must be treated with caution, and generalisation is restricted. Nevertheless, they are still

valid techniques and support the research's qualitative characteristics, such as a reflective and human approach. Furthermore, despite time and access limitations, they enable the researcher to select a small but valuable sample to deliver rich and in-depth findings echoing the experience of the broader population (ibid.:pp.64,167; Flick, 2009:p.137).

The *snowballing method* is also applied and describes how already identified interviewees who fit the criteria further suggest other interviewees suitable to participate in the research, after having participated themselves (Davies and Hughes, 2014:p.174). This approach helps access more relevant experts in each area and even between printers and independent magazines.

The sampling consisted of contacting printers knowledgeable in the environmental impacts of printing, and all sampled printers required an EMS or environmental policy published on their website. The researcher sampled five UK based printers of various sizes sourced through the researchers' network, lecturer's suggestions and industry connections, which enhance the trustworthiness of the selected interviewees (Warren, 2011:p.87). The sample size results from the saturation of information that occurs when patterns become visible throughout the interviewing process, which ran parallel to the data collection and analysis (Brinkmann and Kvale, 2019; Charmaz, 2006, Creswell, 2015; Davies and Hughes, 2014).

It is intentional to include printers that do not work with indie magazines, as the research extends the insight into the use of certifications and accreditations to the broader print industry. This decision also allowed for greater variety in sampling printers to obtain relevant and valuable data within the set limitations.

4.5.3 Structure of indie magazines interviews

The second set of interviews consists of a selection of independent magazine publishers. The interviews were partly conducted via the video-conferencing platform Zoom and partly via e-mail, allowing the participants to answer at their own pace. The e-mail interviews were a result of many interviewees' limited availability, an issue further described in chapter 4.5.4. and 4.8.

By entering in direct contact with indie magazine publishers as the principal subjects under investigation, the researcher is able to learn how important environmental sustainability is to indie publishers, what their environmental efforts and impacts are, how and if they measure said impacts, how hard it is to navigate the world of environmentally sustainable production, where they need support and how valid third-party audited certificates and frameworks are in their opinion.

Analogous to the printer interviews, the questions are developed from the following key questions the researcher wishes to answer through the interviews :

- Who are you?
- Why did you decide to start an indie magazine?
- What are your values in regards to quality and environmental sustainability?
- How much do you know about the environmental impacts of indie magazines?
- Are you actively doing something to measure and minimise your impacts?
- How hard is it for you to inform yourself on environmental production/sustainable solutions?
- Are standards, certificates and frameworks for environmental impacts relevant to you?
- Where could you use help regarding environmental sustainability?

Each question is broken down into subquestions, resulting in the final interview questions that could be selected for the individual interviewees (see Appendix C).

As mentioned previously, many interviewees respond negatively to questions that require critical observation of their work and, as is often the case with indie magazines, passion projects (Stokes, 2013:p.101). Therefore, all participants are guaranteed absolute anonymity by removing all references to names and places.

4.5.4 Sampling of indie magazines

The sampling procedure applied the same methods used for the printer interviews described in chapter 4.5.2. However, unlike the printers, the indie magazines were

more challenging to contact and include in the research. Of nineteen contacted Europe-based magazines, eight did not reply, and two did not have enough availability to participate. Nine agreed, of which five to e-mail interviews and four to Zoom interviews. Three did not reply to the interviews anymore, of which two were via e-mail and one via Zoom. In conclusion, a total of six respondents participated, three via Zoom interviews and three via e-mail. This reveals a stark contrast to the printers, where all five contacted printers participated in the research.

The participants were purposefully, strategically and conveniently sampled from different categories to gain insight into as many experiences as possible. Four are already established independent magazines, of which two focus on environmental sustainability as their magazine topic. To complement their viewpoint, the research included two indies just starting out or producing their first issue to incorporate data of newcomers to the industry.

4.6 Ethics

It is vital to protect the participants from harm that could occur through the research. This consideration includes evaluating and eliminating risks posed to the participants, making sure the participants are wholly informed about the process and the protection of their data, obtaining their consent to the evaluation of this data, guaranteeing confidentiality of their identity and evaluating the researcher's role in the process (Brinkmann and Kvale, 2019:pp.29–31).

Ethical research guidelines are guaranteed firstly by informed consent through a signed consent form (see Appendix D). Prior to asking for consent, an information sheet was provided (see Appendix E), giving an overview of the topic to make sure the interviewees felt comfortable answering questions regarding their work, including critical ones. The outline ensured the participants were informed about the research purpose and the main features of its design, including aims, potential uses and possible risks and benefits (ibid.:pp.31–32; Davies and Hughes, 2014:p.182). Their consent granted them the freedom to control how their contributions were processed, enhancing transparency during the conversation. Giving them their right to withdraw

and ask questions allowed for close contact and trustworthiness with the researcher, enhancing the validity of their answers (Davies and Hughes, 2014).

Furthermore, as Creswell (2015:p.235) states, *reflexivity* in qualitative research defines how the investigator reflects on their role in the research regarding their cultural background and experiences, potentially influencing their interpretations in designing the research and evaluating the data. This evidences where bias could appear within the design and analysis of the data and allows for greater objectivity. Brinkmann and Kvale (2019:p.16) also speak of *presuppositionlessness*, which implies the researcher acknowledges their own bias and presuppositions and recognises implied knowledge to obtain valid answers. Regarding a topic like environmental sustainability, the prejudicial attitude and knowledge of the researcher's position needed to be defined in order to avoid evident bias in the data collection and analysis.

After evaluating all possible risks, the researcher decided to continue anonymously. Confidentiality was guaranteed by omitting references to names, clients and places, allowing greater transparency and added insight (Brinkmann and Kvale, 2019).

4.7 Data analysis

Qualitative data analysis explores patterns of personal or group experiences and compares views within their context without referring to statistically representative findings of that population (Davies and Hughes, 2014:p.175). The researcher's primary instrument for data analysis is analogue coding methods: grouping data into categories with one or more keywords attached and then comparing them to recognise emerging themes, patterns, similarities and disparities (Brinkmann and Kvale, 2019:p.113; Saldana, 2009:pp.8,11). This process follows the steps of "transcribing, analysing, verifying, (...) reporting" proposed by Kvale in 1996 and is selective and interpretivist (Brinkmann and Kvale, 2019:p.53). It involves significant data reduction to focus on the studied topics, extrapolating only the most relevant findings and condensating meaning by compressing lengthy statements (Creswell, 2015; Guest, MacQueen and Namey, 2012). The researcher defines their classification system based on the data extracted from the interviews, formulating several categories relevant to

the issues explored and analogous to the questions asked (Davies and Hughes, 2014). Emerging ideas are identified in each paragraph of transcribed material, creating the first coding frame and information reduction to compare transcriptions, allowing to group similar or identical answers and questions (see Appendix F). Subsequently, opinions and personal views are analysed and extrapolated, varying the levels of analysis at different points depending on their relevance to the investigated material (ibid.).

This approach can be identified as inductive, emphasising the observation of transcripts without preconceived ideas to test (Brinkmann and Kvale, 2019:pp.117–118). The analysis employs a bricolage of methods, combining various techniques and concepts of analysis, including *structural coding* and *thematic coding* (ibid.:pp.121–131). Structural coding is a content-based method where data sections correlating to specific questions are framed and then collected for further analysis (Saldana, 2009:pp.66–68). This method is based on the research question and therefore defined beforehand. Thematic coding strives to ensure comparability by defining emerging topics. Analogous to the adopted research design, its premise is that different social environments produce multiple views. Therefore, it is orientated towards sampling groups whose perspectives on the issue are of the most significant value for the analysis (Flick, 2009:p.318).

