

TOWARDS REDUCTION: EXPLORING THE LINKS BETWEEN ONENESS AND FASHION CONSUMPTION

SALOMÉ PIMENTEL AREIAS
Master in Fashion Design

DOCTORATE IN ENVIRONMENT AND SUSTAINABILITY
NOVA University Lisbon
June, 2025

TOWARDS REDUCTION: EXPLORING THE LINKS BETWEEN ONENESS AND FASHION CONSUMPTION

SALOMÉ PIMENTEL AREIAS

Master in Fashion Design

Adviser: Antje Disterheft

Junior Researcher, Institute of Social Sciences, University of Lisbon

Co-advisers: João Pedro Costa Luz Baptista Gouveia

Principal Researcher, NOVA School of Science and Technology, NOVA University Lisbon

Daniel Fischer

Full Professor, Leuphana University, Lüneburg

Examination Committee:

Chair: Maria Paula Baptista da Costa Antunes

Full Professor, NOVA School of Science and Technology, NOVA University Lisbon

Rapporteurs: Gregor Torkar

Full Professor, University of Ljubljana, Slovenia

Irene de Assunção Raposo Rodrigues

Assistant Professor, School of Social and Political Sciences, University of Lisbon

Adviser: Antje Disterheft

Junior Researcher, Institute of Social Sciences, University of Lisbon

Members: Maria Paula Baptista da Costa Antunes

Full Professor, NOVA School of Science and Technology, NOVA University Lisbon

Nuno Manuel Correia Torres

Lecturer, ISPA - School of Psychology and Behavioural Sciences

Towards Reduction: Exploring the links between Oneness and Fashion Consumption

Copyright © Salomé Areias, NOVA School of Science and Technology, NOVA University Lisbon.

The NOVA School of Science and Technology and the NOVA University Lisbon have the right, perpetual and without geographical boundaries, to file and publish this dissertation through printed copies reproduced on paper or on digital form, or by any other means known or that may be invented, and to disseminate through scientific repositories and admit its copying and distribution for non-commercial, educational or research purposes, as long as credit is given to the author and editor.

This work has been made possible by the financial support of the scholarship UI/BD/150893/2021 from the Portuguese Foundation for Science and Technology.

ACKNOWLEDGMENTS

First and foremost, I want to thank my supervisors for believing in me from day one, despite the unexpected twists life had in store. I am grateful to have a team of three experienced mentors who stood by my side whenever needed and I want to highlight how rare that support is offered in academia. Antje Disterheft was absolutely present and so many times anticipated opportunities and gave me invaluable advice that truly leveraged priceless decisions and pathways for this research. João Pedro Gouveia was relentless in offering his wise, objective-driven, and often times life-saving vision, in the same amount as he offered true kinship and empathy when no words were needed to recognize his kindness. I was also fortunate to absorb Daniel Fischer's prodigious expertise in sustainability. His inquiring and welcoming spirit opened momentous doors for me and pushed me to think scientifically and critically. They formed the perfect balance in this quartet.

I also wish to acknowledge CENSE, the PhD Programme in Environment and Sustainability (PDAS), and NOVA School of Science and Technology for providing an enriching academic environment that fostered my development. My sincere gratitude goes to FCT for funding my research, ensuring that I had the necessary support to dedicate myself fully to my studies. A special thanks to the student committee, my dearest colleagues, and the administrative staff at both NOVA FCT and Leuphana University, whose kindness and unwavering support made the many aspects of this PhD much easier to navigate.

I extend my gratitude to each inspiring scholar who has contributed to this research, listed here in alphabetical order: Anna Sundermann, Astrid Kause, Claire Grauer, Cristiano Pedroso-Roussado, David Santos, Henrik von Wehrden, Nuno Torres, Paul Wesley Schultz, and Sonja Geiger. And I am adding here the brilliant minds and fundamental voices in literature whose ideas have transcended time and space to inspire my constellation of thoughts. Your contributions truly shaped the pathways of this PhD.

To my closest family of heart, those who stood by me through every challenge, offering love, reassurance, and the occasional much-needed philosophical conversations, I owe more than words can express. Your unwavering belief in me gave me the strength to persevere.

The last-but-first acknowledgment goes to my doctors, especially to the person who kept me standing – my psychoanalyst Miguel Moita. Miguel was the reason I came to understand oneness, to envision a post-capitalist world emerging from the depths of indigenous struggle, and kept me anchored to life while I plunged into the dread of rock bottom collapse, reaching the brink of death and rebirth.

This work has brought me true pleasure from beginning to end – something that might be described as therapeutic for those who enjoy that kind of thing.

Every word here is also me. Thank you for reading.

“Urihi xi wãrii tēhē thē urihi huēmai wihi thēã.”

[*The shamans hold the earth when it falls into chaos*]

(Joseca Mokahezi, Uxi u River, Yanomami Indigenous Territory, Brazil 2011).

ABSTRACT

In the 15 years preceding the Paris Agreement, global garment production doubled from 50 billion to a hundred billion pieces per year, despite the world population comprising only 7% of that figure. Over the following six years, consumption surged at an unprecedented rate, surpassing 75% of all resources used throughout the 20th century. Despite efforts to curb overconsumption through reuse and repair policies, these initiatives often encourage the production of more durable and life-extendable products that are still ultimately destined to landfills, if governments keep overlooking the subconscious triggers of consumerism that remain embedded and profitable in market systems. The growing environmental and psychological impact of consumerism and fashionables has prompted growing research into alternative approaches within environmental science.

One such emerging perspective is oneness, a concept reclaimed from psychoanalysis and ancient mystical traditions and now gaining attention in environmental psychology. Oneness describes an ineffable reality where all existence is fundamentally one and thus underscores an important perception about the self – it transcends the individual to include everything else (i.e., others, living beings, nature, the universe), which might involve a profound sense of collective *self*-protection in the midst of climate emergency.

This research identifies the potential of oneness as a driver of consumption reduction, unveiled by oneness' positive correlation with pro-environmental behaviour as well as with other variables suggesting a realignment with a foundational truth or essential well-being. The aim of this research is to examine the predictive potential of oneness in fostering consumption reduction, particularly in fashion, due to its close links to impulsive buying and self-identity construction.

A mixed-method approach integrates a semi-systematic literature review with a keyword search relating interconnectedness, sense of self, environment, and consumption; an implicit association test (IAT) on oneness combined with semi-structured expert interviews; and a social experiment tracking consumer behaviour at a clothing market stall. Predictive modelling in R analyses correlations between oneness IAT scores and purchasing behaviour, exploring interactions with voluntary simplicity and sustainable consumption scales.

The literature review showed that all identified linkages between a deep integration of self in unity with an 'other' and pro-environmental consumption were found to be positive. It is also positively linked to mindful practices defined by high states of awareness. Further exploration in review revealed that environmentally responsible consumption is often driven by guilt, which can paradoxically trigger denial, suppression of political claims, and engagement in hazardous consumption patterns.

The novel assessment tool on oneness, developed in this research with input from expert interviews, showed valid results in the pilot-test. The implicit association test demonstrated content validity, construct validity, criterion-related validity, and internal consistency reliability, according to the psychometric analysis it underwent. The market experiment revealed a marginal yet inconclusive negative correlation between oneness and buying behaviour, suggesting that participants with higher oneness IAT scores were slightly less likely to engage in purchases.

This work discusses the measurability of oneness, future methodological refinements, and practical applications of findings, emphasizing the need to honour the radical and mystical nature of oneness in recognizing its transformative potential within inner and collective worlds.

Keywords: buying decision, consumerism, consumption reduction, fashion, implicit association test (IAT), oneness, sustainable consumption, voluntary simplicity

RESUMO

Nos 15 anos que precederam o Acordo de Paris, a produção global de vestuário duplicou, passando de 50 mil milhões para 100 mil milhões de peças por ano, apesar da população mundial representar apenas 7% desse valor. Nos seis anos seguintes, o consumo disparou a uma escala sem precedentes, ultrapassando 75% de todos os recursos utilizados ao longo do século XX. Apesar dos esforços para conter o consumo excessivo através de políticas de reutilização e reparação, estas iniciativas incentivam a produção de artigos mais duráveis e de vida útil prolongada, que acabam inevitavelmente em aterros, caso os governos continuem a ignorar os gatilhos subconscientes do consumismo, que permanecem incorporados e rentáveis nos sistemas de mercado. O crescente impacto ambiental e psicológico do consumismo e da moda tem incentivado abordagens alternativas dentro da ciência ambiental.

Uma dessas perspectivas emergentes é a unicidade (oneness), um conceito recuperado da psicanálise e de antigas tradições místicas que está a ganhar atenção na psicologia ambiental. A unicidade descreve uma realidade inefável, na qual toda a existência é fundamentalmente una, sublinhando uma percepção importante do eu – que transcende o indivíduo para incluir tudo o que existe (o outro, seres vivos, a natureza, o universo), podendo envolver um profundo ímpeto de autoproteção coletiva face à emergência climática.

Esta investigação identifica o potencial da unicidade como um fator determinante na redução do consumo, evidenciado pela correlação positiva entre unicidade e comportamento pró-ambiental, bem como com variáveis que sugerem um realinhamento com uma essencialidade ou bem-estar fundamental. O objetivo desta pesquisa é examinar o potencial preditivo da unicidade em relação à redução do consumo, especialmente no setor da moda, devido à sua forte relação com compras impulsivas e a construção da identidade pessoal.

A abordagem metodológica mista combina uma revisão de literatura semi-sistemática, com pesquisa de palavras-chave relacionadas com interconectividade, percepção do eu, meio ambiente e consumo; um teste de associação implícita (IAT) sobre unicidade, em conjunto com entrevistas semiestruturadas com especialistas; e uma experiência social que analisou o comportamento dos consumidores numa banca de mercado de vestuário. Modelos preditivos em R analisaram correlações entre os resultados do teste de unicidade e o comportamento de compra, explorando interações com escalas de simplicidade voluntária e de consumo sustentável.

A revisão da literatura demonstrou que todas as ligações identificadas entre uma profunda integração do eu com o "outro" e o consumo pró-ambiental foram positivas. A unicidade também está positivamente associada a práticas de mindfulness, caracterizadas por elevados estados de consciência. A revisão revelou ainda que o consumo ambientalmente responsável é muitas vezes motivado pela culpa, uma emoção moral que pode paradoxalmente desencadear negação, constrangimento de reivindicações políticas e envolvimento em padrões de consumo prejudiciais.

A nova ferramenta de avaliação de unicidade, desenvolvida nesta pesquisa com a contribuição de entrevistas com especialistas, teve resultados positivos no teste piloto. O teste de associação implícita apresentou validade de conteúdo, validade de construto, validade de critério e fiabilidade da consistência interna, segundo a análise psicométrica realizada. Por fim, o experimento com a venda revelou uma correlação negativa marginal, embora inconclusiva, entre unicidade e comportamento de compra, sugerindo que os participantes que pontuam mais alto no IAT são ligeiramente menos propensos a efetuar a compra.

Este trabalho discute a mensurabilidade da unicidade, futuros refinamentos metodológicos e aplicações práticas dos resultados da pesquisa, enaltecendo a necessidade de respeitar a radicalidade e o caráter místico da unicidade, para assim otimizar o seu potencial transformador dos mundos interior e coletivo.

Palavras chave: decisão de compra, consumismo, redução do consumo, moda, teste de associação implícita (IAT), unicidade, consumo sustentável, simplicidade voluntária

CONTENTS

1	INTRODUCTION.....	1
1.1	The EU's plan for reduction is fuelling consumption	4
1.2	Consumerism runs deeper in the subconscious.....	6
1.3	Problem definition	10
1.4	Objectives and research questions	11
1.5	Thesis outline.....	12
1.6	Scientific outputs.....	13
	References	14
2	LITERATURE REVIEW ON ONENESS AND FASHION CONSUMPTION REDUCTION.....	21
2.1	On fashion consumption reduction.....	23
2.1.1	The addictive pursuit of <i>a self</i> in fashion: a barrier to reevaluating need.....	24
2.2	Bridging oneness and reduction: the intervening variables.....	27
	References	28
3	METHODOLOGICAL APPROACH	33
3.1	Methods applied by chapter	36
4	THE ROLE OF CONNECTEDNESS IN ENVIRONMENTAL CONSUMPTION OF FASHIONABLE COMMODITIES.....	39
4.1	Introduction	43
4.2	Methodology for the Exploratory Literature Review	45
4.3	Findings on Connectedness and Consumption	47
4.3.1	Links between Connectedness and Pro-Environmental Consumption.....	52
4.3.2	Pro-Environmental Choice and the Consumer's Decision-Making.....	55

4.4	Discussion, Limitations, and Further Research	58
4.5	Conclusions	60
	References	61
5	THE ONENESS IAT: A NEW ASSESSMENT TOOL FOR SUSTAINABILITY RESEARCH	69
5.1	Introduction	73
5.2	Assessing oneness	74
5.2.1	Oneness categorization.....	74
5.2.2	Oneness assessment tools	76
5.2.3	The implicit association test	79
5.3	Study 1: development and pilot testing.....	80
5.3.1	Method.....	81
5.3.2	Results.....	86
5.4	Study 2: IAT psychometric properties.....	88
5.4.1	Method.....	88
5.4.2	Results.....	90
5.5	Discussion	94
5.5.1	Summary of results and findings from study 1 and study 2.....	94
5.5.2	Limitations and future directions.....	95
5.6	Conclusion	96
	References	97
6	FROM ONENESS TO BUYING DECISION: THE ROLE OF VOLUNTARY SIMPLICITY AND SUSTAINABLE CONSUMPTION	105
6.1	Introduction	108
6.2	The science of buying less	109
6.3	The science of cheap and scarce.....	112
6.4	Method.....	114
6.4.1	Participants	114
6.4.2	Materials	115
6.4.3	Procedure	117
6.5	Results.....	118
6.6	General discussion	121

6.6.1	Summary of results and findings	121
6.6.2	Limitations and future directions	122
6.7	Conclusions	123
	References	124
7	GENERAL DISCUSSION	129
7.1	Answering the research questions	131
7.2	Limitations and future work	135
7.3	Implications	137
8	CONCLUSION	139
	ANNEXES	143
A	SCRIPT OF THE SEMI-STRUCTURED INTERVIEWS	145
B	QUESTIONNAIRES OF THE IAT'S EXPLICIT MEASURES	147

LIST OF FIGURES

Figure 3.1 – Method schematic of the research project.....	37
Figure 4.1 – Chronological distribution of the selected 29 articles' year of publication amongst the total publications yielded in the keyword search.	47
Figure 4.2 – The number of publications for each type of connectedness with links to pro-environmental behaviour and consumption.	54
Figure 4.3 – The number of publications about moral emotions (guilt and pride) with links to pro-environmental behaviour and consumption.	57
Figure 5.1 – Sample screenshots of the IAT in Testable: the initial instructions, a trial of part 1, the introduction to part 3, and a trial of part 3.....	84
Figure 5.2 – Histogram of reaction times (RT) in the pilot testing of the implicit association test (on the left) and histogram of participants' error rates in the implicit association test (on the right). The density of the average RT between 600 and 800 milliseconds and the density of participants responding incorrectly to more than 10% of trials shows that the words used in the test are easy enough to classify, which configures a positive result for a valid pilot testing..	87
Figure 5.3 – Estimated marginal means from the final simplified regression model, depicting D-scores on the x-axis across combinations of gender, religiousness, and spirituality on the y-axis. Each point on the plot represents an estimated mean score for a specific combination of predictors. The confidence intervals (95%) provide a range within which the true mean score is expected to fall.....	93
Figure 5.4 – Partial effects of the multiple regression model relating the participants' D-score with their gender, religiousness and spirituality. The D-scores for women are significantly higher than those for men. The light vertical lines represent confidence intervals of 95%, showing the range within which the true effect is likely to fall.....	93
Figure 6.1 – Picture showing participants engaging in the social experiment, next to a market stall with white T-shirts displayed in different sizes and a three-slot donation box.	115
Figure 6.2 - Distribution of purchases and donations among the participants ($n = 62$)	119

Figure 6.3 – Boxplot showing the negative relation between oneness and buying decision. Although inconclusive, there is a marginally significant decrease on purchases by participants with higher D-score. 120

LIST OF TABLES

Table 2.1 – List of variables that are related to oneness by type of relationship.	28
Table 4.1 – The three sets of keywords that were combined under a semi-systematic method.	46
Table 4.2 – Different types of connectedness and their links to pro-environmental and consumption behaviour.	48
Table 4.3 – Links between moral emotions and environmental behaviour.	57
Table 5.1 – Oneness-related assessment and measurement tools.	78
Table 5.2 – Words used for oneness assessment on the IAT of study 1.	83
Table 5.3 – Schematic diagram of the IAT in Testable	85
Table 5.4 – Summary of the analysis of internal consistency of the IAT.	87
Table 5.5 – Summary of the analysis of internal consistency reliability of all measures.	91
Table 5.6 – Summary of the analysis of construct validity and criterion-related validity	91
Table 5.7 – Categorization of the demographics of the test.	92
Table 5.8 – Results of the reduced multiple regression model. The regression coefficients indicate the positive or negative relationship between the IAT results and gender, religiousness and spirituality.	92
Table 6.1 – Multiple logistic regression model for predicting buying-decision.	121
Table 6.2 – Logistic regression model summary ^b	121

ACRONYMS

CI	Confidence Interval.
CTN	Connectedness to Nature.
EPR	Extended Producer Responsibility
EU	European Union.
fMRI	Functional Magnetic Resonance Imaging.
IAT	Implicit Association Test.
M	Mean.
NEP	New Environmental Paradigm.
OBS	Oneness Beliefs Scale.
OE	Oneness Experience.
PAR	Participatory Action Research.
PEB	Pro-environmental Behaviour.
RLT	Response Latency Technique.
RT	Reaction Time.
SD	Standard Deviation.
SE	Standard Error.
VSES	Voluntary Simplicity Engagement Scale.
YSCBS	Young Consumers' Sustainable Consumption Behaviour.

SYMBOLS

α	Alpha. Indicates a Cronbach's alpha coefficient, measuring internal consistency in reliability analysis.
β	Beta. Indicates a regression coefficient in prediction models.
λ	Lambda. Indicates a split-half coefficient in reliability analysis.
μ	Mu. Indicates the mean value in statistical analysis.
ρ	Rho. Indicates a Pearson's coefficient, used in correlation analysis.
σ	Sigma. Indicates the standard deviation value, measuring data dispersion.
r	Indicates a coefficient of correlation.
p	P-value. Indicates the probability of observing the given data under the null hypothesis, used in regression models and correlation tests to assess statistical significance.
d	D-score. A standardized measure derived from response latencies in the implicit association test (IAT) that quantifies the relative strength of one pair of associations compared to another by comparing response times (RT) across task blocks, after practice trials and error penalties.

INTRODUCTION

Facing a scenario of climate and social crisis that is unfolding faster and more damaging than scientists had predicted before, the Intergovernmental Panel of Climate Change (IPCC) report of 2022 highlights that current policies and financial flows fall short of the levels required to meet climate goals, and that systemic changes in governance, infrastructure, and consumption patterns are necessary. The report suggests economic degrowth strategies and, for the first time, refers to human-nature connectedness – a sense of self that includes nature as one single entity (Coomber & Harré, 2021; Ives et al., 2018; Zylstra et al., 2014). In that IPCC report, scholars underscore that this human-nature connectedness is positively related to pro-environmental behaviour and a possible measure towards climate change mitigation (IPCC, 2022). To effectively halve global greenhouse gas emissions and limit warming to 1.5°C, solutions must go beyond surface-level changes and instead plunge into the foundational restructuring of societies, the reconnection with biodiversity and Indigenous knowledge, and a substantial reduction in resource extraction and consumption (Mont et al., 2022; Rashidi, 2024), which was reinforced by the latest IPCC 6th Assessment Report from 2023, too (IPCC, 2023).

The textile industry has become a major source of waste and greenhouse gas emissions since the turn of the century, with its environmental impact escalating rapidly (McKinsey, 2020). Reducing the volume of consumption and production has been presented as the best approach to lower fashion's carbon emissions (Hetherington et al., 2021; Levanen et al., 2021), which account for up to 10% of the global figure (McKinsey, 2020). The fashion industry is predicted to be accountable for 25% of the world's remaining carbon budget by 2050 (Changing Markets Foundation, 2021; Ellen MacArthur Foundation, 2017; UNECE, 2018). The fashion industry is currently the second biggest water waster in the world, responsible for one fifth of all contaminated water (Becker-Leifhold & Heuer, 2018; Niinimäki et al., 2020). The pleas of the president of the United Nations Organisation in 2021 to cease immediately any new fossil fuel extraction (United Nations Organization, 2021) do not match the fashion industry's latest efforts, and specifically of fast-fashion brands, which are showing no decrease of its usage. Since polyester (which is a synthetic fibre made from fossil fuels) has become cheaper than cotton in the turn of the 21st century, fast-fashion has shown proof of economic and political dependence to its extraction and no means to show a real commitment with increasing consumer concern about sustainability (Changing Markets Foundation, 2021). The environmental damage is systemic based and mostly due to a volume of production that accounts for over 150 billion pieces of clothing in one year, of which 69% are made of plastic fibres (Kirchain et al., 2015; Ellen MacArthur Foundation, 2017; Changing Markets Foundation, 2021), worsening thereby soil and water pollution when 73% of it end up on landfill (Ellen

MacArthur Foundation, 2017). In 2020, the EU produced approximately 6.95 million tonnes of textile waste. A significant 82% of this came from post-consumer waste, while the remaining portion originated from manufacturing processes or unsold textiles (European Environment Agency, 2024). The European industrial scene carries great historical responsibility and geopolitical power in reducing consumption with immediate effect, should governments be willing to integrate the most up-to-date research on consumerism into their policies, rather than overlooking its cultural embedding in order to develop growth strategies that depend on it.

1.1 The EU's plan for reduction is fuelling consumption

Consumption has not decreased; rather, it has exponentially surged since 2016, the year 196 parties signed the Paris Agreement at the United Nations Headquarters during the UN Climate Change Conference (COP21). In just six years, global consumption has exceeded 75% of the total resources consumed over the entire century from 1900 to 2000 (Circle Economy, 2024). The fashion industry had already doubled its annual garment production in the previous 15-year period, rising from 50 billion to over 100 billion units (Ellen MacArthur Foundation, 2017) – a volume nearly a thousand times greater than the number of births in 2015 (United Nations, 2017). Whether this troubling trend is a result of deliberate economic interests or a failure of intended goals remains an open question. Both can be true (Frey & Burgess, 2022; Hallegatte et al., 2024).

Governments worldwide are riding what Chaudhary (2022) calls the “sustainability paradox”, as they unavailingly attempt to reconcile climate science with capitalism. Growth-critical scholars regard sustainability frameworks under capitalism as fundamentally flawed because they prioritize preserving the very root cause of environmental degradation (Chaudhary, 2022; Singer, 2010). The simultaneous refusal to withdraw from extractivism and efforts to appease public opinion, has resulted in incoherent policies. These policies not only disregard the scientific community's urgent calls for a fossil fuel phase-out by 2030 but also fail to meet even their own – already insufficient – commitments to reducing greenhouse gas emissions (IPCC, 2023).