The collected data is verified by considering different steps, including *reliability* and *validity* (Brinkmann and Kvale, 2019; Creswell, 2015; Flick, 2009; Gibbs, 2007). Reliability relates to the trustworthiness of findings and data and their consistency throughout the research process (Brinkmann and Kvale, 2019). Validity refers to the accuracy and strength of the data, which is strongly linked to the research design, data collection and analysis, as well as the researcher's capability of questioning and interpreting, and is one of the main strengths of qualitative research (Brinkmann and Kvale, 2019; Creswell and Miller, 2000; Gibbs, 2007). The triangulation of different perspectives and separate data sets treated identically, such as printers' and indie magazine publishers' viewpoints, enhances validity because it produces knowledge on multiple levels (Flick, 2009). This also includes discrepant data, which provides a more realistic description (Creswell, 2015:p.252).

For the aim of this research, it remained unnecessary to make verbatim transcriptions for linguistic analysis, implying that pauses, repetitions and tones of voice, for example, were removed. The research participants were permitted to review their transcriptions before analysis to guarantee the accuracy of their answers. Both sets of interviews and the data collected were analysed separately before converging for overall interpretation.

4.8 Limitations

Due to the limited time frame for primary data collection, the number of sampled and interviewed subjects was greatly restricted. In contrast to the highly engaged printers, the general response rate of indie publishers was low, implying that some interviews had to be conducted via e-mail, which suggests less in-depth exploration and findings. Communication via e-mail indicates that interviewees need to be skilled at written communication, which was not always the case, leading to difficulty generating data as valuable as in the interviews conducted via Zoom (Brinkmann and Kvale, 2019:p.80). Also, it is unclear how transparent the interviewees' reflections are concerning the more critical questions in all interviews. In such instances, only employing qualitative research does not lead to entirely objective findings.

Furthermore, geographical limitations need to be considered too. Many sampled indies are based in London, emphasising the centricity of the indie magazine scene. Also, all five printers are based in the UK, and all indies in Europe, which possibly biases the outcomes of the findings, particularly concerning implemented third-party audited certifications and frameworks. However, despite this geographical boundary, a wide array of indie publishers and printers are included in the research and valuable findings applicable to the broader scene concluded.

As already mentioned, the generalisation of qualitative data is limited, as its primary aim does not lie within generalisation outside of the individuals interviewed. Instead, its focus lies on certain themes developed in specific contexts, emphasising specificity rather than generalisation (Creswell, 2015; Greene and Caracelli, 1997). However, Yin (2009) argues that generalisation does occur within qualitative research when findings from one case are generalised to the next (Creswell, 2015). A possible

solution includes *analytical generalisation*, which, as stated by Brinkmann and Kvale (2019:p.146), "involves a reasoned judgement about the extent to which the findings from one study can be used as a guide to what might occur in another situation". To what extent findings can be generalised is also closely linked to the sampling (Flick, 2009). Due to the strategic, purposive and convenience sampling methods employed, the researcher uses a form of controlled bias to obtain valid answers despite their subjective approach (Davies and Hughes, 2014:p.173).

5. FINDINGS AND DISCUSSION

5.1 Printers

5.1.1 Environmental engagement and impacts

Having sampled printers with an EMS and environmental policies, it is unsurprising that environmental sustainability ranks highly, if not highest, among the priorities of the printers within running the company. However, regarding their engagement and use of green printing technology, the ranges differ considerably, and the complexity of the matter becomes instantly visible as different opinions and beliefs surface. However, the findings reveal that various solutions are readily employable and they evidence how much can currently be done within the industry to reduce environmental impacts.

When considering the individual developments currently employed, the focuses range from encouraging employees in their lifestyle, engaging with different environmental certifications and standards, employing different internal auditing schemes, waste management schemes and using the most up-to-date printing technologies, such as waterless litho offset printing. Renewable energy providers and carbon offsetting schemes are also employed to different degrees.

Overall, there is consensus on the most impactful environmental contributors being raw materials, energy use, chemical pollution and overall supply chain management, analogous to the findings in the literature review. There is a prevailing belief and consensus that the paper industry is the most developed in environmental sustainability, based on the fact that the softwood used for paper fibres grows as a sustainably managed crop in Europe. As recognized by the Bullock and Walsh (2013), the findings reveal a belief that recycled paper is still not widespread enough and needs to be pushed more and that more printers need to switch to green energy as an already available technology to reduce impacts, and investing in more efficient and clean printing presses which are already available. The research also confirms Glas' (n.d.) and Carver and Guidry's (2011) observations, that ink is believed to be the least developed contributor within the printing industry as it implies significant changes within the printing process itself,

which would be too much of an investment, according to some. An interesting statement also considers the entire sustainability topic to be focusing too much on materials rather than the printing process and distribution issues, implying a wrong focus within reducing the impacts of the print industry.

5.1.2 Third-party auditing

The data reveals that the sampled printers use environmental certifications and frameworks that include FSC, ISO 14001, ISO 9001, EMAS (prior to Brexit), B Corp, 0 waste to landfill, Living Wage and various carbon neutral certificates and green energy suppliers. Opinions on the effectiveness and validity of the schemes vary considerably based on personal experience and knowledge.

The findings confirm that ISO 14001, often in conjunction with ISO 9001, and FSC certifications, are the two most widespread and popular accreditations and frameworks employed. ISO 14001, however, is often considered less valid because it does not require an external audit and is based on reported figures, therefore allowing printers to bring in as much or as little effort as they like, a statement confirmed by González-Benito and González-Benito's (2005) findings. Some voices emphasise ISO's rigour and time-consuming process, whereas others describe it as a tickbox exercise satisfying minimum requirements that is not pushing developments and is based on an old-school and unmotivating pass or fail system. This disparity in opinions confirms how flexibility in performance levels within certifications and frameworks create different degrees of engagement and opinions on their effectiveness. This conclusion corresponds with Yin and Schmeidler's (2009:pp.53–54) findings, which state that the literature exploring ISO14001's validity is very heterogeneous, and no conclusive findings on its effectiveness could be made due to the flexibility of implementation of said standard. FSC too divides opinions, with some considering it particularly problematic concerning its transparency and just a further tickbox exercise which is not even relevant for the paper industry, with further shortcomings in its certified papers database. Others describe it as a valid and rigorous system. The data also reveals that the complex accreditation system for using the FSC logo and its

aesthetic shortcomings often hinder many printers and clients from going through the certification process.

EMAS emerges as one of the most popular monitoring systems. The data shows that it is lauded as very extensive and rigorous and therefore highly efficient at data collection, an important asset since lack of available data is a significant issue within the industry. Due to its mandatory and publicly available reporting system, it is appreciated as the most transparent and insightful system to drive development and comparison in and beyond environmental aspects, confirmed by Morrow and Rondelli's (2002) research in other industries. However, due to Brexit, UK-based companies have difficulties continuing with this scheme. One of the most popular options replacing EMAS is B Corp, an increasingly adopted framework. The data shows that it too is praised as a challenging and rigorous framework, making members look at all aspects of their business and push beyond environmental boundaries. It requires consistent reporting, is very transparent and is described as highly motivating as it can be tailored to individual businesses.