Researchers suggest that the key to meet the Paris Agreement goals is to significantly decrease material production and consumption while improving material efficiency (e.g., shifting from private ownership to sharing-based models) (Hickel & Kallis, 2020). However, the current system that depends on replacing fashionable commodities when they are still useful or recoverable is far from being efficient. Despite the urgent need to shift to a circular economy

to mitigate upcoming climate adversities, global policies are not addressing critical systemic change (Ives et al., 2019; Jackson, 2009; Solano-Pinto et al., 2020; Christoph Woiwode et al., 2021). The European Commission's "Circular Economy Action Plan" presented in 2020, aiming at a "cleaner and more competitive Europe", does not include degrowth policies and instead suggests an agenda focused on "scaling up the circular economy", "accelerat[ing] the transition towards a regenerative growth model", "doubl[ing] [the planet's] circular material use rate", and "decoupling economic growth from resource use" (European Commission, 2020a). *Decoupling* is presented as a concept that unlocks the dilemma of growth, in which economic output becomes less dependent on material throughput, hoping that the economy continues to grow without breaching ecological limits (Jackson, 2009). Decoupling will require considerable effort across the whole value chain and in every home (European Commission, 2020b). Nonetheless, empirical evidence on resource use and carbon emissions does not support green growth theory (Hickel & Kallis, 2020; Jackson, 2009; Kallis et al., 2018) and there is a high risk of rebound effect in many circular economy strategies that might even come from solutions that perfectly align with it (Levanen et al., 2021). The more efficiently resources are used, the lower the cost, increasing consumption and its use (Ellen MacArthur Foundation, 2015; Kallis et al., 2018; Levanen et al., 2021). When we look at the fashion industry, not only fashion sales have not ceased to increase, the growth rate is increasingly higher than the one of the world GDP's or even world population's (Ellen MacArthur Foundation, 2017), and nonetheless clothing production is predicted to grow by 2.7 percent annually between 2020 and 2030 (McKinsey, 2020).

The "sustainability paradox" creates fertile ground for misleading environmental claims that are often difficult to verify. A European Commission press release about "screening of websites for 'greenwashing'" stated that in 42% of cases, the claims were exaggerated, false, or deceptive (European Commission, 2021a). Studies have shown that four out of five consumers distrust fashion environmental claims (Changing Markets Foundation, 2021; European Commission, 2020b; Kahraman & Kazançoğlu, 2019), and that consumers do not recognize vague greenwashing either, no matter how environmentally involved they are (Schmuck et al., 2018; Urbański & Haque, 2020). Both the misinterpretation of harmful practices and the mistrust on good practices can jeopardize governments' efforts in tackling the climate crisis. A symptom of greenwashing is described in the Business of Fashion's article of May 14, 2025 "Sustainability Takes a Back Seat, Even at Sustainable Fashion Brands" as "green fatigue". The piece highlights a sustainability pullback, driven by slow fashion brands struggling to compete with larger companies "with bigger ad pockets who are appropriating the terms" and notes a growing cynicism among consumers who care about sustainability – "with all the

greenwashing it just became, like, how do you even navigate what's real and what isn't?" (Kent, 2025).

The European Environment Agency warns that "If sorting and recycling capacities are not scaled up in Europe, there is a risk that significant amounts of collected textile waste will continue to end up in incinerators or landfills or be exported to regions outside the EU" (European Environment Agency, 2024). However, this perspective assumes that scaling-up recycling – despite the increased production – would indefinitely sustain both new product flows and waste management. Yet, this assumption lacks evidence, as reports indicate a stark disconnect between consumer intentions and behaviours. Driven by aggressive advertising, peer pressure, digital influence, and irresistible marketing strategies (Becker-Leifhold & Heuer, 2018; Djafarova & Bowes, 2021; Greenpeace International, 2017; Pereira Heath & Chatzidakis, 2012), purchasing habits remain largely unchecked. The EU's approach to curbing the throwaway culture is still limited to educational programs, overlooking the deeper psychological vulnerabilities to unregulated fashion advertising, highly addictive content and streamlined social media purchase processes (Becker-Leifhold & Heue, 2018).

Furthermore, EU policies dangerously rely on the unproven assumption that extending product lifecycles will reduce the demand for new production. However, the exponential rise of both the fast-fashion and second-hand markets in recent years suggests that prolonged product use does not necessarily curb overall consumption (Cardoso, 2023; Frahm et al., 2024; Niemelä, 2024)

Within Europe's future outlook, consumerism is not to be dismantled but rather redirected toward a logic of buying *better*, where *better* is yet limited to extrinsic normative directions. This approach places the burden on consumers within a design-to-fail system, requiring them to critically assess supply chains for *better* products, when *better* products should already be the standard. Moreover, it assumes a level of rational decision-making that is fundamentally misaligned with how the human brain processes choices (Zaltman, 2003).

1.2 Consumerism runs deeper in the subconscious

Consumerism goes beyond an orchestrated system of addictive stimuli and compulsive spending. It intertwines with memories, sense of belonging, and deep-seated moral emotions such as guilt, shame, pride, frustration and resentment – that in turn fuel the impulse to buy (Castano Garcia et al., 2021; Chatzidakis, 2015; Chatzidakis & Lee, 2013; Hamilton, 2010; Young, 2018). Buying is usually the means by which individuals acquire the instrumental value of a commodity (Zepf, 2010), in this case, clothing and footwear items. Consumerism however,

or the culture of mass consumption, is seen as the ideology behind a social organization with unrestricted markets built around a “sovereign independent consumer deploying choices” that has inhibited alternative systems to capitalism (Schwarzkopf, 2011). Through socio-psychoanalytical lenses, consumerism is argued to be a threatening force of toxic contamination to mind and body that shapes identity and behaviour. Individuals feel trapped in a cycle of consumption, whether embracing it or resisting it (Nixon & Gabriel, 2016).

Considering that from 2010 to 2015, the fashion industry was producing at least a dozen times more garments per year than the global population (Kirchain et al., 2015; Ellen MacArthur Foundation, 2017), and that charities worldwide are overflowing, often exporting or even rejecting donations due to extreme oversupply (Samie et al., 2024), access to clothing is undeniably ensured, however overshadowed by a complex attachment to the very act of acquisition and disposal, revealing a deeper psychological and cultural dynamic at play. A commitment to consumption reduction policies can go beyond extrinsic education and acknowledge the psychoanalysis of fashion (Bancroft, 2012) and the automatic, addictive, non-rational neurological fluctuations that happen in response to triggers explored in advertisement, regardless of individual intentions or ethics (Karmarkar et al., 2015; Karmarkar & Plassmann, 2019; Lindstrom, 2009; Sapolsky, 2017).

The fact that the European Union is not considering the non-rational dimension of consumer behaviour when designing directives that rely on consumers' rationality and hold them responsible ultimately benefits fashion brands' revenue. The fashion industry needs to reduce annual emissions by half in 2030, to around 1.1 billion metric tons. Under its current trajectory, the fashion industry will miss the Paris Agreement 1.5-degree emission target by 50% (McKinsey, 2020). Although every citizen holds a share of to contribute to climate mitigation within their means, non-governmental organizations and fashion councils emphasize that holding the industry accountable and reducing clothing production are key steps toward achieving social and climate justice (Fashion Revolution CIC, 2021; Hetherington et al., 2021). Consumers do not hold direct power over fashion production policies, aside from choosing among commercially available options.

The fashion industry adopted the idea of the individual *carbon footprint* – created in 2005 by the second largest global oil company in order to assign responsibility for climate impact to the individual, whilst simultaneously erasing its own contribution to that change – which allowed brands to share its accountability for its environmental toll with overall consumers, sometimes with the very ones directly affected by its consequences (Doyle, 2016). From mass media to academics, individualizing water and energy expenditure in fashion (e.g. saying that a single T-shirt requires 2700 litres of water to be produced, taking 2.5 years of drinking water of an

average person (UNECE, 2018)) has flipped the discourse towards a powerless consumer (Birau & Faure, 2018), thus affecting consumer's ecoanxiety, that in turn does not result in behavioural engagement (Clayton & Karazsia, 2020). Production reduction is not dependent on individual consumption choices (Fashion Revolution CIC, 2021). Nonetheless, brands claim that production levels respond to "what the customer wants" (Pereira Heath & Chatzidakis, 2012), governmental directives and overall media communication for sustainability are using a consumption-based accounting approach (European Commission, 2020b; Liu, 2015; Pereira Heath & Chatzidakis, 2012), even though blaming consumers is counterproductive and negatively affects their message perception, environmental concerns, intentions and behaviour (Birau & Faure, 2018). Not only production has doubled since 2000, fashion brands' intention was not to match a growing demand, but to intentionally overproduce because they cannot predict what people will buy, and because fast-fashion is structurally locked into a model which supports a fast turnover of products, and thus great volumes of supply overweighing demand by 25% every year (Becker-Leifhold & Heuer, 2018; Ellen MacArthur Foundation, 2017; Fashion Revolution CIC, 2021; Marchessou & Gerstell, 2021; Niinimäki et al., 2020), a rate suggested to be up to 40% in Forbes magazine (Magnusdottir, 2020). Fast-fashion is a retail business model based on cheap, abundant and fast production of clothes that manoeuvres fast-pace "latest trends", its pursuit and subsequent disposal in order to ensure mass sales under great margins (Anguelov, 2016; Becker-Leifhold & Heuer, 2018; Niinimäki et al., 2020). Volume-based business models cannot become sustainable (Thomas, 2019). Out of the total amount of clothing and shoes produced, there is no available data on how much of it is fast-fashion because only 14% of fashion brands disclose data on the quantity of products made annually (Fashion Revolution CIC, 2021). It is however verifiable – and actually reported by some fast-fashion brands themselves – that H&M, Inditex, Adidas, Mango, Uniqlo, Benetton, Gildan and OVS alone sum up a total of nearly 9 billion items produced per year, or 9% of the volume produced globally (Fashion Revolution CIC, 2020, 2021). Expecting consumption and waste reduction out of a consumer-blaming approach in advertisement, not only neglects the backfiring effects of it (Birau & Faure, 2018), of guilt (Chatzidakis, 2015; Chatzidakis et al., 2012; Kals et al., 1999; Montada & Kals, 1995; Jianming Wang & Wu, 2016; Zylstra et al., 2014) and of eco-anxiety (Haseley, 2019; Weintrobe, 2012), it overlooks how powerless fashion consumers find themselves (Greenpeace International, 2017; Pereira Heath & Chatzidakis, 2012), and how fashion sales are retail driven and not consumer driven (Anguelov, 2016). For example, textile recycling may be perceived as a pro-environmental choice (Barbaro & Pickett, 2016; Dong et al., 2020) and consumers are advised by local governments to put their unwanted clothes in the textile bins in order to be further donated or

recycled, but recycling will not solve fast fashion's problems, nor will it curb the exponential growth in the use of synthetic fibres (Changing Markets Foundation, 2021). The fashion industry is producing more than what consumers can use and reuse, and more than what current technology is able to recycle (Ellen MacArthur Foundation, 2017; Kerr & Landry, 2017). Closed-loop recycling represents less than 1% of overall textile production (Ellen MacArthur Foundation, 2017; Marchessou & Gerstell, 2021) and most of the average 25% of the world garments collected for reuse and recycling end up dumped on poorly sustained African and Asian landfills, contaminating soil and water streams, or directly into the ocean (Brooks, 2015; Fashion Revolution CIC, 2021; Watson & Palm, 2016). Researchers working in the field suggest that clothing donation was industrialized and marketed to open space for a never-ending supply of new clothing to replace it (Fashion Revolution CIC, 2021). In 2015, 92 million tons of textile waste was generated by the fashion industry, a figure often translated by the media as the equivalent per second of one garbage truck of textiles landfilled or burned globally (Kerr & Landry, 2017; UNECE, 2018) – 13 million tons are from retailers only, including tons of new garments that were never sold (Changing Markets Foundation, 2022; Niinimäki et al., 2020) and 30% of all returned orders (Australasian Circular Textile Association, 2020) – most likely to break down and survive in landfill and water streams for over 200 years due to its non-biodegradable plastic fibres (Changing Markets Foundation, 2021). The problem of microplastic and microfibres has caught the mass media attention who points out domestic laundry as the main source of these microplastic in water streams, but comparatively with the eight-figure number above, washing machines release a small fraction: up to 500,000 tons of microfibres each year (Boucher & Friot, 2017; Ellen MacArthur Foundation, 2017; Falco et al., 2019; Manshoven et al., 2022). Industrial laundering releases more microfibres than home laundering (Erkoc & Babaarslan, 2019) involving dozens of consecutive washes like rinsing of fibre treatments and stone-washing (Anguelov, 2016).

Starting in 2025, a European Union directive under the Extended Producer Responsibility (EPR) framework requires manufacturers to take accountability for the entire lifecycle of their products from production to waste management and disposal (Hogg et al., 2020; Levanen et al., 2021). However, the EPR focus on durability, repairability, and recyclability rather than on production reduction risks aggravating the issue, as ever-increasing investments in advertising, particularly in digital marketing and influencer partnerships, continues to fuel excessive consumption, inevitably leading to more disposal (Djafarova & Bowes, 2021; Pan et al., 2024). Without tackling the throwaway culture or curbing production, the EU risks creating a future where waste is simply more durable, repairable, recyclable—yet still destined for landfills.

1.3 Problem definition

An illusion of environmental progress emerges from the contradicting political context described above, while reinforcing overconsumption, hyper-individualism, and waste colonialism. Achieving consumption reduction requires a radical shift; not just small behavioural nudges or eco-efficiency measures, but a fundamental change in the way individuals and societies reevaluate their essential needs to prosper. This is where a sense of connectedness – and specifically of spiritual oneness – may provide a critical missing link, offering a psychological and philosophical foundation for shifting consumption patterns at a deep, subconscious level.

In environmental science and social psychology, *connectedness* refers to the inclusion of the natural world within one's cognitive representation of the self (Barbaro & Pickett, 2016; Dong et al., 2020). *Oneness* is an ineffable unbounded reality in which all existence is interconnected and fundamentally *one* – nature, living beings, humanity, the cosmos and everything in between. Psychologists conceptualize *oneness* as a mystical experience of *connectedness*, that transcends the material world as a unifying principle of all phenomena. Rooted in ancient mystical traditions, oneness has long been explored in Eastern philosophy, indigenous worldviews, and religious mysticism as a sense of self that is in unity with a greater whole (Laszlo & Laszlo, 2021; Van Lente & Hogan, 2020). However, its significance is now gaining recognition within scientific disciplines, including psychoanalysis and environmental sciences. Researchers suggest that individuals who experience a strong sense of connectedness with the universe are more likely to adopt pro-environmental behaviours, potentially leading to reduced material consumption (Garfield et al., 2014).

This perspective has the potential to redefine sustainability, shifting away from guilt-driven or normative incentives toward behaviours that stem from a genuine sense of unity and *self-protection* (Chatzidakis, 2015; Hess, 2024).

While consumption reduction appears to align with oneness-based concepts, the relationship remains unexplored in the context of fashion consumption, which is an industry embedded in hyper-individualism, aspirational identity creation, and subconscious psychological triggers (Bancroft, 2012b; Niinimäki et al., 2020).

Despite the conceptual appeal of oneness, accurate measurement remains a challenge, largely because the experience operates at a subconscious level (Gál & Dömötör, 2023; Mayer & Frantz, 2004). Current studies rely on self-reporting, which presents significant biases, particularly in an era where spirituality is experiencing a popular resurgence. This social desirability bias might create an inaccurate representation of how oneness influences

behaviour, leading to gaps in research that hinder its potential as a tool for understanding consumption reduction. A similar challenge occurs within consumption behaviour research. It is recognized that purchasing decisions are predominantly subconscious, with studies suggesting that up to 95% of consumer choices occur automatically rather than through rational deliberation (Zaltman, 2003). Yet, research on sustainable consumption still relies on self-reporting methods, despite evidence that stated preferences often fail to align with actual purchasing behaviours (Firat, 2019; Schmidt, 2013). Measuring reductions in material consumption thus requires alternative methodologies that capture automatic, subconscious processes.

1.4 Objectives and research questions

The overarching goal of this work is to support a societal change towards reduced consumption by reframing the individual's sense of self within the context of pro-environmental behaviour. To achieve this aim, the main objective is to understand, assess, and analyse oneness (*i.e.*, an ancient, mystical experience of connectedness with the universe) in relation to purchasing decisions of fashionables and the practice of voluntary simplicity. Three research questions (RQ) were formulated, starting from a broader comprehension of self-expansion, connectedness, and pro-environmental behaviour to a detailed analysis of the intersection between oneness and consumer-related quantitative variables:

RQ1: How is connectedness conceptualised and how does it relate to pro-environmental consumption of fashionables?

RQ2: How can oneness be more accurately assessed and related to other variables?

RQ3: Can oneness predict buying behaviour, and if so, in what ways?

Following these research questions, the specific objectives of this research are:

- Conducting a deep literature review to systemize understandings of oneness-related concepts, such as connectedness and sense of self, and to explore initial links between connectedness and pro-environmental consumption;
- Developing and validating an assessment tool to measure oneness in a group of participants, overcoming biases present in former self-reporting methods to ensure a more accurate evaluation;

- Exploring the role of oneness in consumption reduction by analysing its relationship with purchasing decisions and examining interactions with other relevant variables that may further explain or enhance significant connections.

1.5 Thesis outline

This thesis is organized into eight chapters, including the Introduction (Chapter 1) and Conclusions (Chapter 8). The three research questions are addressed throughout these chapters.

Chapter 1 presents the general introduction, addressing the contradictions within the European Union's commitments: to reduce consumption and waste through educational programs for reuse and repair, while simultaneously accelerating economic growth. It exposes how these commitments to hold consumers accountable – conveniently for the capitalist establishment – overlook the perpetuation of psychological triggers that, at a subconscious level, keep consumers trapped in a cycle of buying and *decluttering*. The chapter establishes the foundation for a theoretical framework on oneness, which is framed as a potential means to deconstruct the sense of self and reassess essential needs at a deeper, spiritual level. This sets the stage for developing a new assessment tool designed to accurately grasp the core experience of oneness and relate it with buying-decision.

Chapter 2 brings forward an overarching literature review specifically relating oneness with the reduction of fashion consumption. Additional literature reviews are provided in Chapters 4, 5, and 6, each establishing the state of the art for its respective topics.

Chapter 3 outlines the project methodology, showing which chapters address specific research questions and providing an overview of the methods used. This research combined different methods and approaches including a semi-systematic review, semi-structured expert interviews, the development and psychometric analysis of an implicit association test, a social experiment examining buying-decision, and a final quantitative analysis relating a set of variables with different tests and prediction models.

Chapter 4 provides a wide exploration of connectedness, as an expanded sense of self. It examines the first links with consumption – particularly fashion consumption – pre-environmental behaviour, and moral emotions like guilt and pride, derived from a semi-systematic literature review integrating different keyword searches.

Chapter 5 delves with greater depth into oneness' categorization and assessment tools to support the development and testing of an implicit measure designed to grasp the unbounded,

mystical and subconscious dimensions of oneness. It outlines two studies – a pilot test and a psychometric analysis of the oneness implicit association test (IAT) – that are preceded by a design phase that incorporates insights gathered from semi-structured expert interviews.

Chapter 6 reviews consumption reduction conceptualizations, from sufficiency to frugality and voluntary simplicity, and their relation to the experience of oneness, within a consumerist context of undefined sense of self and unfulfilled essential needs. The chapter presents the results of a study combining the oneness implicit association test (developed in the previous chapter) with a social experiment involving a T-shirt market sale. Predictive models were generated to examine the relation between oneness and buying decision, and the influence of other variables like voluntary simplicity and sustainable consumption.

Chapter 7 and 8 present the final discussion and conclusions, with the answers to all research questions, a critical reflection about the sequence of results resulting from all conducted studies and insights on future research directions and how to actively apply the provided knowledge in policy.

1.6 Scientific outputs

This thesis resulted in scientific contributions, such as peer-reviewed papers and conference presentations, as listed below.

Peer-reviewed publication in international journal:

- **Areias, S.**, Disterheft, A., Gouveia, J. P. (2023). The Role of Connectedness in Pro-Environmental Consumption of Fashionable Commodities. *Sustainability*, 15(2), 1199. <https://doi.org/10.3390/su15021199> (Ch. 4)

Manuscripts for future publication:

- **Areias, S.**, Disterheft, A., Gouveia, J. P., Fischer, D. (nd). The Oneness IAT: a New Assessment Tool for Sustainability Research. *Discover Sustainability*. Submitted and under review. (Ch. 5)
- **Areias, S.**, Disterheft, A., Gouveia, J. P., Fischer, D. (nd). From Oneness to Buying Decision: the role of Voluntary Simplicity and Sustainable Consumption. To be submitted. (Ch. 6)

Conferences and expositions:

- **Areias, S.**, Disterheft, A., Gouveia, J. P. (2021). *The role of connectedness in responsible consumption of fashionable commodities: an exploratory literature review*. Circular Economy. Paper presented at the Consumer Conference'21. Online Conference. 21-22 April 2021.
- **Areias, S.**, Disterheft, A., Gouveia, J. P., Fischer, D. (2023). *Towards voluntary simplicity: measuring the experience of oneness with the implicit association test (IAT)*. Sufficient Lifestyles and Business Practices. Paper presented at Transforming Consumption-Production Systems Toward Just and Sustainable Futures. Wageningen University, The Netherlands. 5-8 July 2023.
- **Areias, S.**, Disterheft, A., Gouveia, J. P. (2024). *Links between oneness implicit measures and clothing consumption*. Responsible Consumption-Production-Recycling as a solution to Climate Challenge. Poster presented at the International Conference on Sustainable Development. Online Conference. 19-21 September 2024.

References

- Anguelov, N. (2016). *The Dirty Side of the Garment Industry: Fast Fashion and Its Negative Impact on Environment and Society*. CRC Press.
- Australasian Circular Textile Association. (2020). *Economy for the Textile & Apparel Sector*.
- Bancroft, A. (2012). Fashion and Psychoanalysis: Styling the Self. In *Fashion and Psychoanalysis: Styling the Self*. Bloomsbury Publishing Plc. <https://doi.org/10.1080/09574042.2013.805912>
- Barbaro, N., & Pickett, S. M. (2016). Mindfully green: Examining the effect of connectedness to nature on the relationship between mindfulness and engagement in pro-environmental behavior. *Personality and Individual Differences*, 93, 137–142. <https://doi.org/10.1016/j.paid.2015.05.026>
- Becker-Leifhold, C., & Heue, M. (2018). Eco-friendly and Fair: Fast Fashion and Consumer Behaviour. In *Eco-Friendly and Fair: Fast Fashion and Consumer Behaviour*. Taylor and Francis. <https://doi.org/10.4324/9781351058353>
- Birau, M. M., & Faure, C. (2018). *It is easy to do the right thing: Avoiding the backfiring effects of advertisements that blame consumers for waste*. 87(March 2017), 102–117. <https://doi.org/10.1016/j.jbusres.2018.02.026>
- Boucher, J., & Friot, D. (2017). *Primary Microplastics in the Oceans: A Global Evaluation of Sources*.
- Brooks, A. (2015). *Clothing Poverty: The Hidden World of Fast Fashion and Second-Hand Clothes*. Zed Books Ltd.