The printer's descriptions highlight a divide between certifications and monitoring schemes which are highly flexible and tend to "do less bad" within the minimal legal requirements and the ones that try to push the boundaries of any company and fundamentally change its mindset, retaining a flexible approach but rigorous auditing and reporting. It is clear that the varying opinions are based on personal involvement, but they highlight the need for more clarity and transparency within different systems and the complexity of fact-checking itself.

Interestingly, despite varying opinions on their efficacy, all printers seem to employ FSC and ISO standards, which shines a light on the external pressure from more dominant clients and stakeholders to comply with specific certifications and frameworks. Accreditations help printers communicate their environmental efforts with their clients and other stakeholders and enhance their credibility (González-Benito and González-Benito, 2005:p.138; Yin and Schmeidler, 2009:pp.53–54). However, the findings show that this effect happens independently of the fact if the same clients and stakeholders understand the certificates' content, applicability, and range, a conclusion supported by González-Benito's (2005:p.143) findings on the

ISO14001 certification. This superficial use of certifications creates a problem for printers feeling pressure to comply with both ISO and FSC, even if they do not consider them valid, and which are both relatively expensive processes for smaller businesses.

Most printers consider carbon neutral and other carbon offsetting schemes as only additions to more fundamental changes that need to be made and are considered a way of buying oneself out of the problem. Nevertheless, printers still widely employ them and justify their popularity due to their demand for data collection and ease of understanding for most clients. This ambiguity reveals two things: firstly, the evident lack of data in the industry and how important data collection is. Secondly, how important the communication with clients is regarding certifications employed and that not enough communication exists for more valid monitoring schemes to be fully understood and appreciated by non-experts.

The data shows that printers are convinced that the employment of certifications and frameworks helps them measure and monitor their environmental impacts by adding rigour and discipline to the process and shining a light on areas of improvement and neglect. However, when asking about the validity for comparison, most printers believe certifications such as FSC and ISO14001 are not valid as they allow too much flexibility to compare efforts accurately. Nevertheless, some printers state they would compare themselves with other printers using EMAS and B Corp, again emphasising the divide between reporting rigour of different monitoring programs.

Analogous to Morrow and Rondinelli's (2002) findings on motivations for adopting ISO14001 and EMAS, a clear tendency emerges that most environmental monitoring schemes start as a tickbox exercise to receive endorsements or satisfy customer requests. However, during the process, environmental impact monitoring turns into a mission that goes beyond only the necessary legal requirements. Therefore it can be stated that accreditations and certifications push printers to start a development that often turns into more than what it was set out to be, further enhancing environmental development and data collection, a statement confirmed by González-Benito and González-Benito (2005). The data shows that the

demanding process of measuring and reporting also becomes easier the longer it is done, allowing for additional developments to occur further down the road and implying that certifications indirectly support environmental development. Also, the printers confirm that the granting of certifications and awards can act as a further motivation to continue and improve efforts and heighten employees' awareness (ibid.:p.144; Morrow and Rondelli, 2002:p.163).

5.1.3 Financial aspects

The interviews reveal that for the printers themselves, it costs more to employ sustainable solutions, and much investment is required before returns can be seen, meaning all environmental efforts need to be considered long-term. This requires a certain amount of belief in the mission of sustainable development if it is not mandatory for companies to comply. However, the interviewees confirm that as environmental awareness is rising (Lampert, 2019; Thackeray *et al.*, 2020), the request for environmental production is increasing. But they also emphasise that price remains the most significant determinant and barrier for product choices for clients. Additionally, printers state that clients often care about a green appearance and are unwilling to invest beyond the minimum to make them appear sustainable, a trend confirmed by the claim that the environmental aspect often suffers first in economically challenging times. Printers who engage with indie magazines speak of limited interest and resources to invest, implying that although interest in sustainable printing options is growing, little of this comes from independent magazine publishers, who are often financially restricted (Le Masurier, 2012).

5.1.4 Relationship with clients and the role of greenwashing

One of the key elements emerging from the research is the importance of the relationship between printers and their clients, potentially independent magazine publishers. Printers consider the knowledge of clients, including publishers and end-users, as predominantly low. This knowledge gap implies a lack of capability to judge what certifications and facts are right and wrong from the clients' side: they are easily greenwashed into misinformation regarding environmental sustainability as their priority lies in the quality rather than the environmental

aspects. Therefore, clients and end-users must be educated to make the right decisions on choosing printers and products and to understand the impacts of the products they receive. This is where communication between printers and their clients, interpersonal and through accreditations, is vital. The findings conclude that most printers consider it their responsibility to explain the various services and accreditations used and ensure their client grasps them. However, this is executed to various degrees. Systems such as carbon offsetting are fairly simple to understand for most clients, whereas ISO and EMAS do not mean much to the average client, let alone end-user, making it hard to navigate the many available certifications and frameworks. Printers, therefore, are references and knowledge centres for their clients and need to be aware of their responsibility. This conclusion exposes that clients, in our case independent publishers, are reliant on printers' statements and information, and that printers have significant influence on the customers' choices, even if the final decision remains the clients'.

5.1.5 Transparency

Transparency keeps emerging throughout the findings and reveals itself as *the* critical element in defining the validity and applicability of accreditations, a conclusion confirmed by Carver and Guidry (2011). EMAS and B Corp appear as superior in this regard, without undermining the measuring and monitoring advantages that less transparent certificates still provide. Overall, external pressure requiring consistent and insightful reporting could push more accreditations to employ similar solutions, enhancing their transparency and comparability and making it easier to judge the validity and applicability of said certificates. As McDermott, Noah and Cashore (2010:p.47) state, competition amongst different certification schemes already increases demand for transparent comparison. Still, the overall differences in opinions and stated facts confirm how transparency is still an issue within different accreditation systems.

5.1.6 Circularity and future developments

When questioned about the possibility of circularity as a solution for the print industry, it is clear that with current technology circularity is not considered

possible and that complete technology change would be needed. However, there is a presiding belief that this could be achieved if technological developments and external pressures were increased, especially in printing and publishing. The baseline understanding of the minimum legal requirements currently differs widely from printer to printer. Some believe the industry is on the right road, while others disassociate themselves entirely from the print industry, defining it as commoditised and unwilling to change. More consensus is necessary regarding the print industry's current status in environmental development and what needs to be changed to work towards a more circular production system and business model.

5.2 Indie magazine publishers

5.2.1 Values: quality, community and print

The research confirms the small-scale nature of indies, with creators often having a personal connection to the topics treated and that the magazines are frequently developed as statements against the mainstream throw-away culture by focusing on enhanced quality and reader experience materialised in print (Baker, 2018; Le Masurier, 2012; Phin, 2013; Sax, 2016; Whittaker, 2008). Their teams are small, and individuals take on more than one role, usually overlapping and sharing functions. Furthermore, confirming Jenkins (2006) convergence theory, almost all indies use digital to complement their print endeavours through social media platforms as a tool to promote and network. The data confirms that the community aspect identified by Le Masurier (2014), including the community of their niche topic and the independent magazine community, is vital for magazines' survival and a source of information regarding production and business, including environmental aspects. Indies trust their community most when acquiring reliable knowledge, exposing the importance of including it in potential solutions for increasing environmental awareness.