- Cardoso, R. (2023). *Multisided C2C Second-hand Fashion Applications: How Will the Fast Fashion Industry Adapt?* Universidade Católica Portuguesa.
- Castano Garcia, A., Ambrose, A., Hawkins, A., & Parkes, S. (2021). High consumption, an unsustainable habit that needs more attention. In *Energy Research and Social Science* (Vol. 80). Elsevier Ltd. <https://doi.org/10.1016/j.erss.2021.102241>
- Changing Markets Foundation. (2021). *Fossil fashion: The hidden reliance of fast fashion on fossil fuels*. www.changingmarkets.org
- Changing Markets Foundation. (2022). *Licence to Greenwash*.
- Chatzidakis, A. (2015). Guilt and ethical choice in consumption: A psychoanalytic perspective. *Marketing Theory*, 15(1), 79–93. <https://doi.org/10.1177/1470593114558533>
- Chatzidakis, A., & Lee, M. S. W. (2013). Anti-Consumption as the Study of Reasons against. *Journal of Macromarketing*, 33(3), 190–203. <https://doi.org/10.1177/0276146712462892>
- Chatzidakis, A., Maclaran, P., & Bradshaw, A. (2012). Heterotopian space and the utopics of ethical and green consumption. *Journal of Marketing Management*, 28(3–4), 494–515. <https://doi.org/10.1080/0267257X.2012.668922>
- Chaudhary, A. S. (2022). Sustaining What? Capitalism, Socialism, and Climate Change. In *Philosophy and Politics - Critical Explorations* (Vol. 22, pp. 197–239). Springer Science and Business Media B.V. https://doi.org/10.1007/978-3-031-08407-2_9
- Circle Economy. (2024). *The Circularity Gap Report 2024: Closing the Circularity Gap*.
- Clayton, S., & Karazsia, B. T. (2020). Development and validation of a measure of climate change anxiety. *Journal of Environmental Psychology*, 69. <https://doi.org/10.1016/j.jenvp.2020.101434>
- Coomber, T., & Harré, N. (2021). Psychological Oneness: A Typology. *Review of General Psychology*, 0(0), 1–19. <https://doi.org/10.1177/10892680211034457>
- Djafarova, E., & Bowes, T. (2021). ‘Instagram made Me buy it’: Generation Z impulse purchases in fashion industry. *Journal of Retailing and Consumer Services*, 59(xxxx), 102345. <https://doi.org/10.1016/j.jretconser.2020.102345>
- Dong, X., Liu, S., Li, H., Yang, Z., Liang, S., & Deng, N. (2020). Love of nature as a mediator between connectedness to nature and sustainable consumption behavior. *Journal of Cleaner Production*, 242(118451). <https://doi.org/10.1016/j.jclepro.2019.118451>
- Doyle, J. (2016). *Where has all the oil gone? BP branding and the discursive elimination of climate change risk*. July.
- Ellen MacArthur Foundation. (2015). Growth within: a circular economy vision for a competitive europe. In *Ellen MacArthur Foundation*.
- Ellen MacArthur Foundation. (2017). A new textiles economy: Redesigning fashion’s future. In *Ellen MacArthur Foundation*.
- Erkoc, M., & Babaarslan, O. (2019). *Microfiber waste load analysis in denim fabric laundering*. April.
- European Commission. (2020a). *Circular Economy Action Plan: For a cleaner and more competitive Europe*. Publications Office of the European Union.

- European Commission. (2020b). *Special Eurobarometer 501: Attitudes of European citizens towards the Environment*.
- European Commission. (2021). *Screening of websites for 'greenwashing': half of green claims lack evidence'*.
- European Environment Agency. (2024). *Management of used and waste textiles in Europe's circular economy*. <https://www.eea.europa.eu/publications/management-of-used-and-waste-textiles>
- Falco, F. De, Pace, E. Di, Cocca, M., & Avella, M. (2019). The contribution of washing processes of synthetic clothes to microplastic pollution. *Scientific Reports, January*, 1–11. <https://doi.org/10.1038/s41598-019-43023-x>
- Fashion Revolution CIC. (2020). *Fashion Transparency Index 2020*.
- Fashion Revolution CIC. (2021). *Fashion Transparency Index 2021 by Fashion Revolution - issuu. Fashion Revolution*.
- Firat, D. Y. O. S. Detelina. (2019). When to consider social desirability bias (SDB) in consumer behaviour studies? A review on SDB-vulnerable concepts. *Business & Management Practices*.
- Frahm, L. B., Boks, C., & Laursen, L. N. (2024). It's Intertwined! Barriers and Motivations for Second-hand Product Consumption. *Circular Economy and Sustainability*. <https://doi.org/10.1007/s43615-024-00441-y>
- Frey, U. J., & Burgess, J. (2022). Why do climate change negotiations stall? Scientific evidence and solutions for some structural problems. *Global Discourse*, 13(2), 138–162. <https://doi.org/10.1332/204378921x16431423735159>
- Gál, V., & Dömötör, Z. (2023). The role of connection with nature in empirical studies with physiological measurements: a systematic literature review. In *Biologia Futura* (Vol. 74, Issue 3, pp. 281–294). Akademiai Kiado ZRt. <https://doi.org/10.1007/s42977-023-00185-0>
- Garfield, A. M., Drwecki, B. B., Moore, C. F., Kortenkamp, K. V., & Gracz, M. D. (2014). The Oneness Beliefs Scale: Connecting Spirituality with Pro-Environmental Behavior. *Journal for the Scientific Study of Religion*, 53(2), 356–372.
- Giljum, S., Dittrich, M., Lieber, M., & Lutter, S. (2015). Global patterns of material flows and their socio-economic and environmental implications: A MFA study on all Countries world-wide from 1980 to 2009. In *Materials Systems Laboratory*. <https://doi.org/10.3390/resources3010319>
- Greenpeace International. (2017). *After the Binge the Hangover - Greenpeace International*. In *Greenpeace.Org*.
- Hallegatte, S., Godinho, C., Rentschler, J., Avner, P., Dorband, I. I., Knudsen, C., Lemke, J., & Mealy, P. (2024). *Within reach: Navigating the political economy of decarbonization*.
- Hamilton, C. (2010). Consumerism, self-creation and prospects for a new ecological consciousness. *Journal of Cleaner Production*, 18(6), 571–575. <https://doi.org/10.1016/j.jclepro.2009.09.013>
- Haseley, D. (2019). Climate change: Clinical considerations. *International Journal of Applied Psychoanalytic Studies*, 16(2), 109–115. <https://doi.org/10.1002/aps.1617>

- Hess, G. (2024). Virtue Ethics and the Ecological Self: From Environmental to Ecological Virtues. *Philosophies*, 9(1). <https://doi.org/10.3390/philosophies9010023>
- Hetherington, Malmberg, J., Mariam, S., Munkedal, C., Kilgour, R., Diment, M., Miller, S., Decker, J., Bull, K., Fisher, G., Luckman, T., Shaw, D., Duffy, K., Downing, P., Bailey-Cooper, N., Bartlett, S., Rosser-Davies, J., & Dubé, S. (2021). *The Circular Fashion Ecosystem: A Blueprint for the Future*. <https://doi.org/10.36399/gla.pubs.253310>
- Hickel, J., & Kallis, G. (2020). Is Green Growth Possible? *New Political Economy*, 25(4), 469–486. <https://doi.org/10.1080/13563467.2019.1598964>
- Hogg, Dominic., Sherrington, Chris., Papineschi, Joe., Hilton, Mark., Massie, Alex., & Jones, Peter. (2020). *Study to support preparation of the Commission's guidance for extended producer responsibility scheme : recommendations for guidance*. Publications Office of the European Union.
- IPCC. (2022). *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. <https://doi.org/10.1017/9781009325844>
- IPCC. (2023). *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II, and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (P. Arias, M. Bustamante, I. Elgizouli, G. Flato, M. Howden, C. Méndez-Vallejo, J. J. Pereira, R. Pichs-Madruga, S. K. Rose, Y. Saheb, R. Sánchez Rodríguez, D. Ürge-Vorsatz, C. Xiao, N. Yassaa, J. Romero, J. Kim, E. F. Haites, Y. Jung, R. Stavins, ... C. Péan, Eds.). <https://doi.org/10.59327/IPCC/AR6-9789291691647>
- Ives, C. D., Abson, D. J., von Wehrden, H., Dorninger, C., Klaniecki, K., & Fischer, J. (2018). Reconnecting with nature for sustainability. *Sustainability Science*, 13(5), 1389–1397. <https://doi.org/10.1007/s11625-018-0542-9>
- Ives, C. D., Freeth, R., & Fischer, J. (2019). Inside-out sustainability: The neglect of inner worlds. *Ambio*, 49(1), 208–217. <https://doi.org/10.1007/s13280-019-01187-w>
- Jackson, T. (2009). Prosperity without Growth: Economics for a Finite Planet. In *Energy & Environment* (Vol. 22, Issue 7). Earthscan.
- Kahraman, A., & Kazançoğlu, İ. (2019). Understanding consumers' purchase intentions toward natural-claimed products: A qualitative research in personal care products. *Business Strategy and the Environment*. <https://doi.org/10.1002/bse.2312>
- Kallis, G., Kostakis, V., Lange, S., Muraca, B., Paulson, S., & Schmelzer, M. (2018). *Annual Review of Environment and Resources Research On Degrowth*. 14(8), 1–26.
- Kals, E., Schumacher, D., & Montada, L. (1999). Emotional affinity toward nature as a motivational basis to protect nature. *Environment and Behavior*, 31(2), 178–202. <https://doi.org/10.1177/00139169921972056>
- Karmarkar, U. R., & Plassmann, H. (2019). Consumer Neuroscience: Past, Present, and Future. *Organizational Research Methods*, 22(1), 174–195. <https://doi.org/10.1177/1094428117730598>

- Karmarkar, U. R., Shiv, B., & Knutson, B. (2015). Cost conscious: The neural and behavioral impact of price primacy on decision making. *Journal of Marketing Research*, 52(4), 467–481. <https://doi.org/10.1509/jmr.13.0488>
- Kent, S. (2025, May 14). Sustainability takes a back seat even at sustainable fashion brands. *Business of Fashion*. <https://www.businessoffashion.com/articles/sustainability/sustainability-takes-a-back-seat-even-at-sustainable-fashion-brands/>
- Kerr, J., & Landry, J. (2017). Pulse of the fashion industry. In *Global Fashion Agenda & The Boston Consulting Group*.
- Kirchain, R., Olivetti, E., Miller, T. R., & Greene, S. (2015). Sustainable Apparel Materials - An overview of what we know and what could be done about the impact of four major apparel materials: Cotton, Polyester, Leather, & Rubber. In *Resources* (Vol. 3, Issue 1). MDPI AG. <https://doi.org/10.3390/resources3010319>
- Laszlo, A., & Laszlo, E. (2021). Understanding Oneness: How Science and Spirituality See the World. *World Futures*, 77(3), 155–162. <https://doi.org/10.1080/02604027.2020.1871165>
- Levanen, J., Uusitalo, V., Harri, A., Kareinen, E., & Linnanen, L. (2021). Innovative recycling or extended use? Comparing the global warming potential of different ownership and end-of-life scenarios for textiles. *Environmental Research Letters*, 16(5). <https://doi.org/10.1088/1748-9326/abfac3>
- Lindstrom, M. (2009). *Buyology: Truth and Lies About Why We Buy*. Doubleday.
- Liu, L. (2015). *A critical examination of the consumption-based accounting approach: has the blaming of consumers gone too far?* 6(February). <https://doi.org/10.1002/wcc.325>
- Magnusdottir, A. (2020). How Fashion Manufacturing Will Change After The Coronavirus. *Forbes*.
- Manshoven, S., Vito, A. S., Malarciuc, C., Vtt, A. T., & Fogh, L. (2022). *Microplastic pollution from textile consumption in Europe* (Issue February).
- Marchessou, S., & Gerstell, E. (2021). The State of Fashion 2021. *McKinsey & Company*, 100–107.
- Mayer, F. S., & Frantz, C. M. P. (2004). The connectedness to nature scale: A measure of individuals' feeling in community with nature. *Journal of Environmental Psychology*, 24(4), 503–515. <https://doi.org/10.1016/j.jenvp.2004.10.001>
- McKinsey. (2020). Fashion on climate: How the fashion industry can urgently act to reduce its green house gas emission. In *McKinsey & Company*.
- Mont, O., Lehner, M., & Dalhammar, C. (2022). *Sustainable consumption through policy intervention—A review of research themes*.
- Montada, L., & Kals, E. (1995). Perceived justice of ecological policy and proenvironmental commitments. *Social Justice Research*, 8(4), 305–327. <https://doi.org/10.1007/BF02334710>
- Niemelä, J. (2024). *From Retail to Resale: Understanding How Second-hand Market Participation Shapes Clothing Consumption*. Aalto University School of Business.
- Niinimäki, K., Peters, G., Dahlbo, H., Perry, P., Rissanen, T., & Gwilt, A. (2020). The environmental price of fast fashion. *Nature Reviews Earth & Environment*, 1(4), 189–200. <https://doi.org/10.1038/s43017-020-0039-9>

- Nixon, E., & Gabriel, Y. (2016). 'So much choice and no choice at all': A socio-psychoanalytic interpretation of consumerism as a source of pollution. *Marketing Theory*, 16(1), 39–56. <https://doi.org/10.1177/1470593115593624>
- Pan, M., Blut, M., Ghiassaleh, A., & Lee, Z. W. Y. (2024). Influencer marketing effectiveness: A meta-analytic review. *Journal of the Academy of Marketing Science*. <https://doi.org/10.1007/s11747-024-01052-7>
- Pereira Heath, M. T., & Chatzidakis, A. (2012). 'Blame it on marketing': Consumers' views on unsustainable consumption. *International Journal of Consumer Studies*, 36(6), 656–667. <https://doi.org/10.1111/j.1470-6431.2011.01043.x>
- Rashidi, P. (2024). Indigenous peoples at the heritage-climate change nexus: Examining the effectiveness of UNESCO and the IPCC's boundary work. *Review of International Studies*. <https://doi.org/10.1017/S0260210524000196>
- Samie, Y., Maldini, I., Vladimirova, K., Iran, S., Laitala, K., Henninger, C. E., Alosaimi, S. I., Drennan, K., Lam, H., Teixeira, A.-L., Jestratijevic, I., & Weber, S. (2024). Urban transitions toward sufficiency-oriented circular post-consumer textile economies. *Nature Cities*, 1, 769–779. <https://doi.org/https://doi.org/10.1038/s44284-024-00140-7>
- Sapolsky, R. M. (2017). *The Biology of Humans at our Best and Worst*.
- Schmidt, M. (2013). Discrepancy between Stated Preferences (Self-Report) and Actual Purchases: An Empirical Assessment. *International Marketing Trends Conference, Paris, France*.
- Schmuck, D., Matthes, J., & Naderer, B. (2018). Misleading Consumers with Green Advertising? An Affect–Reason–Involvement Account of Greenwashing Effects in Environmental Advertising. *Journal of Advertising*, 47(2), 127–145. <https://doi.org/10.1080/00913367.2018.1452652>
- Schwarzkopf, S. (2011). The Political Theology of Consumer Sovereignty: Towards an Ontology of Consumer Society. *Theory, Culture & Society*, 28(3), 106–129. <https://doi.org/10.1177/0263276410396912>
- Singer, M. (2010). Eco-nomics: Are the planet-unfriendly features of capitalism barriers to sustainability? *Sustainability*, 2(1), 127–144. <https://doi.org/10.3390/su2010127>
- Solano-Pinto, N., Garrido, D., Gértrudix-Barrio, F., & Fernández-Cézar, R. (2020). Is Knowledge of Circular Economy, Pro-Environmental Behavior, Satisfaction with Life, and Beliefs a Predictor of Connectedness to Nature in Rural Children and Adolescents? A Pilot Study. *Sustainability*, 12(9951). <https://doi.org/10.3390/su12239951>
- Thomas, D. (2019). *Fashionopolis: The Price of Fast Fashion and the Future of Clothes*. Penguin Press.
- UNECE. (2018). Fashion and the SDGs: What role for the UN ? In *Internation Conference Center Geneva*.
- United Nations. (2017). *Demographic Yearbook 2015*.

- United Nations Organization. (2021). *Big Fossil Fuel Infrastructure Unaffordable, Secretary-General Tells Petersberg Climate Dialogue, Stressing Such Investments 'Simply Deepen Our Predicament'*.
- Urbański, M., & Haque, A. ul. (2020). Are You Environmentally Conscious Enough to Differentiate between Greenwashed and Sustainable Items? A Global Consumers Perspective. *Sustainability*, 12(1786). <https://doi.org/10.3390/su12051786>
- Van Lente, E., & Hogan, M. J. (2020). Understanding the Nature of Oneness Experience in Meditators Using Collective Intelligence Methods. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.02092>
- Wang, J., & Wu, L. (2016). The impact of emotions on the intention of sustainable consumption choices: Evidence from a big city in an emerging country. *Journal of Cleaner Production*, 126, 325–336. <https://doi.org/10.1016/j.jclepro.2016.03.119>
- Watson, D., & Palm, D. (2016). Exports of Nordic Used Textiles: Fate, benefits and impacts. *Nordisk Ministerråd*, 32.
- Weintrobe, S. (2012). *Engaging With Climate: Psychoanalytic and Interdisciplinary Perspectives*. Routledge.
- Woiwode, C., Schöpke, N., Bina, O., Veciana, S., Kunze, I., Parodi, O., Schweizer-Ries, P., & Wamsler, C. (2021). Inner transformation to sustainability as a deep leverage point: fostering new avenues for change through dialogue and reflection. *Sustainability Science*. <https://doi.org/10.1007/s11625-020-00882-y>
- Young, B. M. (2018). How Consumers' Minds Work: An Introduction to the Basics. In *Consumer Psychology* (pp. 55–76). Springer International Publishing. https://doi.org/10.1007/978-3-319-90911-0_3
- Zaltman, G. (2003). *How Customers Think: Essential Insights into the Mind of the Market*. Harvard Business School Press.
- Zepf, S. (2010). Consumerism and identity: Some psychoanalytical considerations. *International Forum of Psychoanalysis*, 19(3), 144–154. <https://doi.org/10.1080/08037060903143992>
- Zylstra, M. J., Knight, A. T., Esler, K. J., & Le Grange, L. L. L. (2014). Connectedness as a Core Conservation Concern: An Interdisciplinary Review of Theory and a Call for Practice. *Springer Science Reviews*, 2(1–2), 119–143. <https://doi.org/10.1007/s40362-014-0021-3>

LITERATURE REVIEW ON ONENESS AND FASHION CONSUMPTION REDUCTION

The following sections provide a background overview on oneness and fashion consumption reduction. The state of the art in these two fields is further complemented by literature review sections in the upcoming chapters of this thesis. These chapters explore configurations of cognitive perception of self in relation to nature and the external world, the linkages between connectedness and pro-environmental consumption (Chapter 4), the categorization of oneness and its assessment tools (Chapter 5), and behavioural science phenomena in consumption reduction (Chapter 6).

2.1 On fashion consumption reduction

Consumption reduction is considered a consumer behaviour often integrated in the realm of pro-environmental behaviour that consists in refraining from buying, acquiring or expending a resource (Mont et al., 2022). *Reduce*, as the very first strategy within the “R framework” of the Circular Economy’s core principles, that encompasses *refusing*, *rethinking*, *redesigning*, *minimizing* and *preventing resource use*, has been studied by scholars in both production and consumption scopes of action (Kirchherr et al., 2017). And while *recycling*, for example, is a highly normative behaviour, *reducing* is mostly predicted by underlying environmental values, knowledge, and concern-based variables (Barr, 2007).

In environmental psychology and consumer behaviour studies, reduction fundamentally means refraining from buying (Mont et al., 2022), yet a growing body of literature interprets it as extending product usage or choosing durable materials and designs (Levanen et al., 2021). This shift largely assumes a transference of corporate reduction policies – whose actual effectiveness remains unconfirmed – onto consumer choice, treating it as a reduction behaviour of its own. The assumption that durability or reuse automatically leads to fewer purchases is an unproven behavioural deduction that may conveniently align with corporate economic interests. When durability or reuse is framed as consumption reduction, consumers may believe they are contributing to sustainability simply by purchasing reusable or long-lasting items (Levanen et al., 2021). However, this does not equate to genuine reduction. Studies show that overall sales continue to rise (Brooks, 2015), indicating that consumers may be buying more reusable products without reducing their purchasing frequency. Without clear differentiation, sustainability initiatives risk reinforcing consumerism rather than mitigating it. Reducing the amount of fashion products is the most efficient way to steer the sector toward more sustainable practices (Hetherington et al., 2021; Levanen et al., 2021). But refraining from buying clothes is not an easy task for the following reasons: (1) consumers undertake consumerism as a coping mechanism to ease the unfulfillment of basic needs and generalized

feeling of disconnection in today's individualistic society (McGowan, 2016; D. M. Taylor & Segal, 2015); (2) consumers' buying decision is rather automatic than rational, meaning that they will hardly refrain from buying if exposed to consumerist-driven stimuli (Lindstrom, 2009; Zaltman, 2003); (3) fashion items trigger important parts of consumers' brain and psyche when they fear a loss of identity or belonging (Bancroft, 2012; Tseëlon, 2013) (4) mass marketed fashion is not aiming at what consumers need, but at what consumers do *not* need and still stimulates their brains into impulsive and even compulsive buying, to increase sales (Karmarkar, 2016).

2.1.1 The addictive pursuit of a *self* in fashion: a barrier to reevaluating need

Discussions on consumption reduction and sufficiency inevitably raise questions regarding the definition of essential needs and where *enough* lies as a threshold (Elgin & Mitchell, 1977; Brown & Kasser, 2005; Jackson, 2009; Gorge et al., 2015). But defining *enough* within an economic system that thrives on capitalizing on the feeling of never being enough creates a fundamental contradiction.

Fashion cycles thrive on an ongoing pursuit of symbols that is only scalable beyond essential needs when the individual sense of self is compromised (Bancroft, 2012). Expressing individual and collective identity through body adornment has always been an intrinsic aspect of human behaviour (Barthes, 1990). However, the exponential rise of consumerism has been enabled by an aggravated need for self-definition and external validation, particularly in modern societies shaped by alienation and cultural fragmentation (L. Chang & Hongxia, 2021; Fromm, 1976; McGowan, 2024).