5.2.2 Financial limitations

The findings confirms the financial difficulties and limitations indies face as businesses and that from an economic point of view, they are not sustainable, as

they are often entirely unfunded and regularly rely on free contributions (Le Masurier, 2012). This speaks against any theory regarding indies as inherently more sustainable due to their small-scaled nature when looking at the Triple Bottom Line perspective. Though the quality of production and design is a top priority and invested in to win an audience and sell, environmental sustainability is often not included in this definition. The findings confirm that it is regularly one of the first aspects sacrificed when it comes to decisions made on tight budgets.

5.2.3 Environmental awareness and efforts

Environmental sustainability differs in priority from magazine to magazine, with those closest to the topic considering it an absolute priority and others believing their businesses are so small that their impact is negligible. Therefore, they prefer focusing on aspects such as sustainable relationships with their contributors and financial viability. Given the overall change of awareness in society (Lampert, 2019; Thackeray *et al.*, 2020), however, indies too seem to be more aware of the issue and agree that change must take place, though maybe more through the personal involvement of the individuals making the magazines than through their publishing activity. The participants state to be improving their environmental impacts by distributing regionally or through local stores, choosing sustainable printers and suppliers (especially for paper), not overprinting, creating little waste and not occupying office space by working from home. Most magazines believe they are doing what is possible within their means, emphasising the difficulty of including more rigorous measurements and impacts within their business as resources and time are limited. Especially quantifying and measuring impacts remains one of the main issues evidenced by the fact that none of the sampled indies measures or monitors their impacts. This decision is justified by stating that they are either too small, unaware of how to measure or believe it is impossible to measure their impacts when incorporating their social influences. One participant reasons that it would make more sense to see the environmental aspect as a creative challenge to overcome and solve from the very start instead of considering it an external issue to be measured, monitored, and solved by other companies. This

statement implies incorporating environmental solutions in the creation of magazines with the help of experts such as printers and suggests more education needs to happen to inform indie publishers on how to do this.

5.2.4 Knowledge and relationship with suppliers

The overall knowledge on impacts and developments differs depending on the individuals behind the magazines and their backgrounds. However, the data reveals that, with some exceptions, environmental knowledge is limited, and the available awareness on impacts usually concerns paper, energy, and distribution. Moreover, when it comes to minimising impacts and pushing developments to solve environmental issues, understanding is minimal, and most indie publishers rely on printers and suppliers for expert knowledge and for taking on the responsibilities of measuring and monitoring impacts, as most indies believe they are not capable of doing this themselves. This dependency highlights the importance of this relationship and its necessity to be transparent and trustworthy to push environmental developments on both sides.

5.2.5 Relevance and accessibility of third-party auditing

The research unveils that indies do not work with third-party audited certifications, except for FSC certified paper, which is often the only certification they are aware of. The magazines already focusing on environmental sustainability as their topic consciously choose certified printers for their positive environmental impact. However, survival seems to be the priority for most indies, and focusing on third-party accreditations to measure and compare impacts is considered irrelevant. There is a prevailing belief within the indie community that accreditations and certifications are not a valid way of measuring and comparing the environmental impacts of indie magazines. Their focus lies more on individual impacts, acquiring knowledge from the indie community and printers, and relying on suppliers for environmental solutions. One of the reasons for this is a lack of knowledge and significant trust issues when it comes to third-party audited certifications. Though external pressure, primarily legal and public, is deemed a vital force to bring on change and advance the baseline industry norm, accreditations are not considered a

solution for this as they are not recognised as transparent and trustworthy. The research also reveals that another reason for this disinterest in third-party audited certifications could lie within indies' communication efforts. While some indies consider it essential to communicate their environmental efforts with their audience, though not through accreditations, most consider it an inherent aspect of production – if even considered – which does not need to be highlighted due to a lack of interest in the subject from the end-users. Additionally, as small businesses, their limited time will be focusing on the content and business rather than communicating green production through certifications. Therefore, a lack of resources and time and limited interest from readers inhibit the communication of environmental efforts and, therefore, indirectly the relevance of third-party audited frameworks and certifications.

5.2.6 Greenwashing and trust issues

As mentioned above, most indies hold significant trust issues when it comes to certifications due to a lack of transparency and clarity, making it hard for non-experts to navigate between different schemes (McDermott, Noah and Cashore, 2010). B Corp is mentioned as an exception. Interestingly, some express having no choice but to believe and trust certifications, such as FSC recycled paper, due to lack of data to check or knowledge to judge. Overall, however, the data reveals a belief that accreditations do not accurately measure impacts and therefore are irrelevant for comparison. They are considered helpful tools as quick guides but will not reveal genuine and reliable tracking of facts. This general distrust could also boil down to indies inherently working against bigger mainstream corporations and companies, such as auditing firms and certification organisations that gain much money from their activities (Kopnina, 2015).

Furthermore, the participants consider it extremely hard to navigate truth and misleading information regarding sustainable production. They state that information is scattered, confusing and that it takes considerable amounts of time to acquire the knowledge to navigate this data, a resource that most indies lack. The research shows that environmental sustainability is a neglected subject within the

indie community, which further complicates transparency issues and knowledge on the topic.

5.2.7 Desired improvements

Among indies' desired improvements for support in reducing their environmental impacts, the following statements were uttered:

1. More clarity on the largely unstructured information about environmental credentials, possibly condensing educational knowledge from the industry and indie magazine community into one accessible place.
2. Making it easier to understand where and how materials are sourced throughout the whole supply chain.
3. Financial support to invest into environmental sustainability.
4. Information on reducing the environmental impact caused by distribution.
5. Increased external pressure through legislation and awards to push environmental credentials and raise the industry norm.
6. Fostering collaboration between the commercial magazine community and indie magazine community to solve mutual problems.

5.3 Merging the findings

By merging the above findings, the researcher concludes the following:

1. Use of raw materials such as wood and water; energy consumption through paper production, printing presses and distribution; chemical pollution of air and effluents through paper production and printing; waste production; and supply chain management are among the most significant contributors to negative environmental impacts in the production of independent magazines. However, while many printers identify and monitor said impacts for future improvements, indie magazines do not, mainly due to a lack of knowledge and resources.

2. Circular economy and production methods are a potential focus of the print and publishing industry for future developments. Magazines are still lacking circular production methods, and indies, in particular, are focusing more on financial and social aspects while often neglecting the environmental aspect as a component of enhanced quality. However, printers bring on the most significant technological change in sustainable production. Therefore, more legal pressure and clients demanding efficient measuring and monitoring schemes are necessary. More research needs to be performed on the implications of legal pressure on environmental certifications and accreditations in the print industry and the eligibility for awards and grants based on environmental credentials. Also, more research needs to be conducted on the evolving indie magazine supply chains to support solutions aimed at reducing environmental impacts.

3. Third-party audited environmental certifications and accreditations are valid tools for measuring, monitoring and comparing environmental impacts for printers and suppliers, but to different degrees. B Corp and EMAS are considered the most rigorous and transparent, but ISO 14001, FSC, and carbon offsetting schemes also involve printers in measuring and monitoring practices that can develop over the years into sustainability missions. Despite being considered more of a tickbox exercise, they frequently contribute to changing the mindset of companies.

4. Said certifications and accreditations are currently not applicable to indie magazines because indie publishers believe that measuring their impacts is not achievable through external audits as they fall through the gaps of the system. Therefore a different, more flexible framework is needed for indie magazines with B Corp showing potential, revealing itself as the best tool to tailor to individual businesses' needs while still demanding rigorous monitoring. More research is needed to verify the feasibility of B Corp as a framework for indie magazines to measure and monitor their impacts. If not deemed suitable, more research needs to be performed on the development of a possible counter-proposal.