Today's political and economic system does not uphold the past century findings on human basic needs. Theorizations on sustainable development – defined as the ability to meet the present needs of humanity without compromising the ability of future generations to meet their own needs – often list needs that do not go further than basic subsistence like employment, food, energy, housing, water supply, and health care (G. Taylor, 2007; UN Secretary-General, 1987). The European Environment Agency (EEA) provides a theoretical framework on basic human needs, sufficiency, and the concept of a "good life" to support proposed pathways for more circular consumption models. However, these discussions do not deeply explore the psychological and spiritual complexities associated with consumerism. Instead of defining a clear framework, these reports acknowledge that essential needs may vary among individuals, allowing room for interpretation. This approach aligns with a liberal perspective on consumption, recognizing that what is essential for some may be considered superfluous by

others (European Environment Agency, 2024). Psychoanalysts like Fromm have for long stated that humans irrevocably delve into physical, emotional, and spiritual connections as well (Fromm, 1976; Fromm et al., 1960). Sapolsky's findings on motivation show that the release of dopamine is about the happiness of pursuing a reward (that has a decent chance of occurring) and not about the reward itself. Sapolsky also believes that immediacy of trade and market interactions, along with the abstraction of money, impoverish the natural human reciprocity and motivation to meet everyone's basic needs (Sapolsky, 2017). Physician Gabor Maté (Maté, 2010) claims that the shopping addiction and pursuit for the "young" body image is a symptom of unmet emotional needs (Maté, 2010), although there is a common understanding that the apparel industry has gone "beyond meeting a basic human need" (Quantis International, 2018). Backed up by Maslow's (Maslow, 1968) theory on the hierarchy of needs, and complementing Burton's (Burton, 1990) "Conflict", which suggests that all humans have vital needs beyond subsistence, including development essentials, Duncan & Taylor's research (G. Taylor, 2007) call for a "paradigm shift to an integral (holistic) worldview" capable of covering the following human needs: love, belonging, individual and collective identity and self-esteem, knowledge, meaning, creativity, personal, collective, and cultural security, political participation, leisure time, freedom, self-transcendence and connection to the greater cosmos – or, as referred before, a need for oneness.

Theories on human essentials agree that the unfulfillment of basic needs is a leading factor in individual and societal conflict, and false needs are often attempted to meet a real need that is lacking, e.g. "when status symbols take the place of affection or belonging" (G. Taylor, 2007). Nevertheless, capitalism relies on unmet needs to fuel the pursuit for promises of its fulfilment by advertising an illusion of scarcity (Marcuse, 2012), whose soothing-object strategically shifts from time to time. And the fashion industry is well-known for depending on this "I am not enough" cyclical dynamic of never-ending existential craving. A twelve-figure volume of fashion goods are produced in countries that lack basic subsistence, and are mainly consumed in countries that lack emotional essentials (Becker-Leifhold & Heuer, 2018; G. Taylor, 2007).

Alison Bancroft's (Bancroft, 2012) "Fashion and Psychoanalysis" chapter on narcissism compares analysts' perspectives on how humans recognize themselves as an object in the midst of ego formation. It brings Lacan's (Lacan, 1966) "procrustean arbitrariness" to explore the relationship between fashion and the recognition of the body, saying that fashion lies on the disrespect for the natural forms of the human body, by invoking a "mutilation" drive that already characterises the individual's "fragmented" view of themselves (Bancroft, 2012; Lacan, 1966). Julia Kristeva (Kristeva, 1987) considers narcissism as vital for the protection of an essential "emptiness" between the "nascent subject" and the "incipient object" that is inherent

to the ego. Without it, she states, the individual could not signify itself and set the limits of the body from its representations (Bancroft, 2012). Katerine Fotopoulou's (Panagiotopoulou et al., 2021) recent findings on the "bodily self" show that human's psychological selves are grounded in the physical body. Human's appreciation of their own body appearance is not a static visual representation in the brain, but rather a dynamic mental capacity to imagine how one's body appear to other minds, by constantly dressing and modifying one's body, as attempts of playfulness (rooted in childhood, as explained by Winnicott in (Winnicott, 1971)) – not mere cultural trends – between the subjectivity and the objectivity of the body. These attempts are the greater agency of the (inevitable) dependency on the caregiver, on other people's objectification (Panagiotopoulou et al., 2021). Fashion engagement adds a cascade phenomenon to this, as the edginess of one's original self-expression, supposedly detached from other people's influence, corresponds to a need in others to copy (Bancroft, 2012). The need to control parts of the self often deflects to a need for controlling others, ultimately sustaining the social dynamics of envy, jealousy, rivalry and competition (Klein, 1957). Visualization is simultaneously crucial to the process of self-recognition as an object and also the fashion's prime platform to perceive and convey individual and collective identity (Bancroft, 2012). Being subjected to outside visual narratives about the body, and finding ways to acquire fashion items to (re)signify oneself became a crucial quest to ensure a sense of belonging in a fast-moving society (Tseëlon, 2013). To what extent buying is effective in building identities cannot be known for sure, but consuming has been increasingly considered as a remedy for identity loss (Zepf, 2010). The characterization of capitalist societies as narcissistic crosses many fields of social sciences, based on premises of separateness, identity fragmentation, and cyclical fear of losing purpose and being set apart from the greater whole (Becker-Leifhold & Heuer, 2018; McGowan, 2016; Tseëlon, 2013; Veblen, 1899; Zepf, 2010). Humans protect their ego and fight for alternative meaningful connections if their identity – may it be personal or cultural – is jeopardized or ripped away (G. Taylor, 2007; Zepf, 2010). Buying twice as many clothes within the last two decades and disposing them within 7 uses on average (Ellen MacArthur Foundation, 2017) is suggested by some scholars to be a guilt-driven behaviour based precisely on the individual's awareness of the exploitative side of commodity consumption (Chatzidakis, 2015), because the moral transgression of knowing creates an ideal context for the "displacement of destructive and narcissistic desires". For others, it is a constant pursuit for a soothing-object for boredom, stress, and unfulfilled essential needs. Consumers are seeking the chemical release in their brains related to the anticipation of reward, and not the rewards itself, here represented as the purchased fashion item (Greenpeace International, 2017; Sapolsky, 2017).

2.2 Bridging oneness and reduction: the intervening variables

The idea of reduction is implicit across several variables related to oneness in scientific studies, whether in terms of slow, intentional living or material aspects. Findings in oneness studies include positive correlations with meditation (Edinger-Schons, 2020; Josipovic, 2014; Van Lente & Hogan, 2020), mindfulness (Aşkun & Çetin, 2024; Brown & Ryan, 2003; T. Chang et al., 2018), empathy (Edinger-Schons, 2020; Silverman et al., 1982), social connectedness (Edinger-Schons, 2020), nature connectedness (Chang et al., 2018; Edinger-Schons, 2020; Mayer & Frantz, 2004; Zylstra et al., 2014), life satisfaction (Edinger-Schons, 2020), pro-environmental behaviour (Garfield et al., 2014), transcendental experiences (Campos & De Luca-Noronha, 2024; Levin, 2023; Piedmont, 2001; Yaden et al., 2017), and spiritual well-being (Silverman et al., 1982). Spiritual well-being, which is a variable that includes oneness in part of its assessment too, is, in turn, a mediator between voluntary simplicity and intrinsic religiosity, but showing no significant correlation with extrinsic religiosity (Chowdhury, 2018; Hood, 1975). Intrinsic religiosity is also a predictor of oneness (Diebels & Leary, 2019; Garfield et al., 2014; Levin, 2023). Negative correlations with oneness' spiritual transcendence include anxiety and clinical psychological distress (Lace et al., 2017). An early study on oneness fantasies, tested both in clinical case studies and in tachistoscopic subliminal exposure experiments, showed impacts on ego functioning, defence mechanisms, core conflicts and character traits (Silverman et al., 1982). Table 2.1 presents the quality of relationships between oneness and the various variables identified in this literature review.

Table 2.1 – List of variables that are related to oneness by type of relationship.

Predictor	Type of relationship	Response variable	Reference
Oneness	Positively related to	Age	(Garfield et al., 2014)
		Empathy	(Edinger-Schons, 2020; Silverman et al., 1982)
		Life satisfaction	(Edinger-Schons, 2020)
		Meditation	(Edinger-Schons, 2020; Josipovic, 2014; Van Lente & Hogan, 2020)
		Mindfulness	(Aşkun & Çetin, 2024; Brown & Ryan, 2003; T. Chang et al., 2018)
		Mysticism; Mystical experiences	(Garfield et al., 2014; Hood, 1975)
		Nature connectedness	(T. Chang et al., 2018; Edinger-Schons, 2020)
		Positive affect	(Garfield et al., 2014)
		Pro-environmental attitudes	(Garfield et al., 2014)
		Pro-environmental behaviour	(Garfield et al., 2014)
		Quest	(Garfield et al., 2014)
		Religiousness; Intrinsic religiosity	(Diebels & Leary, 2019; Garfield et al., 2014; Levin, 2023)
		Social connectedness	(Edinger-Schons, 2020)
		Spirituality; Spiritual well-being	(Garfield et al., 2014; Silverman et al., 1982)
		Transcendental experiences	(Campos & De Luca-Noronha, 2024; Levin, 2023; Piedmont, 2001; David Bryce Yaden et al., 2017)
	Negatively related to	Dominion beliefs	(Garfield et al., 2014)
Spiritual well-being	Mediator between	Voluntary simplicity and intrinsic religiosity	(Chowdhury, 2018)
Spiritual transcendence	Negatively related to	Psychological distress and anxiety	(Lace et al., 2017)

References

- Aşkun, D., & Çetin, F. (2024). Understanding possible personal correlates of organizational citizenship behavior: Mindfulness and oneness behaviors. *Journal of General Management*, 49(2), 133–145. <https://doi.org/10.1177/03063070221104587>
- Bancroft, A. (2012). Fashion and Psychoanalysis: Styling the Self. In *Fashion and Psychoanalysis: Styling the Self*. Bloomsbury Publishing Plc. <https://doi.org/10.1080/09574042.2013.805912>

- Barr, S. (2007). Factors influencing environmental attitudes and behaviors: A U.K. case study of household waste management. In *Environment and Behavior* (Vol. 39, Issue 4). <https://doi.org/10.1177/0013916505283421>
- Barthes, R. (1990). *The Fashion System*. University of California Press.
- Becker-Leifhold, C., & Heuer, M. (2018). *Eco-Friendly and Fair: Fast Fashion and Consumer Behaviour*. Routledge.
- Brooks, A. (2015). Clothing Poverty: The Hidden World of Fast Fashion and Second-Hand Clothes. In *NA: Vol. NA* (Issue NA). Zed Books Ltd. <https://doi.org/10.5040/9781350219243>
- Brown, K. W., & Kasser, T. (2005). Are psychological and ecological well-being compatible? The role of values, mindfulness, and lifestyle. *Social Indicators Research*, 74(2), 349–368. <https://doi.org/10.1007/s11205-004-8207-8>
- Brown, K. W., & Ryan, R. M. (2003). The Benefits of Being Present: Mindfulness and Its Role in Psychological Well-Being. In *Journal of Personality and Social Psychology* (Vol. 84, Issue 4, pp. 822–848). American Psychological Association Inc. <https://doi.org/10.1037/0022-3514.84.4.822>
- Burton, J. (1990). *Conflict: Human Needs Theory*. The MacMillian Press Ltd.
- Campos, V., & De Luca-Noronha, D. (2024). Spiritual oneness and the cognitive science of religion. *International Journal for Philosophy of Religion*, 95(3), 323–338. <https://doi.org/10.1007/s11153-024-09902-8>
- Chang, L., & Hongxia, W. (2021). Fromm's Consumption Alienation Theory and Its Enlightenment to China. *International Journal of Arts and Social Science*, 4(4), 40–47. www.ijassjournal.com
- Chang, T., Askun Celik, D., & Klatt, S. (2018). From Mindfulness to Oneness: "Inner Engineering" of the Complex Adaptive Human System. *Academy of Management Proceedings*, 2018(1), 11819. <https://doi.org/10.5465/ambpp.2018.11819abstract>
- Chatzidakis, A. (2015). Guilt and ethical choice in consumption: A psychoanalytic perspective. *Marketing Theory*, 15(1), 79–93. <https://doi.org/10.1177/1470593114558533>
- Chowdhury, R. M. M. I. (2018). Religiosity and Voluntary Simplicity: The Mediating Role of Spiritual Well-Being. *Journal of Business Ethics*, 152(1), 149–174. <https://doi.org/10.1007/s10551-016-3305-5>
- Diebels, K. J., & Leary, M. R. (2019). The psychological implications of believing that everything is one. *Journal of Positive Psychology*, 14(4), 463–473. <https://doi.org/10.1080/17439760.2018.1484939>
- Edinger-Schons, L. M. (2020). Oneness beliefs and their effect on life satisfaction. *Psychology of Religion and Spirituality*, 12(4), 428–439. <https://doi.org/10.1037/rel0000259>
- Elgin, B. D., & Mitchell, A. (1977). Voluntary Simplicity in Co-Evolution. *Co-Evolution Quarterly*.
- Ellen MacArthur Foundation. (2017). A new textiles economy: Redesigning fashion's future. In *Ellen MacArthur Foundation*.

- European Environment Agency. (2024). *Management of used and waste textiles in Europe's circular economy*. <https://www.eea.europa.eu/publications/management-of-used-and-waste-textiles>
- Fromm, E. (1976). To have or to be? In *New York*. Continuum.
- Fromm, E., Suzuki, D. T., & Martino, R. de. (1960). *Psychoanalysis and Zen Buddhism*. Museum Street London.
- Garfield, A. M., Drwecki, B. B., Moore, C. F., Kortenkamp, K. V, & Gracz, M. D. (2014). The Oneness Beliefs Scale: Connecting Spirituality with Pro-Environmental Behavior. *Journal for the Scientific Study of Religion*, 53(2), 356–372.
- Gorge, H., Herbert, M., Özçağlar-Toulouse, N., & Robert, I. (2015). What Do We Really Need? Questioning Consumption Through Sufficiency. *Journal of Macromarketing*, 35(1), 11–22. <https://doi.org/10.1177/0276146714553935>
- Greenpeace International. (2017). After the Binge the Hangover - Greenpeace International. In *Greenpeace.Org*.
- Hetherington, Malmberg, J., Mariam, S., Munkedal, C., Kilgour, R., Diment, M., Miller, S., Decker, J., Bull, K., Fisher, G., Luckman, T., Shaw, D., Duffy, K., Downing, P., Bailey-Cooper, N., Bartlett, S., Rosser-Davies, J., & Dubé, S. (2021). *The Circular Fashion Ecosystem: A Blueprint for the Future*. <https://doi.org/10.36399/gla.pubs.253310>
- Hood, R. W. (1975). The Construction and Preliminary Validation of a Measure of Reported Mystical Experience. In *Source: Journal for the Scientific Study of Religion* (Vol. 14, Issue 1).
- Jackson, T. (2009). Prosperity without Growth: Economics for a Finite Planet. In *Energy & Environment* (Vol. 22, Issue 7). Earthscan.
- Josipovic, Z. (2014). Neural correlates of nondual awareness in meditation. *Annals of the New York Academy of Sciences*, 1307(1), 9–18. <https://doi.org/10.1111/nyas.12261>
- Karmarkar, U. R. (2016). The Impact of “Display-Set” Options on Decision-Making. *Journal OfBehavioral Decision Making*. <https://doi.org/10.1002/bdm.1998>
- Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling*, 127(September), 221–232. <https://doi.org/10.1016/j.resconrec.2017.09.005>
- Klein, M. (1957). *Envy and Gratitude* (III). Tavistock.
- Kristeva, J. (1987). *Tales of Love*. University Press.
- Lacan, J. (1966). *Écrits*. Routledge.
- Lace, J. W., Haeberlein, K. A., & Handal, P. J. (2017). Five-factor structure of the spiritual transcendence scale and its relationship with clinical psychological distress in emerging adults. *Religions*, 8(10). <https://doi.org/10.3390/rel8100230>
- Levanen, J., Uusitalo, V., Harri, A., Kareinen, E., & Linnanen, L. (2021). Innovative recycling or extended use? Comparing the global warming potential of different ownership and end-of-life scenarios for textiles. *Environmental Research Letters*, 16(5). <https://doi.org/10.1088/1748-9326/abfac3>

- Levin, J. (2023). Nothingness, Oneness, and Infinity: Transcendent Experience as a Promising Frontier for Religion and Health Research. *Journal of Religion and Health*, 62(3), 2065–2080. <https://doi.org/10.1007/s10943-023-01740-8>
- Lindstrom, M. (2009). *Buyology: Truth and Lies About Why We Buy*. Doubleday.
- Marcuse, H. (2012). Eros and Civilization. *Eros and Civilization*, 1–277. <https://doi.org/10.4324/9780203714607>
- Maslow, A. H. (1968). *Toward a Psychology of Being*. Van Nostrand Reinhold.
- Maté, G. (2010). *In the Realm of Hungry Ghosts: Close Encounters with Addiction*. North Atlantic Books.
- McGowan, T. (2016). *Capitalism and Desire: The Psychic Cost of Markets*.
- McGowan, T. (2024). *Embracing alienation: Why we shouldn't try to find ourselves*. Repeater.
- Mont, O., Lehner, M., & Dalhammar, C. (2022). *Sustainable consumption through policy intervention—A review of research themes*.
- Panagiotopoulou, E., Crucianelli, L., Lemma, A., & Fotopoulou, A. (2021). Identifying with the beautiful: Facial attractiveness effects on unisensory and multisensory self–other distinction. *Quarterly Journal of Experimental Psychology*. <https://doi.org/10.1177/17470218211050318>
- Piedmont, R. L. (2001). Spiritual Transcendence and the Scientific Study of Spirituality. *Journal of Rehabilitation*, 67(1).
- Quantis International. (2018). Measuring Fashion: Environmental Impact of the Global Apparel and Footwear Industries study. In *Quantis International*.
- Sapolsky, R. M. (2017). *The Biology of Humans at our Best and Worst*.
- Silverman, L. H., Lachmann, F. M., & Milich, R. H. (1982). *The Search for Oneness*. International Universities Press.
- Taylor, D. M., & Segal, D. (2015). Healing ourselves and healing the world: Consumerism and the culture of addiction. *Journal of Futures Studies*, 19(3), 77–86.
- Taylor, G. (2007). *The Requirements of a Sustainable Planetary System*.
- Tseëlon, E. (2013). Fashion, fantasy and anxiety. *The Emotions and Cultural Analysis*, January 2013, 133–144.
- UN Secretary-General. (1987). *Report of the World Commission on Environment and Development: Our Common Future*.
- Van Lente, E., & Hogan, M. J. (2020). Understanding the Nature of Oneness Experience in Meditators Using Collective Intelligence Methods. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.02092>
- Veblen, T. (1899). *The Theory of the Leisure Class: An Economic Study of Institutions*. The Macmillan Company.
- Winnicott, D. W. (1971). *Playing & Reality* (Vol. 34). Penguin.
- Yaden, D. B., Haidt, J., Hood, R. W., Vago, D. R., & Newberg, A. B. (2017). The varieties of self-transcendent experience. *Review of General Psychology*, 21(2), 143–160. <https://doi.org/10.1037/gpr0000102>

- Zaltman, G. (2003). *How Customers Think: Essential insights into the mind of the market*. Harvard Business School Press.
- Zepf, S. (2010). Consumerism and identity: Some psychoanalytical considerations. *International Forum of Psychoanalysis*, 19(3), 144–154. <https://doi.org/10.1080/08037060903143992>

METHODOLOGICAL APPROACH

This research employs an integrative methodological mixed methods approach to explore the role of oneness in consumption reduction, following a layered design that combines qualitative and quantitative data collection and synthesis within a unified analytical framework. By blending these paradigms, the study offers broader insights aligned with the holistic worldview underlying the research questions. The research work begins with a semi-systematic review of articles examining the relationship between the sense of self and pro-environmental behaviour, establishing foundational links between connectedness and consumption. The study yielded a growing interest on oneness as a potential predictor of consumption reduction. Building upon these insights, a deeper literature review on oneness is conducted, alongside a series of semi-structured interviews with experts in the fields of oneness and implicit measures. These findings inform the development and validation of a new assessment tool to evaluate oneness in a group of participants, addressing biases inherent in previous self-reporting methods. Participants then take part in a real-world social experiment assessing their purchasing and donation decisions, providing empirical evidence of the link between oneness and consumption behaviours. Finally, a quantitative analysis further refines these findings. The approach aims to bridge theoretical and empirical perspectives, offering meaningful insights into the psychological and behavioural mechanisms that influence consumption reduction.

This integrative design of mixed methods was selected because it allows for instrument development deeply informed by theory, real-world expertise, and observed behaviour, creating a cohesive methodological structure that is both exploratory and confirmatory. Alternative approaches, such as purely quantitative survey-based models or standalone qualitative studies, were considered inadequate, as they lacked either the depth of conceptual grounding or the empirical rigor.

This thesis is organized into eight chapters, including the Introduction and Conclusions. It addresses three research questions, with each question being the focus of a dedicated chapter. Figure 3.1 presents a schematic representation of the methodology, describing how the chapters correspond to the research questions: Chapter 4 addresses the first question, Chapter 5 the second, and Chapter 6 the third. These chapters present the research findings, which aim to understand, assess, and analyse oneness in relation to purchasing decisions of fashionables and to the practice of voluntary simplicity. The research questions were developed to align with this central aim. The overarching methodological plan adopts an integrative approach, beginning with a semi-systematic literature review to explore the relation between connectedness and consumption. This is followed by the design and development of a new assessment tool for oneness, previously informed by the outputs of semi-structured expert interviews. Next, a social experiment is conducted to examine the buying decision of a

group of participants. Finally, a quantitative analysis explores the connections between participants' oneness and purchasing decisions. To ensure the quality of the work in Chapters 4, 5, and 6, the findings were shared in scientific outlets. Below, a synopsis of the methods used for each one of the chapters is provided.

3.1 Methods applied by chapter

The first two chapters focus on the review processes. Chapter 1 provides a general introduction, highlighting the political conflict between consumption reduction and economic growth that overlooks the perpetual activation of consumerism's subconscious mechanisms. An overview of the intersections between oneness and reducing fashion consumption is presented in the literature review in Chapter 2. Together with chapter 3, these chapters establish the groundwork for answering the research questions and pave the way for more in-depth exploration in the following chapters.

From chapter 4 onward, the original research contributions of the PhD are presented. Chapter 4 establishes the first links between connectedness and pro-environmental consumption. It includes a literature review examining how connectedness influences pro-environmental behaviour and consumption, with a specific focus on fashion. The review follows an integrative method combining a semi-systematic keyword search and snowball sampling. In the first phase, 12 reports were identified to provide an overview of the fashion industry. The second phase yielded 131 publications, which were narrowed down to 29 relevant articles after screening. This chapter offers initial insights into potential drivers of connectedness and their effects on pro-environmental decision-making, which contribute to research question 1.

Chapter 5 focuses on developing and validating a new assessment tool for oneness. The resort to an implicit association test (IAT) follows the intent to overcome the hindrances of previous assessment tools measuring oneness based on self-reporting. An initial design phase is described to determine the structure of the test, its categories and its stimuli words, based on the outputs of semi-structured expert interviews. The chapter then outlines the development of two studies that answer research question 2: the first study is a pilot-test analysing the IAT's internal consistency and reliability, while the second study assesses the IAT's psychometric properties, including criterion-related and construct validity. The chapter includes further analysis of multiple regressions and correlation tests between different variables.

Chapter 6 answers to research question 3. It describes a study consisting of a real-life experiment consisting of a pop-up market stall selling t-shirts for €1 where participants could make actual purchasing decisions. These purchases were analysed quantitatively in

combination with the participants' scores on a oneness implicit association test, on Rich et al.'s (2020) voluntary simplicity engagement scale (VSES) and on the clothing subsection of Fischer's (2017) young consumers' sustainable consumption behaviour scale (YCSCB). A regression analysis yielded a predictive model revealing a marginally significant association between oneness and buying decision, that is substantially intensified by the inclusion of sustainable consumption. Additional mediation and moderation tests were conducted. Chapters 7 and 8 provide the general discussion and conclusion, focusing on the application of oneness studies in shaping future policies for a post-capitalist and post-colonialist framework. These policies envisage a societal transformation involving substantially reducing consumption and production while emphasizing the systemic potential of oneness for radical inner-transformation. Alongside addressing the research questions, the chapters also reflect on the future direction and broader implications of the applied methods.

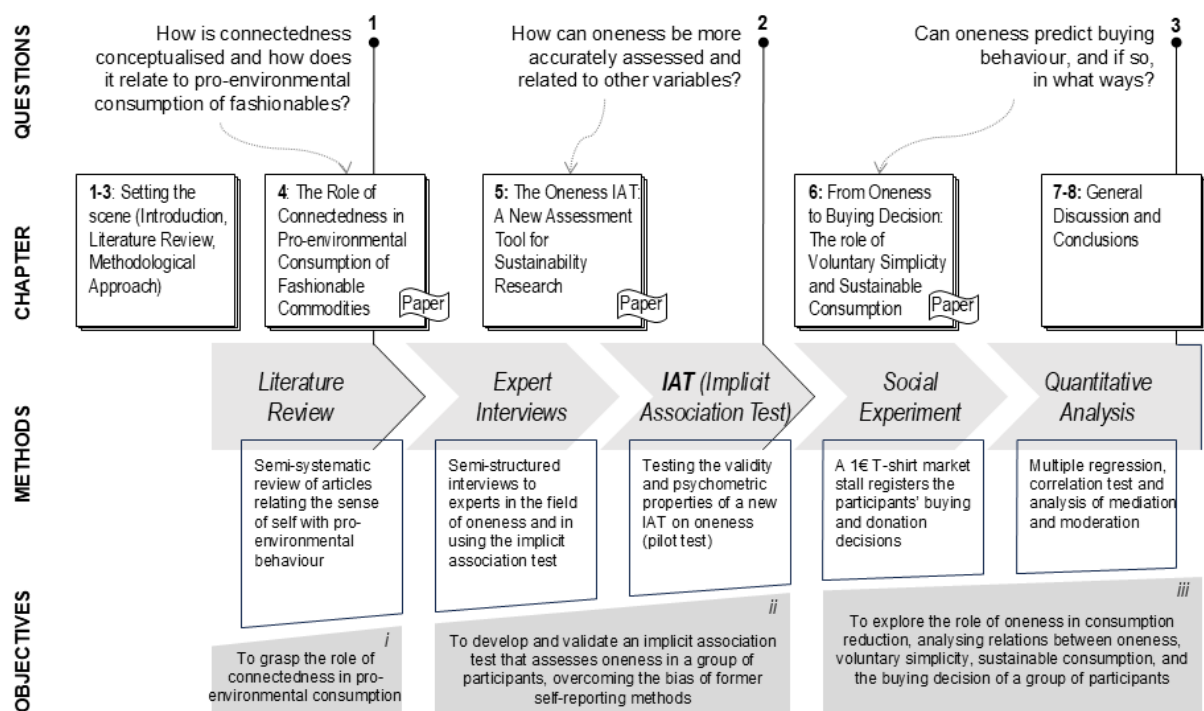


Figure 3.1 – Method schematic of the research project

THE ROLE OF CONNECTEDNESS IN ENVIRONMENTAL CONSUMPTION OF FASHIONABLE COMMODITIES

Paper published in Sustainability's Special Issue "Sustainable Consumption: Consumer Attitudes and Behaviors":

Areias, S., Disterheft, A., & Gouveia, J. P. (2023). The Role of Connectedness in Pro-Environmental Consumption of Fashionable Commodities. *Sustainability*, 15(2), 1199. <https://doi.org/10.3390/su15021199>

Abstract

A call for human-nature reconnection echoes among scholars to move consumers towards pro-environmental consumption. When addressing products that are deeply entangled with unconscious human desires and addictive behaviour and that are also part of one of the most toxic industries – such as fashionables – the need for consumer awareness is key. Studies both on connectedness to nature and moral emotions like guilt have consistently shown linkages with pro-environmental behaviour. However, deeper scrutiny regarding this pro-environmental behaviour is needed to grasp these variables' sphere of action. This research aims to explore the first linkages between connectedness and pro-environmental consumption. We present findings from a literature review on the impact of connectedness in consumption, particularly fashionables, following an integrative approach of a semi-systematic keyword search and snowball sampling. We present a first indication of possible drivers for connectedness and their impact on pro-environmental choices.

Keywords: connectedness to nature; pro-environmental behaviour; consumer behaviour; guilt; fashion industry

4.1 Introduction

The fashion industry produces over 100 billion garments every year (Ellen MacArthur Foundation, 2017) – a volume of textiles that is over 60% plastic-based (Changing Markets Foundation, 2021). The garments produced yearly outweigh the market demand by 25% (Amed et al., 2021; Ellen MacArthur Foundation, 2017), leaving the remaining unsold garments to be partly destroyed by their brands before consumption (Changing Markets Foundation, 2021) and partially embedded in a saturated resale supply chain, along with the post-consumption textile waste that accounts for more than half of the total produced per year (Dahlbo et al., 2017; Niinimäki et al., 2020; Quantis, 2018). Ultimately, disposed garments shipped overseas are left to poison soil and water in dumpsites with poor infrastructure in Asia and Africa (Brooks, 2015; Wolff, 2021). This culture of systematic disposal is exponentiated by a global average of seven usages per garment (Ellen MacArthur Foundation, 2017; McKinsey & Company, 2020). Recent studies have been stressing today's addictive side of fashion consumption, in which half of Chinese, a third of Italian, and a quarter of German consumers admit they cannot stop themselves from buying, even though they realize they are buying too much (Greenpeace International, 2017; McGowan, 2016; D. M. Taylor & Segal, 2015), and suggesting that consumerism is a coping strategy to ease an existential discomfort associated with disconnected individualism (McGowan, 2016; D. M. Taylor & Segal, 2015). The fashion industry is producing more than what consumers can use and reuse, and more than what current technology is able to recycle (Ellen MacArthur Foundation, 2017; Global Fashion Agenda & Boston Consulting Group, 2017). It is responsible for about 10% of total greenhouse gas emissions (McKinsey & Company, 2020), is the second-largest consumer of water (1.5 trillion litres per year), and is responsible for about one-fifth of all industrial water pollution, just from textile treatment and dyeing (Global Fashion Agenda & Boston Consulting Group, 2017; Zylstra et al., 2014). The economic and political systems in which brands unravel their transglobal productions is complex. The manufacturing that supports the greater part of fast-fashion garment production could be considered efficient (for delivering massive amounts of clothing under tight deadlines for a low price) if not for its negative externalities like extreme poverty and environmental impacts in production countries (Reichel & Mortensen, 2014), which are not being tackled, but instead perpetuated, by the fast-fashion brands. Whereas production countries' economies are heavily dependent on clothing exportation (e.g., the share of ready-made garments in Bangladesh accounts for 83% of total exports in 2020), the worldwide liberalisation of tariffs allowed fast-fashion brands to benefit from low labour costs and to hold power to negotiate buying prices and control overall supply (Reichel & Mortensen,

2014), while manoeuvring the media coverage of their non-legally binding codes of conduct and ethical commitments. Greenwashing is prevalent in the fashion industry (Changing Markets Foundation, 2023); labelling a product as sustainable requires political awareness, and oversimplifying it as a false binary can compromise pro-environmental behaviour (Bray et al., 2011). The fact that the European Union's directive "Environmental Claims Guidance" is just partly legally binding (European Parliament and Council, 2005), in a context of consumption-based growth fuelled by a green narrative, encourages inherently non-environmentally friendly brands to make environmental claims (Schmuck et al., 2018; Urbański & Ul Haque, 2020). A recent EC press release about "Screening of websites for 'greenwashing'" stated that in 42% of cases, the claims were exaggerated, false, or deceptive (European Commission, 2021). Studies have shown that four out of five consumers distrust fashion environmental claims (Changing Markets Foundation, 2021; European Commission, 2020a; Kahraman & Kazançoğlu, 2019), and that consumers do not recognize vague greenwashing either, no matter how environmentally involved they are (Schmuck et al., 2018; Urbański & Ul Haque, 2020). Both the misinterpretation of harmful practices and the mistrust of good practices can jeopardize a government's efforts in tackling the climate crisis if the consumer is expected to choose consciously. However, consumers' decision-making is rather automatic (Barbaro & Pickett, 2016) and triggered by unconscious emotions (Zaltman, 2003), and is often linked to impulsive buying within the fashion industry (Djafarova & Bowes, 2021; Niinimäki et al., 2020; Pentecost & Andrews, 2010). But mindfulness practices – related to increasing connectedness to nature (Fischer, Stanszus, et al., 2017; S. M. Geiger et al., 2019; Grabow et al., 2018; Sheffield et al., 2022) – have been shown to decrease automatic responses like impulsive purchases and increase consumers' self-control (Barbaro & Pickett, 2016; Fischer, Stanszus, et al., 2017; Li et al., 2020). Recent findings in psychology studies have also suggested that mindful consumption choices can be driven by higher states of consciousness and awareness (Brown & Kasser, 2005; Ericson et al., 2014; Fischer, Stanszus, et al., 2017; Li et al., 2020). Given that urgent and complex global challenges cannot be solved by technology and governance alone (Wamsler, 2018), but by profound cultural shifts and inner transformation (C. Woioode et al., 2021), the present study aims to gather and analyse documented information about connectedness to nature, pro-environmental consumption, and linkages between these two concepts, by going in-depth into the terminology and meaning, and focusing on the apparel industry as being susceptible to impulsive buying (Lipovetsky, 1994; Veblen & Gorfc, 1899). This paper is structured in four sections, apart from the acknowledgments and references at the end. Following this introductory section, section two explains the methodology under which the literature review has unfolded throughout the

study. Section three introduces the findings of the study, starting with the state of the art of how connectedness and similar terms are conceptualised in multiple scientific fields, followed by considerations on consumerism and separation, and discusses further details in two sub-sections: the linkages between connectedness and pro-environmental consumption in the first, and reflections about the complexities behind the definition of pro-environmental choice and the consumer decision-making in the second. Section four explains this study's limitations and presents suggestions for future research, followed by section five, which sums up overall conclusions, highlighting the overall contribution of this study.

4.2 Methodology for the Exploratory Literature Review

This study was carried out in two phases, following an overall semi-systematic literature review design (Snyder, 2019). In the first stage of review, a total of 12 relevant reports and studies from international organizations with known activities, such as the European Commission (European Commission, 2020a), Ellen MacArthur (Ellen MacArthur Foundation, 2017, 2015), Circle Economy (Circle Economy & Goldschmeding Foundation, 2021), Changing Markets (Changing Markets Foundation, 2021), Global Fashion Agenda (Global Fashion Agenda & Boston Consulting Group, 2017, 2019), Greenpeace (Greenpeace, 2021, 2021; Greenpeace International, 2017), McKinsey (Amed et al., 2021; McKinsey & Company, 2020), and Fashion Revolution (Fashion Revolution, 2021), were assessed to contextualise the current call for more sustainable consumption of fashionables in an unsustainable economic and political system. All the reports described above were the most up-to-date and downloaded directly from the organizations' respective websites.

Because is a concept that is scattered throughout the literature in many fields of study, in a second phase of the review, a semi-systematic method was applied as a strategy to map the linkages between connectedness and similar terms with pro-environmental behaviour in general, and pro-environmental fashion consumption in particular, as well as to identify knowledge gaps within the literature (Snyder, 2019). Unlike the systematic method, that has strict search strategies to synthesize findings of a particular question, the semi-systematic method is a literature review approach that maps theoretical themes across multiple science fields, and that is adequate for topics which have been conceptualized differently and studied by various groups of researchers (Snyder, 2019; Wong et al., 2013). Web of Science search engines were assessed to list these linkages and cluster conceptualizations of the terms. A review of scientific publications on diverse fields, namely psychology, psychoanalytic studies,

neuroscience, marketing, management, sustainability, education, and ecological economics, was undertaken by following semi-systematic keyword searches of Web of Science databases. Table 4.1 shows the applied search strategy of using a combination of a first group of eight words related to the self (A) with a second group of seven words related to pro-environmental behaviour (B) and/or a third group of words related to consumption in general and fashion in particular (C). Words in column A were combined with words in column B, and then with words in column C. Interchangeable combinations of the three columns were also searched.

Table 4.1 – The three sets of keywords that were combined under a semi-systematic method.

A. Keywords Related to Self (n = 8)	B. Keywords Related to Pro-Environmental (n = 7)	C. Keywords Related to Consumption (n = 6)
Connectedness	Awareness	Consumption
Oneness	Responsible	Fashion
Interconnectedness	Sustainable	Clothing
Nature relatedness	Ethical	Consumer
Human-nature	Ecologic	Buying
Science fields positively related to connectedness:	Environment	Shopping
Psychoanalysis	Nature	
Mindfulness		
Ecopsychology		

In order to be initially selected, the publications had to address connectedness within a scope of relatedness between humans and the natural world. Other references to connectedness as the state of being joined together or in the field of social media were irrelevant for this study. The keyword search was complemented with a snowball sampling approach, by searching for articles of the same author and other documents within the reference lists, which traced findings back to older publications, and identified relevant keywords within the process (such as greenwashing, impulsive buying, climate anxiety, and feelings like guilt and pride, which showed linkages to pro-environmental behaviour as well). The identified linkages were then categorised as positive or negative and organized by reference to pro-environmental consumption (and particularly of fashion) or more generically to pro-environmental behaviour. All searches were performed between March 2021 and April 2022, leading to 131 publications, of which the title and abstract were screened to ascertain their relevance, yielding a total amount of 29 final relevant publications in this second phase of the review. The final selection of 29 publications consists of studies that relate connectedness with pro-environmental consumption or with pro-environmental behaviour. Having established no geographical limit nor temporal limit regarding the articles' country of origin and year of publication, all the

selected content linking connectedness to environmentally responsible behaviour was published from 1949 to the present year of 2022, with special prevalence in the last decade (Figure 4.1), and the great majority of studies were undertaken in Germany and the USA.

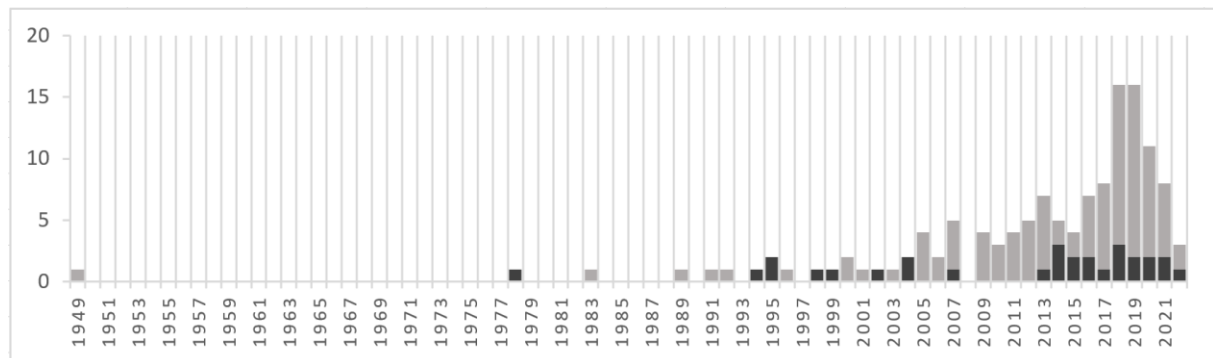


Figure 4.1 – Chronological distribution of the selected 29 articles’ year of publication amongst the total publications yielded in the keyword search.

4.3 Findings on Connectedness and Consumption

The terminology referring to a unifying principle with an “other” and with nature varies among the selected publications. Although the great majority of studies were based on Connectedness (a total of 15 publications), there are also cases in which this belief is brought up as Oneness (three publications), biospheric values (one publication), environmental altruism (one publication), and emotional affinity toward nature (one publication), as listed further below in Table 4.2. Literature on the concept of being at one with the universe can be traced back to ancient western philosophy, from pre-Socratic ideas on a unifying principle of all phenomena, to Plato’s argument that “the one” must come before “the many” (Edinger-Schons, 2020). Oneness beliefs can be widely found in psychoanalysis literature (Chirban, 2000), from Freud’s (Freud, 1930) Hindu-inspired term “oceanic feeling” as a sense of limitlessness and of “being one with the external world as a whole”, to Winnicott’s (D. Winnicott, 1971) dissertations on the transcendence of the self, or Fromm’s (Fromm, 1976) “sybiotic relationship with the universe” as a mediator between “to have” and “to be”; addressed in the field of religious studies (Chirban, 2000; Edinger-Schons, 2020; Garfield et al., 2014; Suganthi, 2019), and also discussed within the scope of mindfulness research, as an inherent principle of Buddhism and yogic science (T. Chang et al., 2018; Fischer, Stanszus, et al., 2017; Li et al., 2020). The description of the concept is transdisciplinary: all fields above refer to a deeper integration of the self, catalysed by “being in the present moment”, by the absence of self-consciousness, and an experience of “unity with an ‘other’” (Chirban, 2000).

Table 4.2 – Different types of connectedness and their links to pro-environmental and consumption behaviour.

Designation	References(s)	Definition(s)	Link(s) to Pro-Environ. Behaviour	Link(s) to Consumption Behaviour	Drivers
Connectedness to nature	(Mayer & Frantz, 2004)	Schultz's (2002) "extent to which an individual includes nature within his/her cognitive representation of self"	Positively related to ecological behaviour and subjective well-being	Negatively related do consumerism	Biospheric concern Altruism Egoism Environmentalism Perspective-taking Life satisfaction
	(Frantz & Mayer, 2013)	Extent to which an individual includes nature within his/her cognitive representation of self; Expanding one's sense of self to include 'another'	Positively related to environmentally responsible behaviour	Positively related to conservation behaviour (e.g., electricity use)	n/a
	(Restall & Conrad, 2015)	Identify oneself with the natural environment; relationship with nature.	Positively related to pro-environmental behaviour	n/a	
	(Barbaro & Pickett, 2016)	Including nature within the cognitive representation of the self	Positively related to pro-environmental behaviour	Positively related to behaviours such as recycling, buying local products, using sharing services	Mindfulness Observing Nonreactivity Describing Nonjudging Acting
	(Fischer, Stanszus, et al., 2017)	Being part of nature	n/a	Positively linked to sustainable choices and lowering consumption, as a mediator between mindfulness and consumption behaviour	n/a
	(Ives et al., 2018)	Five definitions of connectedness, from external to internal dimension: 1. Material 2. Experiential 3. Cognitive 4. Emotional 5. Philosophical	Positively related to pro-environmental behaviour	n/a	n/a
	(Sonja Geiger & Fischer, 2019)	n/a	n/a	Positively linked to sustainable choices, as a mediator between mindfulness and consumption behaviour	n/a

	(Dong et al., 2020)	Belongingness; sense of being an integral part of the natural world	n/a	Direct positive effects on green purchasing and recycling, and indirect positive effects on sustainable consumption behaviour	Love of nature: - Passion for nature - Intimacy with nature Commitment to nature
	(Wei et al., 2021)	The extent to which individuals include nature in their representation of themselves; oneness with the natural world	n/a	Positively related to ethical consumption (both refinement and reduction)	n/a
Connectedness with nature	(Zylstra et al., 2014)	State of consciousness comprising symbiotic cognitive, affective, and experiential traits that reflect a sustained awareness of the interrelatedness between oneself and the rest of nature	Positively related to environmentally responsible behaviour	n/a	n/a
	(Schultz, 2002); (Schultz et al., 2004); (Schultz & Tabanico, 2007)	Cognitive implicit connection between an individual's self and nature (outside of conscious awareness)	Positively related to "biospheric concerns"	n/a	n/a
	(Christoph Woiwode et al., 2021)	Element of the presented "inner transformation sustainability nexus"	Positively related to pro-environmental and pro-social behaviour	Positively related to pro-environmental and pro-social consumer choices, and sustainable consumption practices	Social activism
Human-nature connectedness	(Whitburn et al., 2020)	Expanding self-identity to include the natural environment; experiences of belonging with nature	Positively related to pro-environmental behaviour	Positively related to pro-environmental consumption	n/a
	(Barragan-Jason et al., 2022)	Extent to which humans see themselves as part of nature	Positively related to pro-environmental behaviour	Negatively correlated with materialism/consumerism	Political conservatism Naturalist knowledge Time spent in outdoors Mindfulness practices Happiness and good health
	(Sheffield et al., 2022)	Psychological construct that reflects how people think about, feel about, and relate to nature	Positively related to pro-environmental behaviour	n/a	Mindfulness Self-compassion Mental health Eudaimonic wellbeing

						Civic attitude Life satisfaction Meaning in life Transcendence Elevation and Hope
Oneness	(Garfield et al., 2014)	Inherent unity of all phenomena	Positively related to environmentally responsible behaviour	n/a		Spiritual oneness Physical oneness Religiousness Mental health (depression and anxiety)
New Environmental Paradigm (NEP)	(R. E. Dunlap & Van Liere, 1978)	Emerging ecological worldview for a balanced nature	Positively related to pro-environmental behaviour	n/a		Beliefs about the limits to growth Beliefs about humanity's ability to upset the balance of nature Anti-anthropocentrism
Biospheric Values	(Stern et al., 1995)	Perceiving phenomena based on costs or benefits to eco-systems or the biosphere	Positively related to pro-environmental behaviour	n/a		Values Worldview Awareness of adverse consequences for valued objects Perceived ability to reduce the threat, and personal norms for pro-environmental behaviour
Environmental altruism	(Schultz & Zelezny, 1998)	Internal values that lead to behaviour that benefit the natural environment, without an expectation of anything in return	Positively related to pro-environmental behaviour	n/a		Self-transcendence Self-enhancement Openness Conservation Awareness of consequences Ascribed responsibility
Emotional affinity toward nature	(Kals et al., 1999)	Feeling good, free, safe in nature, and feeling a oneness with nature; Love of nature	Positively related to nature-protective behaviour	n/a		Experiences w/nature Cognitive interest Emotional indignation about insufficient protection Willingness criteria
Compassion	(Sonja Geiger & Keller, 2018)	Other-related emotions that trigger prosocial behaviour	Positively related to pro-environmental behaviour		Positively linked to sustainable purchase criteria of clothing; positive effect on the willingness to pay extra for fair trade clothes	n/a

In the past decade, scholars proposed a theoretical review of the concept of connectedness, alleging divergence and incoherence in the meaning and possible misinterpretations of research findings (Ives et al., 2018; Zylstra et al., 2014). Zylstra (2014) distinguishes physical and psychological disconnection from nature and speaks about a symbiotic relationship between three dimensions of connectedness: cognitive, emotional, and experiential. Ives (2018) and his colleagues suggest that connectedness has been addressed under a spectrum of meanings that vary from an external (or shallow) perspective to an internal (or deep) perspective. Five dimensions of meaning are presented by level of depth: material (such as resource use), experiential (such as outdoor activities), cognitive (such as beliefs), emotional (such as affective responses), and philosophical (that refers to the perspective over humanity's place within the natural world). A similar study exploring the typology of the terms suggests that connectedness is under the scope of oneness, being it manifested as an experience, intuition, or belief (Coomber & Harré, 2022). This paper explores connectedness under Zylstra's (2014) psychological perspective and under Ives' (2018) internal perspective, which encompasses cognitive, emotional, and philosophical dimensions and that overall follows the original scope of definitions of oneness.