5. It is clear from the research that both printers perceive a lack of knowledge in their clients, and indie publishers themselves complain of the difficulty in navigating a world of technical jargon and accreditations in environmental sustainability. The time investment needed to acquire knowledge to navigate this information is currently unavailable to most indies and therefore not prioritised. The consequent dependency on suppliers for knowledge is a delicate situation, as these reveal different opinions and facts on the matter, and indies are not always in a position to judge for themselves. Indies and their readers need to be educated on environmental sustainability to make sound choices without being greenwashed to a printer's or supplier's interests. Hence, transparent access to the most up-to-date information on environmental sustainability in production is necessary. This knowledge should include data regarding environmental impacts and monitoring methods, lists and rankings of suppliers, relevant certifications and frameworks, up-to-date information on supply chains based on environmental efforts, technical developments and a list of trustworthy organisations. The data could include contributions from individuals from the independent magazine community. Condensating relevant information would alleviate the pressure on printers as the only knowledge source for indie publishers while still keeping them as experts in the field.

6. At the basis of any monitoring scheme and environmental improvement lies data collection, and indie magazines could start collecting said data once they establish economic stability. Therefore, independent magazines need to receive more funding as important cultural artefacts, allowing for more time and resources to be invested in reducing environmental impacts. More research needs to be done on understanding if fundings from environmental organisations intended for environmental developments could see more indies improving their impacts and driving sustainable progress. Collaborations between commercial and independent magazines also need to be investigated as potential solutions to solve mutual environmental issues and reduce costs on both sides.

6. CONCLUSION

In light of the current environmental crisis and the rising public environmental awareness, it is evident that the broader publishing industry is facing necessary changes in its production methods. As an industry heavily dependent on raw materials and energy and contributing to pollution and waste production, its impacts must be constantly measured and monitored. However, this work reveals that despite their increasing popularity, the role of indie magazines and their environmental impacts are often neglected in the wider publishing landscape. Nevertheless, their contributions to publishing's environmental impacts must still be examined and monitored, and possible solutions to reduce said impacts developed. Third-party audited frameworks and certifications play an important role in supporting this development through data collection, rigorous monitoring and mandatory reporting. However, their relevance for indie magazines is unclear, indicated by a significant lack of research on their applicability to independent publishing. Furthermore, the available literature shows notable gaps in research on independent magazine publishing, its supply chain, its environmental impacts, and independent publishers' difficulties and opinions on the issue.

Therefore the qualitative research conducted fills this gap by interviewing both printers as experts in the print production process and independent magazine publishers as the main subjects under investigation. Using semi-structured interviews and a human-centred approach enables the researcher to gain insight into the current efforts and challenges and the future possibilities of independent magazine publishers and the broader print industry. By comparing the findings from the relevant literature and research to printers' and indie publishers' realities, the researcher can draw valuable conclusions for improvement and lay the basis for future research.

These conclusions include the confirmation that third-party audited certifications and accreditations are valid tools for measuring, monitoring and comparing environmental impacts for printers and suppliers to various degrees. However, they are currently not relevant for indies, who tend to fall through the gaps of auditing systems, often due to limited resources. The research in this dissertation also identifies that said certifications and frameworks are not considered valid for comparison due to varying transparency and performance levels, with EMAS and B Corp mentioned as exceptions.

B Corp is acknowledged as a potential framework for indie magazines, but more research is needed to validate this finding. The research further confirms that more legal pressure is regarded as necessary to increase technological developments as well as the employment of third-party audited monitoring and reporting. It also suggests that more information on sustainable production must be made available for indie publishers to help them measure, monitor and reduce their impacts and both publishers and end-user need to be educated to enable conscious choices. Finally, the research recognizes that more funding needs to be made available for indie magazines, enabling them to invest in solutions to reduce their environmental impacts. This finding implies that further analysis of funding models as incentives to drive environmental development in the indie magazine sector is necessary.

APPENDIX A:

Additional third-party audited certifications, accreditations, standards, frameworks and further relevant organisations, tools and legislations (not exhaustive)

(all last acessed: 01.12.21)

Paper

- Sustainable Forestry Initiative (SFI): https://www.forests.org
- Environmental Paper Network (EPN): https://environmentalpaper.org
- The Paper Steps by EPN: https://environmentalpaper.org/the-paper-steps/
- Confederation of European Paper Industries (CEPI): https://www.cepi.org
- CEPI Comparative Testing Service (CEPI-CTS): https://www.iso.org/organization/575267.html
- CEPI Sustainability platform: https://sustainability.cepi.org
- Canopy: https://canopyplanet.org
- Canopy Ecopaper Database: https://epd.canopyplanet.org
- Ancient Forest Friendly™ by Canopy: https://canopyplanet.org/solutions/ancient-forest-friendly/
- Rainforest Alliance Certified: https://www.rainforest-alliance.org
- Responsible Wood: https://www.responsiblewood.org.au/what-we-do/
- Elemental Chlorine Free (ECF)
- Total Chlorine Free (TCF)
- Processed Chlorine Free (PCF)
- SPC Forest Products: https://spcforestproducts.org
- GreenBlue's Forests in Focus: https://forestsinfocus.com
- Environmental Paper Assessment Tool by Sustainable Paper Group (EPAT): https://www.epat.org
- Reducing Emissions from Deforestation and Forest Degradation (REDD): https://www.un-redd.org
- Environmental Paper Company Index by WWF (EPCI): https://epci.panda.org
- Paper Profile: https://paperprofile.com
- The Paper Calculator: https://c.environmentalpaper.org/about.html
- Conservatree: http://conservatree.org
- Pulp and Paper Technical Association of Canada (PAPTAC): https://www.paptac.ca
- Pulp and Paper Canada: https://www.pulpandpapercanada.com/about/
- Canadian Standards Association's Sustainable Forest Management System (CSA SFM): https://www.csasfmforests.ca
- American Forest Foundation: https://www.forestfoundation.org
- Global Forest and Trade Network by WWF (GFTN): https://www.wwf.org.la/projects/gftn/
- European Paper Recycling Council (EPRC): https://www.paperforrecycling.eu
- ImpactPapeRec: https://impactpaperec.eu/de/startseite/
- Reffibre: https://www.reffibre.eu/about.html
- European Pulp and Paper Chemicals Group (EPCG): http://www.epcg.eu
- EPCG's Pulp and Paper Value Chain Information System (P&P-VIS): http://epcg.eu/pandp.php
- Greensource: https://www.eugreensource.org
- 4evergreen: https://4evergreenforum.eu
- Lacey Act (conservation law including forest products)

- Forest Law Enforcement, Governance, and Trade (FLEGT): https://www.euflegt.efi.int/home
  1. EU Timber Regulation (EUTR): https://www.euflegt.efi.int/eutr
  2. Voluntary Partnership Agreements (VPAs): https://www.euflegt.efi.int/vpa

Printing

- ISO 16759: https://www.iso.org/standard/57615.html
- British Printing Industries Federation (BPIF): https://www.britishprint.com
- Bundesverband Druck und Medien (BVDM): https://www.bvdm-online.de/bundesverband-druck-medien/
- European Rotogravure Association (ERA): https://era-eu.org
- Flexodruck Fachverband DFTA: https://www.dfta.de
- Verband der Print- und Medienindustrie viscom: https://www.viscom.ch
- Sustainable Green Printing Partnership (SGP): https://sgppartnership.org
- European Printing Ink Association (EuPIA): https://www.eupia.org
- Integraf (European federation for print and digital communication): https://www.intergraf.eu