A call for reconnection echoes the views of several researchers across many scientific fields as a potential solution for sustainable futures (Chalquist, 2009; Leopold et al., 1949; Schultz, 2002; Zylstra et al., 2014). Vandana Shiva (2020) characterizes in her book "Oneness vs. the 1%" the current economic paradigm as an "ecoapartheid" to explain how humans separated themselves from nature by regarding natural resources as "dead inert matter, mere raw material for exploitation". In Fromm's (1976) perspective, a minimization of "instinct" and maximization of "the capacity for reason" led humans to lose their original oneness with nature. Economic growth, its dependence on resource exploitation to fuel consumption, and the relentless pursuit of wealth (Rockström et al., 2009) are presented as causes of physical and spiritual separation between humans and nature (Chalquist, 2009), which can be observed in several episodes in human history such as the Roman system of divide and rule, Colonialism, and more recently, the Industrial Revolution (Zylstra et al., 2014).

Veblen's (1899) conspicuous consumption highlights a systemic addiction to fashion trends and blames the "barbarism" imposed by a status-driven economic system. Humans' engagement in fashion is rooted in a need for self-adornment considered to be as primitive as any of prehistoric bodily expressions (Polhemus, 1978), just as today it is based on a consecutive pursuit for social validation of one's identity construct (Greenpeace International, 2017; D. M. Taylor & Segal, 2015; Zepf, 2010). Ultimately, the materialistic drive for purchase power follows an expectation of fulfilment and happiness, cultivated by advertisement

narratives, and to cope with a “disconnected individualism” (N. Klein, 1999; McGowan, 2016; D. M. Taylor & Segal, 2015). However, evidence shows that happiness has not increased in countries with significant economic growth (Cosme et al., 2017), and that nowadays, fashion consumption is motivated by a temporary fix of excitement and stress relief that lasts less than a day after the purchase, on average (Greenpeace International, 2017). Increased finances and spending capacity do not correlate with wellbeing.

Over a certain level of income, marginal increases in life satisfaction decrease rapidly as income rises (Andreoni & Galmarini, 2013). Materialistic individuals report lower levels of relatedness, competence, autonomy, gratitude, and meaning in life (Kashdan & Breen, 2007), continually driving them to consume more to surpass the previous acquisition but never reaching a point when their life is sufficiently pleasurable and satisfying (Chancellor & Lyubomirsky, 2011). They also rate their social interactions less positively (P. Schmuck et al., 2000), and engage in fewer environmentally friendly activities (Richins & Dawson, 1992; Tilikidou & Delistavrou, 2005). Today’s centralized massive production models based on transglobal supply chains have caused a physical separation between the raw material extractor, the farmer, the artisan, and the final consumer, that leaves an emotional void between the final consumer and the finalized product. When looking at the fashion industry, the consumer’s involvement with the maker and with the process of making a garment has a positive effect on the willingness to pay a fair price for it (S Geiger & Keller, 2018).

4.3.1 Links between Connectedness and Pro-Environmental Consumption

The first stage of semi-systematic keyword searches has shown a general consensus among the scientific community studying the links between connectedness and consumption and relevant levels of reliability. Connectedness’ early links to environmentally responsible behaviour (ERB) takes us to Aldo Leopold’s (Leopold et al., 1949) work on “land ethic”, which suggests that harm to nature or to others is experienced as harm to self, as far as individuals perceive themselves as egalitarian members of the natural world (Frantz & Mayer, 2014; Zylstra et al., 2014). Leopold’s view beholds a potential protective behaviour towards nature, in a sense that “[w]e abuse land because we regard it as a commodity belonging to us”, but “[w]hen we see land as a community to which we belong, we may begin to use it with love and respect”. Other nonempirical theorizations about humans’ inner relationship to the natural world were drawn (Schultz et al., 2004), and many studies exploring correlations between connectedness and pro-environmental behaviour followed (Frantz & Mayer, 2014; Kals et al.,

1999; Schultz & Zelezny, 1998; P. C. Stern et al., 1995; Tam, 2013; Zylstra et al., 2014) (Table 2).

Psychologists have explored the measurability of connectedness and its relation to environmental-based behaviour. Several scales and models were developed since Dunlap's (1978) New Environmental Paradigm (NEP) (Hosta & Žabkar, 2016; Kals et al., 1999; Schultz, 2002; Schultz et al., 2004; Zylstra et al., 2014). Although not all studies use the term connectedness, variables are based on a common internal perspective that can be drawn to the extent to which an individual includes the natural world within the representation of the self. Psychologists exploring oneness with the Oneness Beliefs Scale (OBS) and the Eco-spirituality Scale also report positive links to environmentally responsible behaviour (Garfield et al., 2014; Suganthi, 2019), and suggest that oneness is a better predictor of ERB than religiousness (Edinger-Schons, 2020) (Figure 2).

Mayer & Frantz [57] first studied the link between connectedness to nature and consumption within the process of developing and testing the Connectedness to Nature Scale (CNS). Both NEP and CNS studies indicate that connectedness to nature is negatively related to consumerism, and with fair reliability. As scattered meanings of connectedness have been clustered by researchers for the past decade, the links with consumption behaviour have also been discriminated into specific consumption-related behaviours (e.g., recycling) (Barbaro & Pickett, 2016; Dong et al., 2020; C. Woiwode et al., 2021), ethical purchases (Barbaro & Pickett, 2016; Dong et al., 2020; S Geiger & Keller, 2018), compliance with fair pricing (S Geiger & Keller, 2018), and consumption reduction (Fischer, Stanszus, et al., 2017; Frantz & Mayer, 2014; Li et al., 2020). Connectedness to nature seems to have positive effects in lowering electricity use (Frantz & Mayer, 2014), buying from local producers, using sharing services (Barbaro & Pickett, 2016), choosing green products, and willing to pay extra for fair trade (S Geiger & Keller, 2018; S. M. Geiger et al., 2019) (Table 2). Figure 4.2 shows the studies that present positive links between connectedness to nature with pro-environmental behaviour and pro-environmental consumption. The studies also show the same links for similar concepts such as oneness, environmental altruism, new environmental paradigm, and biospheric values.

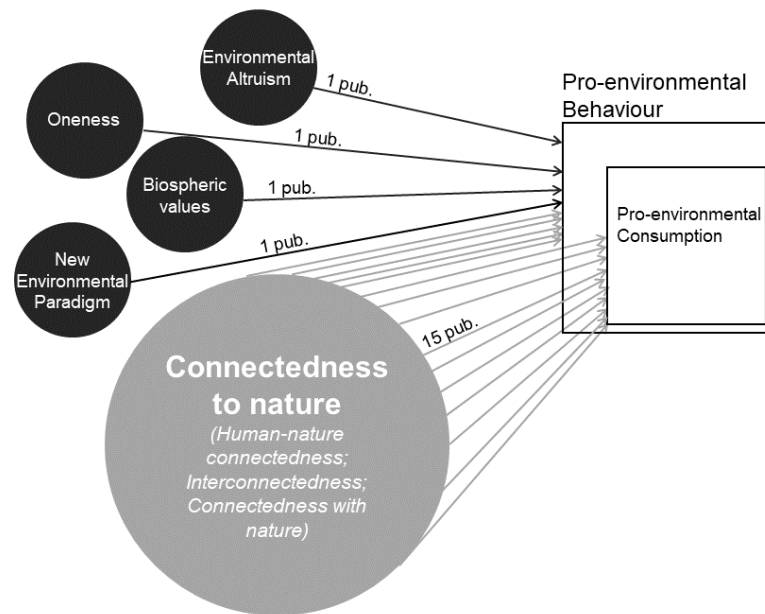


Figure 4.2 – The number of publications for each type of connectedness with links to pro-environmental behaviour and consumption.

Connectedness to nature is also an important mediator between mindfulness and pro-environmental behaviour and consumption (Fischer, Stanszus, et al., 2017; S. M. Geiger et al., 2019). Wei (2020) and her colleagues developed a recent study on pro-environmental consumption driven by mindfulness, in which connectedness to nature can be observed as a predictor of both consumption *refinement* (such as buying from businesses with corporate social responsibility concerns) and of consumption *reduction* (voluntary simplicity lifestyle and frugal purchasing). Whereas, *self-control* – another mindfulness-related variable of Wei’s study, defined as a capacity to adapt the self to live happier and healthier lives (Tangney et al., 2004) – is only observed to affect consumption *reduction*, but not consumption *refinement*. This effortless side of connectedness-driven pro-environmental consumption corroborates with previous studies that suggest that individuals reporting connectedness to nature freely engage in inconvenient pro-environmental behaviour (Frantz & Mayer, 2014; Tam, 2013). Managing wellbeing is therefore seen as one of the main challenges to be addressed when transitioning to degrowth economics (Büchs & Koch, 2019).

An emotional dimension of connectedness to nature – or *love of nature*, a looser term that Kals (1999) borrowed from romantic literature for his study on interest in nature – seems to have a critical role in pro-environmental consumption (Dong et al., 2020; Li et al., 2020; Mayer & Frantz, 2004). Other similar principles like altruism, willingness to help, activism, or concerns

for the wellness of others and society not only play an important part as well (Li et al., 2020; Mayer & Frantz, 2004; C. Woiwode et al., 2021), but establish a contrast with the selfcentred principles of guilt-driven pro-environmental consumption observed before in Antonetti & Maklan's (Antonetti & Maklan, 2014) and Chatzidakis (Chatzidakis, 2015) research. Furthermore, connectedness to nature may constitute a more enduring and far-reaching motivation for environmentally responsible behaviour, in a sense that it is potentially transferred to multiple lifestyle choices and upholds a broader spectrum of action – a particularly relevant fact for transient economic incentives (Zylstra et al., 2014).

4.3.2 Pro-Environmental Choice and the Consumer's Decision-Making

Although consumers are willing to pay more for environmentally friendly products (Dong et al., 2020; S Geiger & Keller, 2018; Global Fashion Agenda & Boston Consulting Group, 2019) and responsible, ethical, and sustainable consumption per se were found to share consonant definitions nowadays (Hosta & Žabkar, 2016), opinions differ on which specific behaviours or purchases might correspond to such concepts. As ethics shift according to context, ethical consumption becomes multidimensional by itself (Li et al., 2020). For example, from a one dimensional perspective, textile recycling may be perceived as a responsible choice (Barbaro & Pickett, 2016; Dong et al., 2020). However, recycling-related behaviours might require deeper scrutiny in order to be labelled as such, when aiming at the pro-environmental outcome and considering the limitations of the textile recycling system (Dahlbo et al., 2017; Global Fashion Agenda & Boston Consulting Group, 2017). Dumping post-consumption waste in collection containers might represent a heavy toll on communities and the environment. Not only does closed-loop recycling represent less than 1% of overall textile production, most of the average 25% of the world garments collected for reuse and recycling end up dumped on poorly sustained African landfills (Amed et al., 2021; Ellen MacArthur Foundation, 2017; D. Watson & Palm, 2016).

The fact that people do not always behave environmentally conscious does not necessarily mean that they are not concerned about the environment (S. Kaplan, 2000; Nisbet et al., 2009; Schultz, 2002). Greenwashing – known as a corporate practice of using unsubstantiated claims to mislead consumers into believing their policies or products are environmentally friendly – might partly explain the mismatch between ethically labelled choices and its actual outcome (Urbański & Ul Haque, 2020). Following the example above, fashion brands might stock up on clothing recycled from plastic waste and sell it as a deceiving pro-environmental solution (Greenpeace International, 2017) when it does not really curb the exponential growth

in the use of synthetic fibres (Changing Markets Foundation, 2021). Sustainability is a spectrum and requires consumer awareness to thoroughly weigh consumption choices (Li et al., 2020).

Pro-environmental behaviour can be fostered by a large range of motivations that can be clustered into spiritual (Garfield et al., 2014; Li et al., 2020; Suganthi, 2019) or intrinsic factors, such as empathy (Han et al., 2019), and normative factors like political or ethical obligation and social status (Bray et al., 2011; Elliott, 2013; Li et al., 2020). It is, however, suggested by researchers in the fields of psychology and neuroscience that consumer decision making is automatic (Barbaro & Pickett, 2016), triggered mainly by unconscious emotions (Zaltman, 2003), subconsciously weighing abstract moral principles against utilitarian outcomes (Chatzidakis, 2015). Guilt, regret, and remorse have been studied as post-consumption induced moral emotions (Greenpeace International, 2017; Zaltman, 2003) and as emotions driven by the climate crisis (Clayton & Karazsia, 2020; Haseley, 2019; Weintrobe, 2013). However, throughout this literature review, moral emotions were also found to precede pro-environmental consumption behaviour (Table 4.3). For comparison, whereas connectedness (as well as all similar concepts contemplated in this review) positively correlates to pro-environmental behaviour in general and pro-environmental consumption in particular (which includes being negatively correlated to consumerism), guilt positively influences pro-environmental behaviour and consumption (Antonetti & Maklan, 2014; Chatzidakis, 2015), but only under reparatory circumstances or until a certain threshold of fear (Chatzidakis, 2015). Besides being positively connected to denial of climate change (Haseley, 2019; Miller, 2005) and negatively connected to making claims about politics or economic freedom (Kals et al., 1999; Montada & Kals, 1995), studies also suggest that guilt may “backfire” into hazardous and norm-violating behaviour (Chatzidakis, 2015; Wang & Wu, 2016) (Figure 4.3).

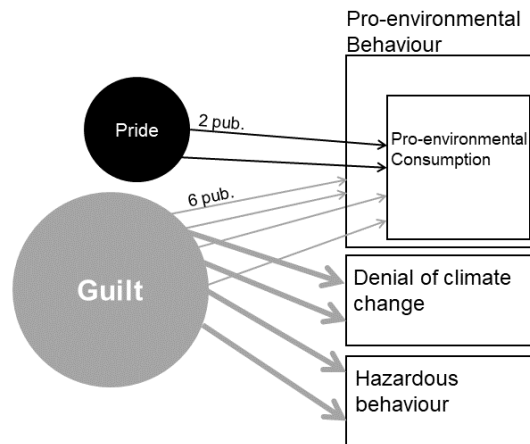


Figure 4.3 – The number of publications about moral emotions (guilt and pride) with links to pro-environmental behaviour and consumption.

Table 4.3 – Links between moral emotions and environmental behaviour.

Moral Emotion	Reference(s)	Link to Environmental Behaviour
Guilt	(Miller, 2005; Zylstra et al., 2014)	Positively related to denial, frustration, disempowerment.
Guilt and pride	(Antonetti & Maklan, 2014)	Positively influences the decision to buy ethical products.
Guilt (unconscious)	(Chatzidakis, 2015)	Fear of punishment driven by persecutory guilt positively influences norm-abiding behaviour. Need for punishment driven by persecutory guilt positively influences norm-violating behaviour. Need for reparation driven by reparatory guilt positively influences pro-social behaviour.
Guilt (+anxiety and resentment)	(Kals et al., 1999; Montada & Kals, 1995)	Positively correlated with: - claiming a right to clean ecology. - claiming prohibitive laws and ecological taxes. Negatively correlated with: - claiming civil and economic freedom rights. - appraisals of ecological politics in general. - mere appeals to avoid pollution as just.
Guilt, pride (+respect and anger)	(Wang & Wu, 2016)	Positively connected to sustainable consumption. However, guilt and anger are less powerful influences than pride on sustainable consumption choices, and they may backfire. Guilt, pride, and respect are positively connected to: (a) resisting irresponsible purchases. (b) buying responsibly.
Guilt (+helplessness disappointment, and loss)	(Haseley, 2019)	Positively related to disavowal, negation, or denial of climate change

Given that the purchase of fashionables is intimately connected to addictive behaviour by involving an inherent desire for status and belonging that lasts a very short period of time (Barthes, 1990; S Geiger & Keller, 2018), and considering that consumption reduction is an impactful pro-environmental behaviour (Fischer, Stanszus, et al., 2017; Frantz & Mayer, 2014; Li et al., 2020; Mayer & Frantz, 2004), consumers have been reporting discrepancies between their ethical concerns and intentions and their impulsive purchases: they crave the recognition, confidence, excitement, and self-esteem that fashion might bring them, but do not want to be judged for their purchases or for how much they spend; and often state that the shopping buzz does not last more than a few days (Greenpeace International, 2017). For example, 59% of Chinese consumers report that they cannot stop making impulse buys even though they realize they are buying too much. Social media peer pressure, online shopping platforms, and promotions are known strategies that fashion brands use to make shopping harder to resist (Greenpeace International, 2017).

An alert state of consciousness over personal consumption could help consumers better analyse their choices (Brown & Kasser, 2005). Recent studies have found that mindfulness enhances consumers' awareness over their thoughts, emotions, and consumption responses (Li et al., 2020); the ability to hold internal biases without self-criticism or guilt (Bahl et al., 2016; Park & Dhandra, 2017); the capacity to break away from unconscious pursuits of pleasure and avoidance of pain through consumption practices (Bahl et al., 2016; Li et al., 2020); and the awareness of available sustainable options (Ericson et al., 2014; Fischer, Stanszus, et al., 2017).

4.4 Discussion, Limitations, and Further Research

Connectedness is a concept that appears throughout many fields of literature under many terms. However, they all refer to a deeper integration of the self when experiencing unity with an "other" (Chirban, 2000), having also links to a communitarian drive, altruism, activism, and a sense of commitment with nature (Barbaro & Pickett, 2016; Dong et al., 2020; Mayer & Frantz, 2004; C. Woiwode et al., 2021). Human-nature disconnection is suggested to be one of the causes of climate change and reconnection is pointed as the solution for its mitigation (Chalquist, 2009; Leopold et al., 1949; Pyle, 2003; Schultz, 2002; Zylstra et al., 2014). Consumerism is considered a symptom of separation, by consisting in a constant pursuit of ethereal moments of excitement under promises of self-esteem and belonging by fashion advertisement and social media (Greenpeace International, 2017; McGowan, 2016; D. M. Taylor & Segal, 2015; Zepf, 2010), which leads to an underlying insight that reconnection can

bring a positive impact to fashion consumption. All the linkages found in the reviewed studies that measure connectedness and relate connectedness to pro-environmental consumption are positive and present solid levels of reliability.

However, using self-report methods and oversimplifying sustainability on a list of individual behaviours might mislead results. For example, following Greenwald's (Greenwald et al., 1998) considerations on the unconsciousness of a person's beliefs, Schultz (Schultz et al., 2004) acknowledges the possibility for connectedness to be unconscious, or at least not "readily available for retrieval", and thus is not suitable to be self-reported. Applying alternative measurement techniques that do not require participants' conscious awareness, such as the Implicit Association Test (IAT), might better assess the degree to which people associate themselves with nature through judgments that are under the control of automatically activated evaluation (Greenwald et al., 1998; Schultz et al., 2004; Schultz & Tabanico, 2007; Tang et al., 2017). Given that as much as 95 percent of consumers' thinking occurs in their unconscious minds and that the selection process is relatively automatic (Holbrook et al., 1982; Zaltman, 2003), evaluating their choices through self-report and expecting rational reasoning do not adequately depict how consumers make choices (Weilbacher, 2021; Zaltman, 2003).

On another note—and to quote the terms of Wei (2020) and her colleagues – whereas consumption reduction provides a simple scope for pro-environmental evaluation (either participants buy or do not buy), it is not as easy to unravel consumption refinement choices as sustainable. If we consider Barbaro & Picket's (2016) study, in an example participants were asked to self-report their average frequency of engagement in 17 daily pro-environmental behaviour, tools were designed thoroughly to overcome the simplistic way in which previous studies addressed green behaviour. Alternative methods were suggested to cover self-report shortcomings, such as laboratory setting and use of a diary to record pro-environmental behaviours. However, developing a list of individual behaviours to be considered as ethical or unethical by researchers still misses the overall complexity of the textile industry supply chains, political system, and imminent greenwashing.

In what concerns fashion consumption in particular, although there are studies combining emotions like compassion (and also guilt) with the consumption of sustainable fashion, and connecting mindfulness as a practice with the consumption of fashionables, the reviewed literature in this specific field did not deliver links to a more profound notion of interconnectedness (S Geiger & Keller, 2018; Miller, 2005).

In his work "To have or to be?", the psychoanalyst Erich Fromm (1976) describes the current society values as based on the idea that "the very essence of being is having" and shares his considerations on how both the psychoanalytical method and empirical anthropological data

contributed to contemplate it as the most crucial problem of existence. A psychoanalytical deconstruction of consumerism that also encompasses the insightful links between mindfulness and consumer awareness (Bahl et al., 2016; Brown & Kasser, 2005; Li et al., 2020) can potentially disclose revolutionary measures and new fields of study to shift consumption behaviour patterns with the required levels of depth pointed by Woiwode et al. (2021). Further research steps shall contemplate the complexities behind consumer awareness and the desire for fashionables, and the adequacy of research methods.

4.5 Conclusions

This paper explores the links between connectedness and pro-environmental behaviour, and pro-environmental consumption of fashionables, following an emergent need to lower fashion's environmental impact and also a lack of awareness among consumers. An integrative approach of a semi-systematic keyword search and snowball sampling was applied for this aim. All linkages between connectedness and responsible behaviour identified in this exploratory literature review were found to be positive. The same case happens for the studies showing links between connectedness and pro-environmental consumption. Outlining the economic and political context that supports today's consumption patterns allowed us to grasp the propensity for ethically labelled choices with uncertain outcomes and for excessive and impulsive buying of clothing, regardless of pro-environmental concerns. Even though environmentally responsible consumption is sometimes driven by guilt, this moral emotion sometimes has the opposite "shutdown" effect of denial, suppression of political claims, and even engagement in hazardous behaviour. Connectedness is framed in this literature review as an enhancer of pro-environmental consumption, but also as positively linked to mindful practices defined by high states of awareness. Therefore, the study of connectedness and its links to pro-environmental consumption opens the way to further substantiate the consumers' awareness of their emotional responses and the complexity of sustainability, having in sight adequate research methods that can also grasp unconscious consumption behaviour and avoid oversimplifying sustainability.