Carbon

- CRC Energy Efficiency Scheme: https://www.gov.uk/government/collections/crc-energy-efficiency-scheme
- EPA's GHG Reporting Program: https://www.epa.gov/ghgreporting
- CEPI 10 Toes: https://www.sca.com/globalassets/massa/carbon-footprint-from-sca-ostrand-2016/carbon-footprint-from-sca-ostrand-2016.pdf
- Carbon Balanced by World Land Trust: https://www.worldlandtrust.org/what-we-do/carbon-balanced/
- Verus Carbon Neutral: http://www.verus-co2.com/index.html
- Carbon Neutral Certification by Verus Carbon Neutral: http://www.verus-co2.com/certification.html
- The Carbon Trust: https://www.carbontrust.com/de
- Carbon Reduction and Neutral Label by The Carbon Trust: https://www.carbontrust.com/de/was-wir-machen/zertifizierung-und-assurance/zertifizierung-zur-klimaneutralitaet-carbon-neutral
- The Carbon Trust Standard: https://www.carbontrust.com/de/was-wir-machen/zertifizierung-und-assurance/der-carbon-trust-standard
- Certified Carbon Neutral® by Natural Capital Partners: https://carbonneutral.com/how
- The CarbonNeutral Protocol: https://carbonneutral.com/the-carbonneutral-protocol
- Carbon Smart Blue Award (Avieco): https://avieco.com/what-we-do/smart-sustainability-certification/

Energy

- Renewable Energy Certificate Systems (RECS): https://recs.org
- Green-e: https://www.green-e.org
- ISO 50001: https://www.iso.org/iso-50001-energy-management.html

Water

- Water Resources Group (WRG): https://www.2030wrg.org
- The Water Footprint Network: https://waterfootprint.org/en/
- European Water Stewardship System (EWS): https://ews.info
- European Water Partnership (EWP): http://www.ewp.eu
- Alliance For Water Stewardship: https://a4ws.org
- WBCSD's (World Business Council for Sustainable Development) Global Water Tool: https://www.wbcsd.org/Programs/Food-and-Nature/Water/Resources/Global-Water-Tool

- WWF Water Risk Filter: https://waterriskfilter.org
- EPA's Water Sense: https://www.epa.gov/watersense
- Waterwise Marque: https://www.waterwise.org.uk
- UN CEO Water Mandate: https://ceowatermandate.org

Overarching

- Gold Standard: https://www.goldstandard.org
- Product Environmental Footprint (PEF): https://www.ifu.com/de/product-environmental-footprint/
- Organisation Environmental Footprint (OEF): https://www.ifu.com/de/product-environmental-footprint/
- Cradle to Cradle Certified®: https://www.c2ccertified.org
- Der Blaue Engel: https://www.blauer-engel.de/de
- Ecologo® Certification Program: https://www.ul.com/resources/ecologo-certification-program
- The Global Reporting Initiative: https://www.globalreporting.org
- GreenTag™ Certification: https://www.globalgreentag.com

Other relevant organisations and initiatives

- Book Industry Environmental Council (BIEC): http://bookcouncil.org
- Green Press Initiative (GPI)
- The Professional Publishers Association (PPA): https://ppa.co.uk
- Book Chain Project: https://bookchainproject.com/home
- Independent Book Publishers Association (IBPA): https://www.ibpa-online.org
- International Alliance of independent publishers: https://www.alliance-editeurs.org/?lang=en
- Independent Publishers Guild: https://www.independentpublishersguild.com
- Association of Independent Publishing Professionals: https://www.aipponline.org
- The Association of Magazine Media (MPA): https://www.magazine.org
- Sustainability Taskforce of te Publishers Association: https://www.publishers.org.uk/about-us/groups/
- Material Trader: https://directory.materialtrader.com
- International Social and Environmental Accreditation and Labeling (ISEAL): https://www.isealalliance.org

APPENDIX B:

Interview questions printers

[Who are you?]
- What is your role within [company]?
- What are the main products [company] produce and what type of clients do you work with?
- What priority does sustainability have within [company]? When did you start focusing on it?

[What elements influence sustainability in independent magazine production?]
- Which, based on your knowledge and experience, are the most environmentally impactful contributors to print production (specifically magazines)? (Steps, materials, processes...)
- Which are least important/impactful, but still contribute?

[Where can sustainability efforts in production be improved? Are you trying to improve them?]
- Which of these contributors are best developed in terms of "becoming sustainable"?
- Which contributors are worst developed? Are there contributors which are being neglected?
- What solutions are you employing to improve and develop them? Do you have specific focuses?

[What frameworks, standards, certificates already exist concerning print production? What are the processes to obtain these certificates?]
- Which environmental standards and certificates do you work with?
- Do you work with overarching frameworks that focus on more than one element of production?
- Are there any of the above you know of but do not use? If yes, why?
- Do you believe they are rigorous enough? Was it hard to obtain them?

[Are these frameworks a valid way of measuring and comparing efforts?]
- Do you believe certifications and standards are an effective way of measuring the impacts of print production?
- Do you believe certifications and standards can help compare different products/producers?
- Do they drive competition and therefore sustainable development?

[How easy is it for newcomers in the industry to navigate these certificates and standards?]
- How do you feel the general knowledge of your clients, specifically publishers, stand in regards to sustainable production?
- Do you experience clients having difficulty navigating between truth and misleading information?
- Do you feel there is a strong interest in sustainability in print production or it is still more an afterthought?

[How transparent are publishers and producers in their sustainable efforts? How much do they care?]
- What are your thoughts about greenwashing and transparency issues in regards to print production?
- Are certificates always what they make out to be? Is there greenwashing within this system?

[Is sustainability economically viable?]
- Is there an economic value in turning to a more sustainable production chain?

[Conclusion]
- Do you think a fully circular print production chain will be possible in the near future?
- Any other thoughts you consider important?

APPENDIX C:

Interview questions independent magazines

[Who are you?]
- What is your role within the [magazine] team?
- Why did you decide to create this magazine?

[Why indie print?]
- Why did you chose to create a print magazine as one of your outputs?
- What other channels do you use besides print?

[What are your values in regards to quality and environmental sustainability?]
- How important is design and production to you (in terms of investment/quality)?
- What priority does environmentally sustainabile production have within the work of [magazine]?
- What priority does community have to you?

[How much do you know about enviromental impacts of indie magazines?]
- Which contributors, based on your experience, have the most environmental impact on magazine production?
- Which of these contributors do you think are best developed in terms of "becoming sustainable"?
- Which contributors do you believe are worst developed or being completely neglected?

[Are you actively doing something to measure and minimise your impacts?]
- Do you/Will you measure your environmental impact? *If yes, what and how? If no, why?*
- Do you/Will you employ solutions to minimise your impact and improve sustainable efforts? *If yes, what do you do? If no, why?*
- Do you/Will you work with suppliers who focus on sustainability? *If yes, what do they do? If no, why?*

[How hard is it for you to inform yourself on environmental production/sustainable solutions?]
- How hard is it to navigate between truth and misleading information in regards to environmentally sustainable production for you as a magazine publisher?
- Who or what do you contact for information on environmentally sustainable production?