References

- Amed, I., Berg, A., Balchandani, A., Rölken, F., & Young, R. (2021). *The state of fashion 2021*.
- Andreoni, V., & Galmarini, S. (2013). On the Increase of Social Capital in Degrowth Economy. *Procedia - Social and Behavioral Sciences*, 72, 64–72. <https://doi.org/10.1016/j.sbspro.2013.02.006>
- Antonetti, P., & Maklan, S. (2014). Exploring Postconsumption Guilt and Pride in the Context of Sustainability. *Psychology and Marketing*, 31(9), 717–735. <https://doi.org/10.1002/mar.20730>
- Bahl, S., Milne, G. R., Ross, S. M., Mick, D. G., Grier, S. A., Chugani, S. K., Chan, S., Gould, S. J., Cho, Y.-N., Dorsey, J. D., Schindler, R. M., Murdock, M. R., Mariani, S. B., & Carter, R. H. (2016). Mindfulness: The Transformative Potential for Consumer, Societal, and Environmental Well-Being. *Journal of Public Policy & Marketing*, 35(2), 198–210.
- Barbaro, N., & Pickett, S. M. (2016). Mindfully green: Examining the effect of connectedness to nature on the relationship between mindfulness and engagement in pro-environmental behavior. *Personality and Individual Differences*, 93, 137–142. <https://doi.org/10.1016/j.paid.2015.05.026>
- Barragan-Jason, G., de Mazancourt, C., Parmesan, C., Singer, M. C., & Loreau, M. (2022). Human–nature connectedness as a pathway to sustainability: A global meta-analysis. *Conservation Letters*, 15(1), 1–7. <https://doi.org/10.1111/conl.12852>
- Barthes, R. (1990). *The Fashion System*. University of California Press.
- Bray, J., Johns, N., & Kilburn, D. (2011). An Exploratory Study into the Factors Impeding Ethical Consumption. *Journal of Business Ethics*, 98(4), 597–608. <https://doi.org/10.1007/s10551-010-0640-9>
- Brooks, A. (2015). *Clothing Poverty: The Hidden World of Fast Fashion and Second-Hand Clothes*. Zed Books Ltd. <https://doi.org/10.5040/9781350219243>
- Brown, K. W., & Kasser, T. (2005). Are psychological and ecological well-being compatible? The role of values, mindfulness, and lifestyle. *Social Indicators Research*, 74(2), 349–368. <https://doi.org/10.1007/s11205-004-8207-8>
- Büchs, M., & Koch, M. (2019). Challenges for the degrowth transition: The debate about wellbeing. *Futures*, 105, 155–165. <https://doi.org/10.1016/j.futures.2018.09.002>
- Chalquist, C. (2009). A look at the ecotherapy research evidence. In *Ecopsychology* (Vol. 1, Issue 2, pp. 64–74). <https://doi.org/10.1089/eco.2009.0003>
- Chancellor, J., & Lyubomirsky, S. (2011). Happiness and thrift: When (spending) less is (hedonically) more. *Journal of Consumer Psychology*, 21(2), 131–138. <https://doi.org/10.1016/j.jcps.2011.02.004>
- Chang, T., Askun Celik, D., & Klatt, S. (2018). From Mindfulness to Oneness: “Inner Engineering” of the Complex Adaptive Human System. *Academy of Management Proceedings*, 2018(1), 11819. <https://doi.org/10.5465/ambpp.2018.11819abstract>

- Changing Markets Foundation. (2021). *Fossil fashion: The hidden reliance of fast fashion on fossil fuels*. www.changingmarkets.org
- Changing Markets Foundation. (2023). *Licence to Greenwash: How certification schemes and voluntary initiatives are fuelling fossil fashion*. www.changingmarkets.org
- Chatzidakis, A. (2015). Guilt and ethical choice in consumption: A psychoanalytic perspective. *Marketing Theory*, 15(1), 79–93. <https://doi.org/10.1177/1470593114558533>
- Chirban, S. (2000). Oneness Experience: Looking Through Multiple Lenses. *Article in Journal of Applied Psychoanalytic Studies*. <https://doi.org/10.1023/A:1010158006411>
- Circle Economy & Goldschmeding Foundation. (2021). *Putting circular textiles to work: The employment potential of circular clothing in the Netherlands*.
- Clayton, S., & Karazsia, B. T. (2020). Development and validation of a measure of climate change anxiety. *Journal of Environmental Psychology*, 69. <https://doi.org/10.1016/j.jenvp.2020.101434>
- Coomber, T., & Harré, N. (2022). Psychological Oneness: A Typology. *Review of General Psychology*, 26(1), 49–67. <https://doi.org/10.1177/10892680211034457>
- Cosme, I., Santos, R., & O'Neill, D. W. (2017). Assessing the degrowth discourse: A review and analysis of academic degrowth policy proposals. In *Journal of Cleaner Production* (Vol. 149, pp. 321–334). Elsevier Ltd. <https://doi.org/10.1016/j.jclepro.2017.02.016>
- Dahlbo, H., Aalto, K., Eskelinen, H., & Salmenperä, H. (2017). Increasing textile circulation—Consequences and requirements. *Sustainable Production and Consumption*, 9, 44–57. <https://doi.org/10.1016/j.spc.2016.06.005>
- Djafarova, E., & Bowes, T. (2021). 'Instagram made Me buy it': Generation Z impulse purchases in fashion industry. *Journal of Retailing and Consumer Services*, 59. <https://doi.org/10.1016/j.jretconser.2020.102345>
- Dong, X., Liu, S., Li, H., Yang, Z., Liang, S., & Deng, N. (2020). Love of nature as a mediator between connectedness to nature and sustainable consumption behavior. *Journal of Cleaner Production*, 242. <https://doi.org/10.1016/j.jclepro.2019.118451>
- Dunlap, R. E., & Van Liere, K. D. (1978). The “new environmental paradigm”. *Journal of Environmental Education*, 9(4), 10–19. <https://doi.org/10.1080/00958964.1978.10801875>
- Edinger-Schons, L. M. (2020). Oneness beliefs and their effect on life satisfaction. *Psychology of Religion and Spirituality*, 12(4), 428–439. <https://doi.org/10.1037/rel0000259>
- Ellen MacArthur Foundation. (2017). *A new textiles economy: Redesigning fashion's future*.
- Ellen MacArthur Foundation. (2015). *Growth within: A circular economy vision for a competitive Europe*.
- Elliott, R. (2013). The taste for green: The possibilities and dynamics of status differentiation through 'green' consumption. *Poetics*, 41(3), 294–322. <https://doi.org/10.1016/j.poetic.2013.03.003>
- Ericson, T., Kjørstad, B. G., & Barstad, A. (2014). Mindfulness and sustainability. *Ecological Economics*, 104, 73–79. <https://doi.org/10.1016/j.ecolecon.2014.04.007>
- European Commission. (2020a). *Attitudes of European citizens towards the environment*.

- European Commission. (2020b). *Circular economy action plan: For a cleaner and more competitive Europe*.
- European Commission. (2021). *Screening of websites for 'greenwashing': Half of green claims lack evidence*.
- European Parliament and Council. (2005). Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market. *Official Journal of the European Union*, L(149), 22–39.
- Fashion Revolution. (2021). *Fashion Transparency Index 2021*.
- Fischer, D., Stanszus, L., Geiger, S., Grossman, P., & Schrader, U. (2017). Mindfulness and sustainable consumption: A systematic literature review of research approaches and findings. *Journal of Cleaner Production*, 162, 544–558. <https://doi.org/10.1016/j.jclepro.2017.06.007>
- Frantz, C. M. P., & Mayer, F. S. (2014). The importance of connection to nature in assessing environmental education programs. *Studies in Educational Evaluation*, 41, 85–89. <https://doi.org/10.1016/j.stueduc.2013.10.001>
- Freud, S. (1930). Civilization and its Discontents. In J. Strachey (Trans.), *The Standard Edition of the Complete Psychological Works of Sigmund Freud, Volume XXI (1927-1931): The Future of an Illusion, Civilization and its Discontents, and Other Works* (pp. 57–146). Hogarth Press.
- Fromm, Erich. (1976). *To have or to be?* Continuum.
- Garfield, A. M., Drwecki, B. B., Moore, C. F., Kortenkamp, K. V., & Gracz, M. D. (2014). The oneness beliefs scale: Connecting spirituality with pro-environmental behavior. *Journal for the Scientific Study of Religion*, 53(2), 356–372. <https://doi.org/10.1111/jssr.12108>
- Geiger, S., & Keller, J. (2018). Shopping for Clothes and Sensitivity to the Suffering of Others: The Role of Compassion and Values in Sustainable Fashion Consumption. *Environment and Behavior*, 50(10), 1119–1144. <https://doi.org/10.1177/0013916517732109>
- Geiger, S. M., Grossman, P., & Schrader, U. (2019). Mindfulness and sustainability: correlation or causation? In *Current Opinion in Psychology*, 28, 23–27. <https://doi.org/10.1016/j.copsyc.2018.09.010>
- Geiger, Sonja, & Fischer, D. (2019). Meditating for the Planet: Effects of a Mindfulness-Based Intervention on Sustainable Consumption Behaviors. <https://doi.org/10.1177/0013916519880897>
- Geiger, Sonja, & Keller, J. (2018). Shopping for Clothes and Sensitivity to the Suffering of Others: The Role of Compassion and Values in Sustainable Fashion Consumption. *Environment and Behavior*, 50(10), 1119–1144. <https://doi.org/10.1177/0013916517732109>
- Global Fashion Agenda & Boston Consulting Group. (2017). *Pulse of the fashion industry*. www.copenhagenfashionsummit.com/global-fashion-agenda
- Global Fashion Agenda & Boston Consulting Group. (2019). *Pulse of the fashion industry 2019 update*.

- Grabow, M., Bryan, T., Checovich, M. M., Converse, A. K., Middlecamp, C., Mooney, M., Torres, E. R., Younkin, S. G., & Barrett, B. (2018). Mindfulness and climate change action: A feasibility study. *Sustainability (Switzerland)*, 10(5). <https://doi.org/10.3390/su10051508>
- Greenpeace. (2021a). *Self regulation: a fashion fairytale Part 2*.
- Greenpeace. (2021b). *Self-regulation: a fashion fairytale Part 1*.
- Greenpeace International. (2017). *After the Binge the Hangover: International Fashion Consumption Survey*.
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring Individual Differences in Implicit Cognition: The Implicit Association Test. In *Journal of Personality and Social Psychology*, 74(6).
- Han, H., Hwang, J., Lee, M. J., & Kim, J. (2019). Word-of-mouth, buying, and sacrifice intentions for eco-cruises: Exploring the function of norm activation and value-attitude-behavior. *Tourism Management*, 70, 430–443. <https://doi.org/10.1016/j.tourman.2018.09.006>
- Haseley, D. (2019). Climate change: Clinical considerations. *International Journal of Applied Psychoanalytic Studies*, 16(2), 109–115. <https://doi.org/10.1002/aps.1617>
- Holbrook, M. B., Hirschman, E. C., Holman, R. H., Howard, J. A., Kehret, T., Lehmann, D. B., Levy, S. J., O'shaughnessy, J., Rossiter, J. R., & Ryan, M. J. (1982). The Experiential Aspects of Consumption: Consumer Fantasies, Feelings, and Fun. *Source: Journal of Consumer Research*, 9(2), 132–140.
- Hosta, M., & Žabkar, V. (2016). Consumer Sustainability and Responsibility: Beyond Green and Ethical Consumption. *Tržište/Market, Faculty of Economics and Business, University of Zagreb*, 28(2), 143–157.
- Ives, C. D., Abson, D. J., von Wehrden, H., Dorninger, C., Klaniecki, K., & Fischer, J. (2018). Reconnecting with nature for sustainability. *Sustainability Science*, 13(5), 1389–1397. <https://doi.org/10.1007/s11625-018-0542-9>
- Kahraman, A., & Kazançoğlu, İ. (2019). Understanding consumers' purchase intentions toward natural-claimed products: A qualitative research in personal care products. *Business Strategy and the Environment*, 28(6), 1218–1233. <https://doi.org/10.1002/bse.2312>
- Kals, E., Schumacher, D., & Montada, L. (1999). Emotional affinity toward nature as a motivational basis to protect nature. *Environment and Behavior*, 31(2), 178–202. <https://doi.org/10.1177/00139169921972056>
- Kaplan, S. (2000). Human Nature and Environmentally Responsible Behavior. In *Journal of Social Issues* (Vol. 56, Issue 3).
- Kashdan, T. B., & Breen, W. E. (2007). Materialism and diminished well-being: Experiential avoidance as a mediating mechanism. *Journal of Social and Clinical Psychology*, 26(5), 521–539. <https://doi.org/10.1521/jscp.2007.26.5.521>
- Klein, N. (1999). *No logo: Taking aim at the brand bullies*. Knopf Canada.
- Leopold, Aldo., Schwartz, C. W., & Finch, Robert. (1949). *A Sand County Almanac: and Sketches here and there*. Oxford University Press.

- Li, Y., Wei, L., Zeng, X., & Zhu, J. (2020). Mindfulness in ethical consumption: the mediating roles of connectedness to nature and self-control. *International Marketing Review*, 38(4), 756–779. <https://doi.org/10.1108/IMR-01-2019-0023>
- Lipovetsky, G. (1994). *The empire of fashion: Dressing modern democracy*. Princeton University Press.
- Mayer, F. S., & Frantz, C. M. P. (2004). The connectedness to nature scale: A measure of individuals' feeling in community with nature. *Journal of Environmental Psychology*, 24(4), 503–515. <https://doi.org/10.1016/j.jenvp.2004.10.001>
- McGowan, T. (2016). *Capitalism and Desire: The Psychic Cost of Free Markets*. Columbia University Press.
- McKinsey & Company, & G. F. A. (2020). *Fashion on climate: How the fashion industry can urgently act to reduce its greenhouse gas emissions*.
- Miller, J. R. (2005). Biodiversity conservation and the extinction of experience. *Trends in Ecology and Evolution*, 20(8), 430–434. <https://doi.org/10.1016/j.tree.2005.05.013>
- Montada, L., & Kals, E. (1995). Perceived Justice of Ecological Policy and Proenvironmental Commitments. *Social Justice Research*, 8(4), 305–327.
- Niinimäki, K., Peters, G., Dahlbo, H., Perry, P., Rissanen, T., & Gwilt, A. (2020). The environmental price of fast fashion. In *Nature Reviews Earth and Environment* (Vol. 1, Issue 4, pp. 189–200). Springer Nature. <https://doi.org/10.1038/s43017-020-0039-9>
- Nisbet, E., Zelenski, J. M., & Murphy, S. A. (2009). The Nature Relatedness scale: Linking individuals' connection with nature to environmental concern and behavior. *Environment and Behavior*, 41(5), 715–740. <https://doi.org/10.1177/0013916508318748>
- Park, H. J., & Dhandra, T. K. (2017). Relation between dispositional mindfulness and impulsive buying tendency: Role of trait emotional intelligence. *Personality and Individual Differences*, 105, 208–212. <https://doi.org/10.1016/j.paid.2016.09.061>
- Pentecost, R., & Andrews, L. (2010). Fashion retailing and the bottom line: The effects of generational cohorts, gender, fashion fanship, attitudes and impulse buying on fashion expenditure. *Journal of Retailing and Consumer Services*, 17(1), 43–52. <https://doi.org/10.1016/j.jretconser.2009.09.003>
- Polhemus, T. (1978). *Fashion and anti-fashion: Anthropology of clothing and adornment*. Thames & Hudson Ltd.
- Pyle, R. M. (2003). Nature matrix: reconnecting people and nature. *Oryx*, 37(02), 206–214. <https://doi.org/10.1017/s0030605303000383>
- Quantis. (2018). *Measuring fashion: Insights from the environmental impact of the global apparel and footwear industries study*.
- Reichel, A., & Mortensen, L. (2014). *Environmental Indicator Report 2014: Environmental impacts of production-consumption systems in Europe*. <https://doi.org/10.2800/22394>

- Restall, B., & Conrad, E. (2015). A literature review of connectedness to nature and its potential for environmental management. *Journal of Environmental Management*, 159, 264–278. <https://doi.org/10.1016/j.jenvman.2015.05.022>
- Richins, M. L., & Dawson, S. (1992). A Consumer Values Orientation for Materialism and Its Measurement: Scale Development and Validation Author(s). *Journal of Consumer Research*, 19(3), 303–316. <https://doi.org/https://doi.org/10.1086/209304>
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F. S., Lambin, E., Lenton, T. M., Scheffer, M., Folke, C., Schellnhuber, H., Nykvist, B., De Wit, C. A., Hughes, T., Van Der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P. K., Costanza, R., Svedin, U., ... Foley, J. (2009). *Planetary Boundaries: Exploring the Safe Operating Space for Humanity*.
- Schmuck, D., Matthes, J., & Naderer, B. (2018). Misleading Consumers with Green Advertising? An Affect–Reason–Involvement Account of Greenwashing Effects in Environmental Advertising. *Journal of Advertising*, 47(2), 127–145. <https://doi.org/10.1080/00913367.2018.1452652>
- Schmuck, P., Kasser, T., & Ryan, R. M. (2000). Intrinsic and Extrinsic Goals: Their Structure and Relationship to Well-Being in German and U.S. College Students. *Social Indicators Research*, 50(2), 225–241. <https://doi.org/10.1023/a:1007084005278>
- Schultz, P. W. (2002). Inclusion with Nature: The Psychology Of Human-Nature Relations. *Psychology of Sustainable Development*, 61–78. https://doi.org/10.1007/978-1-4615-0995-0_4
- Schultz, P. W., Shriver, C., Tabanico, J. J., & Khazian, A. M. (2004). Implicit connections with nature. *Journal of Environmental Psychology*, 24(1), 31–42. [https://doi.org/10.1016/S0272-4944\(03\)00022-7](https://doi.org/10.1016/S0272-4944(03)00022-7)
- Schultz, P. W., & Tabanico, J. (2007). Self, identity, and the natural environment: Exploring implicit connections with nature. *Journal of Applied Social Psychology*, 37(6), 1219–1247. <https://doi.org/10.1111/j.1559-1816.2007.00210.x>
- Schultz, P. W., & Zelezny, L. C. (1998). Values and proenvironmental behavior a five-country survey. *Journal of Cross-Cultural Psychology*, 29(4), 540–558. <https://doi.org/10.1177/0022022198294003>
- Sheffield, D., Butler, C. W., & Richardson, M. (2022). Improving Nature Connectedness in Adults: A Meta-Analysis, Review and Agenda. *Sustainability (Switzerland)*, 14(19). <https://doi.org/10.3390/su141912494>
- Shiva, V., & Shiva, K. (2020). *Oneness vs The 1% : Shattering Illusions, Seeding Freedom*. Chelsea Green Publishing.
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333–339. <https://doi.org/10.1016/j.jbusres.2019.07.039>
- Stern, P. C., Dietz, T., Kalof, L., & Guagnano, G. A. (1995). Values, beliefs, and proenvironmental action: Attitude formation toward emergent attitude objects. *Journal of Applied Social Psychology*, 26(18), 1611–1636. <https://doi.org/10.1111/j.1559-1816.1995.tb02636.x>

- Suganthi, L. (2019). Ecospirituality: A Scale to Measure an Individual's Reverential Respect for the Environment. *Ecopsychology*, 11(2), 110–122. <https://doi.org/10.1089/eco.2018.0065>
- Tam, K.-P. (2013). Concepts and measures related to connection to nature: Similarities and differences. *Journal of Environmental Psychology*, 34(NA), 64–78. <https://doi.org/10.1016/j.jenvp.2013.01.004>
- Tang, Y., Geng, L., Schultz, P. W., Zhou, K., & Xiang, P. (2017). The effects of mindful learning on pro-environmental behavior: A self-expansion perspective. *Consciousness and Cognition*, 51, 140–148. <https://doi.org/10.1016/j.concog.2017.03.005>
- Tangney, J. P., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality*, 72(2), 271–324. <https://doi.org/10.1111/j.0022-3506.2004.00263.x>
- Taylor, D. M., & Segal, D. (2015). Healing Ourselves and Healing the World: Consumerism and the Culture of Addiction. In 77 *Journal of Futures Studies* (Vol. 19, Issue 3).
- Tilikidou, I., & Delistavrou, A. (2005). The Influence of the Materialistic Values on Consumers' Pro-Environmental Post-Purchase Behavior. *Proceedings of the 9th International Conference on Environmental and Peace*, 11. <https://www.researchgate.net/publication/283437812>
- Urbański, M., & Ul Haque, A. (2020). Are you environmentally conscious enough to differentiate between greenwashed and sustainable items? A global consumers perspective. *Sustainability (Switzerland)*, 12(5), 1–25. <https://doi.org/10.3390/su12051786>
- Veblen, T., & Gorfc, N. (1899). *The theory of the leisure class*. NY: Macmillan.
- Wamsler, C. (2018). Mind the gap: The role of mindfulness in adapting to increasing risk and climate change. In *Sustainability Science* (Vol. 13, Issue 4, pp. 1121–1135). Springer Tokyo. <https://doi.org/10.1007/s11625-017-0524-3>
- Wang, J., & Wu, L. (2016). The Impact of Emotions on the Intention of Sustainable Consumption Choices: Evidence from a Big City in an Emerging Country. *Journal of Clean Production*. <http://www.elsevier.com/open-access/userlicense/1.0/>
- Watson, D., & Palm, D. (2016). *Exports of Nordic Used Textiles: Fate, benefits and impacts Policy Brief*. <https://doi.org/10.6027/ANP2016-789>
- Wei, L., Li, Y., Zeng, X., & Zhu, J. (2021). Mindfulness in Ethical Consumption: The Mediating Roles of Connectedness to Nature and Self-control. *International Marketing Review*. <https://doi.org/10.1108/IMR-01-2019-0023>
- Weilbacher, W. M. (2021). Point of View: Does Advertising Cause a Hierarchy of Effects? *Journal of Advertising Research*, 41(6), 19–26. www.journalofadvertisingresearch.com
- Weintrobe, S. (2013). *Engaging with climate change: Psychoanalytic and interdisciplinary perspectives*. Routledge.
- Whitburn, J., Linklater, W., & Abrahamse, W. (2020). Meta-analysis of human connection to nature and proenvironmental behavior. *Conservation Biology*, 34(1), 180–193. <https://doi.org/10.1111/cobi.13381>

- Winnicott, D. (1971). *Playing & Reality: Transitional Objects and Transitional Phenomena*. Penguin Books.
- Woiwode, C., Schöpke, N., Bina, O., Veciana, S., Kunze, I., Parodi, O., Schweizer-Ries, P., & Wamsler, C. (2021). Inner transformation to sustainability as a deep leverage point: fostering new avenues for change through dialogue and reflection. *Sustainability Science*, 16(3), 841–858. <https://doi.org/10.1007/s11625-020-00882-y>
- Woiwode, Christoph, Schöpke, N., Bina, O., Veciana, S., Kunze, I., Parodi, O., Schweizer-Ries, P., & Wamsler, C. (2021). Inner transformation to sustainability as a deep leverage point: fostering new avenues for change through dialogue and reflection. *Sustainability Science*. <https://doi.org/10.1007/s11625-020-00882-y>
- Wolff, E. A. (2021). The global politics of African industrial policy: the case of the used clothing ban in Kenya, Uganda and Rwanda. *Review of International Political Economy*, 28(5), 1308–1331. <https://doi.org/10.1080/09692290.2020.1751240>
- Wong, G., Greenhalgh, T., Westhorp, G., Buckingham, J., & Pawson, R. (2013). RAMESES publication standards: Meta-narrative reviews. *BMC Medicine*, 11(1). <https://doi.org/10.1186/1741-7015-11-20>
- Zaltman, G. (2003). *How Customers Think: Essential Insights into the Mind of the Market*. Harvard Business School Press.
- Zepf, S. (2010). Consumerism and identity: Some psychoanalytical considerations. In *International Forum of Psychoanalysis* (Vol. 19, Issue 3, pp. 144–154). <https://doi.org/10.1080/08037060903143992>
- Zylstra, M. J., Knight, A. T., Esler, K. J., & Le Grange, L. L. L. (2014). Connectedness as a Core Conservation Concern: An Interdisciplinary Review of Theory and a Call for Practice. *Springer Science Reviews*, 2(1–2), 119–143. <https://doi.org/10.1007/s40362-014-0021-3>

THE ONENESS IAT: A NEW ASSESSMENT TOOL FOR SUSTAINABILITY RESEARCH

Paper submitted and under review:

Areias, S., Disterheft, A., Gouveia, J. P., & Fischer, D. (nd). The Oneness IAT: a New Assessment Tool for Sustainability Research. Discover Sustainability. Submitted and under review.