[Are standards, certificates and frameworks for environmental impacts relevant to you?]
- Do you know of environmental standards or accreditations (eg. FSC certified paper)? If yes, do you or will you use any? *If no, why?*
- Do you trust environmental accreditations and certifications? *If not, why?*
- Do you believe externally audited certifications and standards are an effective way to measure and compare the impacts of magazine production? *If no, what would be more effective?*

[Where could you use help?]
- Where could you as a publisher (now and when you were starting out) use most help in terms of information on environmentally sustainable production?

[Conclusions]
- Any other thoughts you consider important?

APPENDIX D:

Consent form Zoom interview and e-mail interview

Consent to take part in research

Researcher: Audrey Solomon

MA Publishing – LCC/UAL

Dissertation on Environmental Sustainability

in Independent Magazine Production

- I…… voluntarily agree to participate in this research study.
- I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question without any consequences of any kind.
- I understand that I can withdraw permission to use data from my interview at any time, in which case the material will be deleted.
- I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.
- I understand that participation involves being interviewed about environmental sustainability within my (company's) work and that questions will be asked in regards to my experience and opinions on the matter.
- I understand that I will not benefit directly from participating in this research.
- I agree to my interview being audio or video recorded, based on which method I prefer.
- I understand that all information I provide for this study will be treated confidentially.
- I understand that in any report on the results of this research my identity will remain anonymous unless I desire to be identified. Anonymity will be guaranteed by removing my name and disguising any details of my interview which may reveal my identity or the identity of people I speak about.
- I understand that disguised extracts from my interview may be quoted in the researcher's final dissertation.

- I understand that signed consent forms and original audio and video recordings will be retained in the researcher's work-related data storage until the exam board confirms the results of their dissertation (approx. March 2022).

- I understand that a transcript of my interview in which all identifying information has been removed will be retained for two years from the date of the exam board (approx. March 2024).

- I understand that under freedom of information legalisation I am entitled to access the information I have provided at any time while it is in storage as specified above.

- I understand that I am free to contact any of the people involved in the research to seek further clarification and information.

Resarcher: Audrey Solomon (hello@audreysolomon.com / a.solomon1020191@arts.ac.uk)
Student at University of the Arts London : London College of Communication, MA Publishing
MA Publishing Course Leader: Frania Hall (f.hall@lcc.arts.ac.uk)
Dissertation Project supervised by Oswin Tickler (o.tickler@arts.ac.uk)

Signature of research participant

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Signature of participant Date

Consent to take part in research

Researcher: Audrey Solomon

MA Publishing – LCC/UAL

Dissertation on Environmental Sustainability

in Independent Magazine Production

- I…… voluntarily agree to participate in this research study.
- I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question without any consequences of any kind.
- I understand that I can withdraw permission to use data from my interview at any time, in which case the material will be deleted.
- I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.
- I understand that participation involves being interviewed about environmental sustainability within my (company's) work and that questions will be asked in regards to my experience and opinions on the matter.
- I understand that I will not benefit directly from participating in this research.
- I agree to my interview being conducted via e-mail.
- I understand that all information I provide for this study will be treated confidentially.
- I understand that in any report on the results of this research my identity will remain anonymous unless I desire to be identified. Anonymity will be guaranteed by removing my name and disguising any details of my interview which may reveal my identity or the identity of people I speak about.
- I understand that disguised extracts from my interview may be quoted in the researcher's final dissertation.

- I understand that signed consent forms and transcripts will be retained in the researcher's work-related data storage until the exam board confirms the results of their dissertation (approx. March 2022).

- I understand that a transcript of my interview in which all identifying information has been removed will be retained for two years from the date of the exam board (approx. March 2024).

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Signature of research participant

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Signature of participant Date

APPENDIX E:

Information sheet

Environmental sustainability in the production chain of independent magazines

1. Research question

How is environmental sustainability in the production chain of independent magazines currently being identified, measured and compared and how can overarching frameworks improve this?

Topics:

- Independent magazine publishing
- Print production chain: raw materials, waste management, recycling, energy consumption
- Digitisation in independent magazine publishing
- Environmental certificates and standards
- Overarching frameworks
- Measurability and accessability of sustainability in production
- Greenwashing: Transparency of sustainability in production

2. Research Method

The research for this project focuses on a thorough literature research and participant research using interviews. The participant research consists of two sets of interviews for data collection:

- **Printers** as central figures and experts in the print production chain where many processes converge.
- **Independent magazine publishers** as a continuously growing trend and small-scale but modern publishing model with interesting opportunities for sustainable development

The data collected from the first set of interviews may be used to form the questions for the second set of interviews.

The interviews are semi-structured and will follow guiding questions but leave space for an open dialogue on the topic. They will take place online (with or without video as preferred by participants) and be registered for transcription.

The aim of the interviews is to gain insight into technical experts' and publishers' experiences and opinions on the topics of environmental sustainability in the print production chain, with a specific focus on environmental standards, certificates and frameworks within the industry.

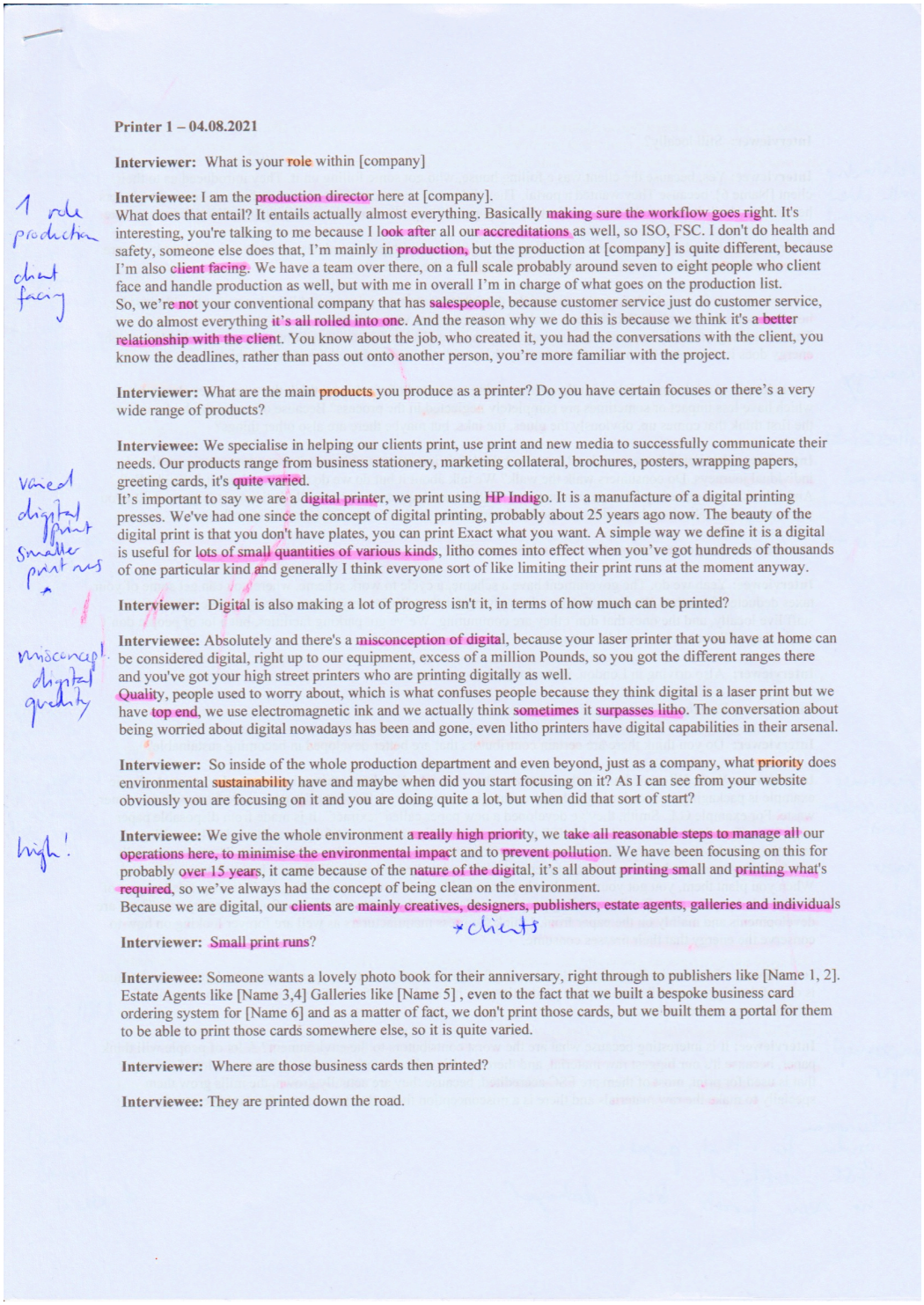
Regarding ethical issues and participants' data within the research please refer to the separate consent form.

3. About the Researcher

Audrey is a Swiss graphic designer and currently a student of the MA Publishing course at the London College of Communication (UAL). She has a BA in graphic and product design from the Free University of Bolzano in Italy and has worked in several independent publishing houses in Italy, Switzerland and London as archival image researcher and graphic designer. She has used the time in her MA to focus more on indie magazines and print production within book and magazine publishing. Her interest in environmental sustainability and love for print have led her to explore these topics within her dissertation and with it she hopes to steer her work more towards sustainability and print production within the wider publishing industry.

APPENDIX F:

1. Paragraph coding and information reduction example for data analysis



Printer 1 – 04.08.2021

Interviewer: What is your role within [company]

1 role production client facing

Interviewee: I am the production director here at [company].
What does that entail? It entails actually almost everything. Basically making sure the workflow goes right. It's interesting, you're talking to me because I look after all our accreditations as well, so ISO, FSC. I don't do health and safety, someone else does that, I'm mainly in production, but the production at [company] is quite different, because I'm also client facing. We have a team over there, on a full scale probably around seven to eight people who client face and handle production as well, but with me in overall I'm in charge of what goes on the production list.
So, we're not your conventional company that has salespeople, because customer service just do customer service, we do almost everything it's all rolled into one. And the reason why we do this is because we think it's a better relationship with the client. You know about the job, who created it, you had the conversations with the client, you know the deadlines, rather than pass out onto another person, you're more familiar with the project.

Interviewer: What are the main products you produce as a printer? Do you have certain focuses or there's a very wide range of products?

varied digital print smaller print runs

Interviewee: We specialise in helping our clients print, use print and new media to successfully communicate their needs. Our products range from business stationery, marketing collateral, brochures, posters, wrapping papers, greeting cards, it's quite varied.
It's important to say we are a digital printer, we print using HP Indigo. It is a manufacture of a digital printing presses. We've had one since the concept of digital printing, probably about 25 years ago now. The beauty of the digital print is that you don't have plates, you can print Exact what you want. A simple way we define it is a digital is useful for lots of small quantities of various kinds, litho comes into effect when you've got hundreds of thousands of one particular kind and generally I think everyone sort of like limiting their print runs at the moment anyway.

Interviewer: Digital is also making a lot of progress isn't it, in terms of how much can be printed?

misconcept digital quality

Interviewee: Absolutely and there's a misconception of digital, because your laser printer that you have at home can be considered digital, right up to our equipment, excess of a million Pounds, so you got the different ranges there and you've got your high street printers who are printing digitally as well.
Quality, people used to worry about, which is what confuses people because they think digital is a laser print but we have top end, we use electromagnetic ink and we actually think sometimes it surpasses litho. The conversation about being worried about digital nowadays has been and gone, even litho printers have digital capabilities in their arsenal.

Interviewer: So inside of the whole production department and even beyond, just as a company, what priority does environmental sustainability have and maybe when did you start focusing on it? As I can see from your website obviously you are focusing on it and you are doing quite a lot, but when did that sort of start?

high!

Interviewee: We give the whole environment a really high priority, we take all reasonable steps to manage all our operations here, to minimise the environmental impact and to prevent pollution. We have been focusing on this for probably over 15 years, it came because of the nature of the digital, it's all about printing small and printing what's required, so we've always had the concept of being clean on the environment.
Because we are digital, our clients are mainly creatives, designers, publishers, estate agents, galleries and individuals

*clients

Interviewer: Small print runs?

Interviewee: Someone wants a lovely photo book for their anniversary, right through to publishers like [Name 1, 2]. Estate Agents like [Name 3,4] Galleries like [Name 5] , even to the fact that we built a bespoke business card ordering system for [Name 6] and as a matter of fact, we don't print those cards, but we built them a portal for them to be able to print those cards somewhere else, so it is quite varied.

Interviewer: Where are those business cards then printed?

Interviewee: They are printed down the road.

2. Extract of data comparison and further reduction of information for evaluation:

1. Roles of Interviewees
Printer 1: production director
Printer 2: environmental manager
Printer 3: managing director
Printer 4: operation's manager
Printer 5: owner

Finding/comments: 1 very defined role either in management or production, only 1 actual sustainability manager

2. Products/Clients
Printer 1: varied, digital printer, mostly creatives and estate agents, small print-runs
Printer 2: varied, different printing techniques, very high-end quality
Printer 3: varied, commercial, big print runs, different printing techniques
Printer 4: varied, commercial, small & big print runs
Printer 5: varied, commercial, focused on businesses with same values

Finding/comments: varied, all kinds of prints

3. Priority of Sustainability
Printer 1: high, nature of digital: less waste, working on environmental aspect since over 15 years
Printer 2: very high, used to be focused 100% quality, now quality-environmental is 50/50
Printer 3: very high, recognised as such by awards
Printer 4: very high, built into new premises, used to be tickbox for clients and has now become mission
Printer 5: absolute priority, highest, recognized as highest-scoring B-Corp, many awards etc.

Finding/comments: very high to absolute priority

4. Relationship printer-client (publisher)
Printer 1: very client-facing, producers work with clients, doesn't go via sales team, keep close relationship
Printer 2: it's our job to inform them
Printer 3: sales team makes clear clients know what they get, very important relationship for knowledge
Printer 4: we are reference for them
Printer 5: very close, advice beyond product also into experience of being a sustainable business, we care very much about the endusers too, clients' clients

Finding/comments: important, printers are reference and knowledge centres, some even give advice beyond the product itself, explaining to client what they get when not clear

5. Biggest contributors/most impact in process
Printer 1: raw materials, printing presses, energy
Printer 2: paper, energy (CO2), waste&recycling
Printer 3: raw materials, production process (energy and chemicals)
Printer 4: paper
Printer 5: energy, water use, chemicals and supply chain (part of an interlinked system, not isolated)

Finding/comments: raw materials, paper, energy, water use, chemicals, supply chain

....

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All references from the extensive list of environmental certifications, accreditations, frameworks, standards, organisations and awards can be found directly in Appendix A.

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