Abstract

Oneness is described as a unifying dimension of all existence, reportedly experienced by various demographics as a transcendence of self and connection with the universe. Its relevance in psychology and sustainability science stems from its positive link to pro-environmental lifestyles, emphasizing the need for accurate assessment. Most studies rely solely on self-report methods, despite concerns about their suitability. Scholars suggest implicit measures to access automatically activated mental associations. This study develops and validates a new Implicit Association Test (IAT) designed to analyse response latency to oneness-related words. Guided by two experts and literature in psychoanalysis and environmental psychology, the IAT integrates implicit and explicit measures adapted from previous research. This exploratory study consists of two phases: Study 1 (n=31) examines the reliability of the selected words, finding significant internal consistency and predicted IAT effects. Study 2 (n=92) explores the psychometric properties of the same IAT, assessing criterion-related and construct validity. Correlation tests indicate significant positive relationships with prior oneness measures and related variables. A multiple regression analysis identifies significant links between IAT scores and gender, religiousness, and spirituality, corroborating previous findings. Limitations arise due to the binary structure of the IAT, which may constrain its ability to fully capture oneness. Reliance on self-report measures in psychometric properties validation raises concerns about their ability to reflect nonconscious associations. This study contributes to discussions on oneness categorization and assessment by introducing an IAT-based measurement applicable across multiple fields.

Keywords: implicit association test; oneness; psychometric properties; self-transcendence; spirituality; test validity

5.1 Introduction

Oneness has garnered growing interest from researchers amid the climate change emergency (Edinger-Schons, 2020; Garfield et al., 2014). In the face of humanitarian polycrises and insufficient collective action, the concept of spiritual oneness unveils a promising radicality for systemic transformation (Carpenter & Cruz, 2021; Egerton, 2023; Pandit, 2021; Shiva & Shiva, 2020). The acknowledgment of being one with the whole and of a “big We” (Fromm, 1976, p.86) has been evoked in the speeches of environmental activists, Indigenous leaders, and often pleaded by scientists, economists, educators, and mental health physicians as a powerful catalyst for radical change (IPCC, 2022; Krenak, 2020; Maté, 2022; Shiva & Shiva, 2020). Oneness is considered to make people care about the environment as nature “protecting itself” rather than as separate entities (Krenak, 2020; Leopold et al., 1949; Seed et al., 1988), even when that behaviour is inconvenient (Aron et al., 1991; Frantz & Mayer, 2014). This *self*-protection that includes the *other* and all of existence (Coomber & Harré, 2022) has been linked to an intrinsic, intuitive motivation that differs from anthropocentric motivators such as personal wellbeing, human flourishing, economic benefits, or social approval (Ejelöv et al., 2022; Hess, 2024).

The experience of oneness has been, among other, related to the practice of meditation (Pandit, 2021; Van Lente & Hogan, 2020), art-making (Chirban, 2000; Saarinen, 2015; Sen, 2023), activism (Edinger-Schons, 2020; Finnerty et al., 2024; Shiva & Shiva, 2020), mindfulness (Aşkun & Çetin, 2024; T. Chang et al., 2018), psychoanalysis (Eshel, 2019; Ogden, 2004; Sella, 2018), and engagement in mystical experiences (Goldberg, 2019; Isham et al., 2022; Levin, 2023; Urrutia et al., 2023), leaving room to question if oneness can be predicted and leveraged by controlled experiences. However, research on oneness and its impact on pro-environmental behaviour has been hindered by the absence of robust methods for measuring oneness. Moreover, oneness is framed by researchers as rooted in deeper societal structures, hence vulnerable to systemic oppression. Sociologists argue that embracing the inclusive oneness and wholeness of belonging has been compromised by an indoctrinated “inner diaspora” that has driven society to the brink of alienation and “spiritual departure from one’s mediated self” (Egerton, 2023; Fromm, 1976). Some authors ascribe this to the colonizing identities of whiteness and patriarchy (Egerton, 2023). Others refer to the intertwined concepts of capitalism and disconnected individualism (McGowan, 2013, 2016; D. M. Taylor & Segal, 2015).

Considering the relevance of assessing oneness in climate action studies by identifying the potential for acting from a place of holistic self-preservation, this paper aims to thoroughly

examine oneness by proposing refined methods for its assessment that can encompass its complexity and depth. Following the premise that oneness is more suitable to be assessed through automatically activated associations than with the existing self-reporting methods (Gál & Dömötör, 2023; Mayer & Frantz, 2004), this study introduces a new implicit measure designed to assess the perceived ontology (PO) of oneness. It begins by establishing a theoretical framework that traces how oneness has been categorized and perceived across time. The paper then reviews existing assessment tools, ultimately narrowing its focus to the Implicit Association Test (IAT) as the core methodological approach. This study draws primarily from environmental psychology and psychoanalysis, while referencing adjacent disciplines to contextualize its conceptual framing. The subsequent chapters describe the results of two studies: the first details the design process, while the second evaluates the psychometric properties of the tool. The paper closes with a discussion and conclusion, addressing the studies' results, limitations, and future directions.

5.2 Assessing oneness

5.2.1 Oneness categorization

Various scientific disciplines, including psychology, ecology, sociology, neuroscience, and cognitive science, have framed oneness, specifically within religious and spiritual studies (Aşkun & Çetin, 2017; Coomber & Harré, 2022; Ivanhoe et al., 2018; Laszlo & Laszlo, 2021; Nour et al., 2016). Despite its pervasive presence, in empirical terms, the oneness concept has often been analysed rather superficially. It lacks adequate assessment tools with a more nuanced understanding of the spiritual experience and its full psychoanalytical dimensions (Van Lente & Hogan, 2020).

Oneness references were brought from Sanskrit texts forming the philosophical basis of Hinduism, as *Brahman* (the universal soul), to ancient western literature. Pre-Socratic ideas were based on a unifying principle of all phenomena and Plato argued that “the one” must come before “the many”, succeeded by Plotinus’ first principle of “One” or “The Good” as the ultimate source of all reality transcending all categories of being and non-being. Oneness is herein characterized by its ineffability, as it cannot be comprehended by human intellect or described by language. Instead, it can only be approached through a mystical union where the soul transcends the material world (Cohoe, 2017; Edinger-Schons, 2020; Ghazani, 2022; Ivanhoe et al., 2018). Oneness was described similarly across religions, from Christian mysticism through the idea of “union with God”, to the Buddhist concept of *Śūnyatā*

(nothingness) (Campos & De Luca-Noronha, 2024; Laszlo & Laszlo, 2021). Oneness was absorbed by Islamic thought too, as *Tawhid* (oneness of God), and particularly within the Sufi mystical tradition, as *Wahdat al-Wujūd* (unity of existence), stating that all things are interconnected and derive their existence from the same divine source (Ghazani, 2022).

Freud (1930) laid the groundwork for oneness in twentieth century's psychoanalysis by introducing the term "oceanic feeling" (pp. 64-65, 72), describing it as a sense of limitlessness and of "being one with the external world as a whole" (Edinger-Schons, 2020; Freud, 1930; Saarinen, 2015). Developmental psychoanalysts that later built their theories on Klein's (1932) researched the fusional experience between the infant and its primary caregiver and the transition process to recognition of separate entities, ultimately fostering a cohesive sense of self (L. J. Kaplan & Hackett, 1981; M. Klein, 1932, 1937, 1957; Ogden, 2004; Donald W Winnicott, 1965). However, research findings from the late 1980s based on microanalysis of mother-infant interactions revealed that infants develop a sense of self much earlier than previously believed. Beebe and Lachmann's studies using frame-by-frame video recordings describe a dimension that is marked by the ability to feel both a sense of oneness and a distinct self (Lachmann & Beebe, 1989). Bion challenged oneness research by moving the field of study from children's development to intuitionistic and subjective science, such as spirituality and mysticism, referring to an ultimate, ineffable reality that is beyond human understanding and articulation, which he called "O" (Alisobhani & Corstorphine, 2019; Wilfred R. Bion, 1965; Goldberg, 2019). "O" is "the unknowable and the unreachable ultimate truth" that can be accessed through intuition and emotional resonance felt in psychoanalysis, but also poetry, music, painting, religion and philosophy, in a sense that these platforms are all engaged in the same search for truth (Reiner, 2022). Oneness was also observed in the analytic relationship, described by Bion as "at-one-ment" (Wilfred R. Bion, 1965; Goldberg, 2019; Grotstein, 2002), manifested in the "analytic third", a co-created intersubjective space that emerges from the analyst-analysand interaction (Ogden, 2004). It is also referred to as the "black hole" of interpersonal psychic space (Eshel, 2019), and as transposing non-dualistic approaches to mind-body and subject-object to tackle today's hyper-individualism (Sella, 2018). Bion's work on oneness was also expanded to the realm of social group dynamics (Van Reekum, 2018), paving the way for a sociological depiction of oneness, in addition to the spiritual and psychological dimensions.

The increase of oneness conceptualizations within environmental science led researchers to disambiguate and categorize oneness terms as they became increasingly scattered. A recent typology study suggests that oneness – defined as "a sense of profound unity with some other entity" that transcends the self – is categorized across psychology literature according to

scope, manifestation and perceived ontology (Coomber & Harré, 2022). Five scopes are specified, within which the “other entity” can range: (1) one another, (2) a social group; (3) humanity; (4) nature; and (5) “everything”. Apart from the one included in the latest scope, “everything” (Coomber & Harré, 2022), the selected literature understates the all-inclusive, unabridged nature of oneness originally described in ancient texts. Whereas, for example, the *inclusion of other in the self* (IOS) (Aron et al., 1991, 1992) addresses inclusion of other people or another individual into one’s self-concept, literature explicitly mentioning oneness portrays “other” as a presence that goes beyond a person or entity. It is referred to as “an Other” with a capital “O”, emphasizing the symbolic presence (Chirban, 2000) or as “the many” or the material world described in nondual texts (Edinger-Schons, 2020; Pandit, 2021). Part of Coomber and Harré’s selected literature – including the fifth scope (“everything”) – also misses the fundamental mystical dimension of oneness. Oneness has been mentioned interchangeably as *metapersonal self-construal* (DeCicco & Stroink, 2007), *mystical experiences* (Barrett et al., 2015; Hood, 1975), *spirituality* (MacDonald et al., 2015), *spiritual transcendence* (Piedmont, 2001), *self-expansiveness* (Friedman, 1983), *self-transcendent experience* (Isham et al., 2022; David Bryce Yaden et al., 2017), *nondual awareness* (Josipovic, 2014; Mills et al., 2018; Pandit, 2021), and *ego-dissolution* (Nour et al., 2016). Oneness is also categorized according to how it manifests (Coomber & Harré, 2022): as an experience of boundlessness, self-transcendence, nothingness, timelessness or wholeness (Chirban, 2000; Eshel, 2019; Levin, 2023; Van Lente & Hogan, 2020); as an intuition or “sense” beyond the cognitive realization that one’s self and everything else is one (Josipovic, 2014; Mills et al., 2018); or as a belief in the fundamental interconnectedness and unity of all existence (Campos & De Luca-Noronha, 2024; Diebels & Leary, 2019; Edinger-Schons, 2020; Garfield et al., 2014). The perceived ontology (PO) of oneness is divided into three basic categories: expansion, in which the other is included in the self, thereby expanding the self; interdependence, in which the self is part of a greater whole; and essential, in which the self and the other are seen as sharing some fundamental essence (Coomber & Harré, 2022). Reinterpretations and deviations of the concept of oneness from its unboundedness and mystical dimension may compromise the applicability of the assessment tools (Campos & De Luca-Noronha, 2024; Laszlo & Laszlo, 2021; Van Lente & Hogan, 2020). Therefore, correctly framing oneness is crucial to its assessment.

5.2.2 Oneness assessment tools

The assessment tools used to examine oneness reliably vary across different fields of study. In the realm of psychoanalysis, oneness is analysed with the psychoanalytical method, in-

depth clinical case studies (Wilfred R. Bion, 1965; Eshel, 2019; L. J. Kaplan & Hackett, 1981; Silverman et al., 1982), and non-clinical case studies (Chirban, 2000). In a particular case for a set of developmental psychology studies, a microanalytic observational method was applied by analysing videotaped mother-infant interactions and measuring their nonverbal attunement (Lachmann & Beebe, 1989). Oneness is also assessed through *interactive management* (IM) in psychology, a collective intelligence method that collects participatory insight through structured dialogue with experienced meditators (Van Lente & Hogan, 2020). In the great majority of cases, oneness is assessed with self-report questionnaires in which participants are asked the degree to which they agree with a list of statements, some of which integrating oneness measurement scales, namely the *oneness beliefs scale* (OBS) with physical oneness and spiritual oneness subscales (Garfield et al., 2014) and the *belief in oneness scale* (BOS) (Diebels & Leary, 2019). These instruments treat oneness as a belief system, but recent contributions from personality psychology suggest that such beliefs may also reflect stable individual traits ((Edinger-Schons, 2020; Diebels & Leary, 2019). Oneness has also been measured as a behaviour with the *oneness behaviors scale* (Aşkun & Çetin, 2017, 2024), although oneness behaviours are not acknowledged by self-transcendence studies, which caution against conflating oneness with its “antecedents or outcomes” (Coomber & Harré, 2022; Yaden et al., 2017).

Regarding variables that are interchangeable with oneness, similar assessment measures using self-reporting questionnaires have been applied in transpersonal psychology and religion studies. The *metapersonal self-construal scale* (SCS) (DeCicco & Stroink, 2007), based on Bragg’s constructionist self-theory (Bragg, 1996), the transpersonal scale of the *self-expansiveness level form* (Friedman, 1983), the *spiritual transcendence scale* (Piedmont, 2001), the phenomenological dimension of the *expressions of spirituality inventory* (MacDonald et al., 2015), the ego quality and unifying quality subscales of the mysticism scale of *reported mystical experience* (Hood, 1975), the external and internal unity sub-scales of the *mystical experience questionnaire* (MacLean et al., 2012), the *revised mystical experiences questionnaire* (Barrett et al., 2015), the *mysticism scale* (Hood et al., 2001), the connectedness factor of the *awe experience scale* (AWE-S) (David B. Yaden et al., 2019), and the transpersonal self cluster of the *meditation depth index* (Piron, 2001). Neuroscience studies on meditative states of consciousness, in which oneness is experienced, measure the brain activity of participants by generating detailed images with magnetic resonance imaging scanners (Boccia et al., 2015; Mishra et al., 2017; Ritskes-Hoitinga & Baerentsen, 2003; Yaden et al., 2017), in which an “enlightenment state, where time and place limits have disappeared, and a great feeling of love/unity is experienced” is reported and analysed (Ritskes-Hoitinga &

Baerentsen, 2003). Table 5.1 lists the assessment tools used to evaluate oneness and other interchangeable variables in scientific studies since the 1960s.

Table 5.1 – Oneness-related assessment and measurement tools.

Terminology	Assessment tool		References
Oneness	Psychoanalytical method	Clinical case studies	(Bion, 1965; Eshel, 2019; Kaplan & Hackett, 1981; Silverman et al., 1982)
		Non-clinical case studies	(Chirban, 2000)
	Scale with self-report questionnaire	Oneness beliefs scale	(Edinger-Schons, 2020; Garfield et al., 2014)
		Belief in oneness scale	(Diebels & Leary, 2019)
		Oneness behaviours scale	(Aşkun & Çetin, 2024)
	Interactive management		(Van Lente & Hogan, 2020)
Metapersonal self	Scale with self-report questionnaire	Metapersonal self-construal scale	(DeCicco & Stroink, 2007)
Self-expansiveness	Scale with self-report questionnaire	Transpersonal scale of the self-expansiveness level form	(Friedman, 1983)
Spiritual transcendence	Scale with self-report questionnaire	Spiritual transcendence scale	(Piedmont, 2001)
Spirituality	Scale with self-report questionnaire	Phenomenological dimension of the expressions of spirituality inventory	(MacDonald et al., 2015)
Mystical experience	Scale with self-report questionnaire	Ego quality and unifying quality subscales of the mysticism scale of reported mystical experience	(Hood, 1975)
	Scale with self-report questionnaire	External and internal unity subscales of the mystical experience questionnaire	(MacLean et al., 2012)
	Scale with self-report questionnaire	Revised mystical experiences questionnaire	(Barrett et al., 2015)
Mysticism	Scale with self-report questionnaire	Mysticism Scale	(Hood et al., 2001)
Awe experience	Scale with self-report questionnaire	Connectedness factor of the awe experience scale	(David B. Yaden et al., 2019)
Meditation depth	Scale with self-report questionnaire	Transpersonal self cluster of the meditation depth index	(Piron, 2001)
Meditative state	Magnetic Resonance Imaging		(Ritskes-Hoitinga & Baerentsen, 2003)

In addition to divergences in oneness categorization discussed above, the reliance on self-report questionnaires for assessing oneness further raises concerns about oneness' measurability. While metaphysical claims of oneness posit an ultimate, indivisible reality,

psychological perceptions of oneness reflect how individuals subjectively experience interconnectedness with the whole. Given its ineffable nature, oneness is assessed through psychological representations rather than assertions about metaphysical truth (Wilfred R. Bion, 1965; Goldberg, 2019). Self-report measures are considered to be limited in accurately capturing complex psychological constructs because they can be biased by social desirability, lack of self-awareness, and their very abstract nature (McDonald, 2008). Researchers argue that a person's beliefs or intuitions are either unconscious or at least not "readily available for retrieval" and thus not suitable to be self-reported, but rather likely to be assessed through nonconscious automatic associations (R. E. Dunlap & Van Liere, 1978; Schultz et al., 2004). Implicit measures are argued to be a more reliable methodological approach to overcome this research gap and provide observable data.

5.2.3 The implicit association test

In psychology, the term implicit refers to mental processes or representations that operate without conscious awareness or intentional control. Implicit measures are defined as performance-based assessment tools that infer mental content from tasks responses, rather than relying on self-report. The implicit association test (IAT) is an implicit measure using a response latency technique's (RTL), designed to measure the speed, hence the strength, of associations between two concept representations in a person's memory. The IAT involves organizing words, or images representing concepts, into a pair of categories. Participants are asked to sort these concepts appearing in the middle of a computer screen into attributes on the left and on the right, as fast as they can, using two keyboard keys. Faster responses indicate stronger implicit associations between the paired concepts and attributes (Greenwald et al., 1998; Jordan, 2020). Greenwald first developed the test in 1998, measuring "pleasant" vs. "unpleasant" cognitive associations, later applied in psychology, social sciences and marketing studies. The IAT is mainly used to unveil social biases (e.g., race, gender, age) and consumers' underlying cognitive processes. However, it has been recently applied and recommended to measure participants' connectedness with nature (Bruni & Schultz, 2010; Schultz et al., 2004; Wang et al., 2019), which anticipates the potentiality for oneness assessment as well, considering that both oneness and connectedness are a sense of unity, transcending the boundaries of self or expanding the concept of *me* to include an external entity. (Coomber & Harré, 2022).

The IAT enables a broad applicability, sensitivity to subtle differences, cost-effectiveness, promptness, effortless engagement process, and ability to uncover unconscious biases that individuals may not be aware of (Greenwald et al., 2022). However, there is currently no

compelling evidence that the IAT reveals attitudes or self-concepts of which individuals are genuinely unaware (Gawronski et al., 2017; Meissner et al., 2019). The data collected from the Implicit Association Test (IAT) is synthesized into a key metric known as the D-score, which can be quantitatively related to other variables (Greenwald et al., 2022).

The attribute exemplars (i.e., the pair of words conveying the positive category and the negative category) used in an implicit association test must be “easy for subjects to sort” and common sense is suggested to be enough in this selection process because the specific words chosen for the evaluative stimuli do not significantly impact the results. A wide range of attribute words can be effectively used in the IAT without compromising its reliability. However, the selection of target exemplars is rather critical. Each one of the exemplars should differ from those for its contrasted target category in one primary feature. This recommendation is suggested to be crucial in avoiding ambiguity and succeeding at the pilot test validation (Axt et al., 2021; Greenwald et al., 2022) that is further described in Study 1. Given the previously mentioned complexity in defining oneness across the literature, this study assimilates an insight that has been overlooked in recent oneness assessment tools: the integrative view of oneness that includes not only blissful feelings, but also dreadful ones. Ofra Eshel delves into the “unfathomable depths of deadness and emptiness” of the “black hole” that lies in the interpersonal psychic space (Eshel, 2019), confirming the “suffering” dimension of oneness reported by experienced meditators (Van Lente & Hogan, 2020) that traces back to the mystical path of loss towards the unity of existence (Ghazani, 2022). Oneness scales that are one sided with a list of pleasant premises only might reinforce bias in self-reporting and compromise overall measurement efficacy.

5.3 Study 1: development and pilot testing

The first study consists of developing an implicit association test (IAT) to assess oneness. For content validity, the design phase identifies relevant sets of target words, attribute words (positive and negative), and respective stimuli words, with the input of expert interviews. A subsequent pilot testing uses the category classification tasks, following the recommended practices for administering IAT measures, to verify if the words are easy enough to classify (Greenwald et al., 2022) and examines the internal consistency-reliability of the selection of words (American Educational Research Association et al., 2014).

5.3.1 Method

5.3.1.1 Participants

Participants in this study were selected through unrestricted convenience sampling, appropriate for pilot studies and preliminary research (Golzar & Tajik, 2022). A total of 35 subjects completed the online test by following a hyperlink provided by email. The initial email included a brief introduction to the study's aim, test format, language (English), estimated duration, and a request to forward the email to others, creating a snowball sampling effect. No recruitment services nor incentives were used. The link was shared informally through the first author's personal and professional contacts, who then circulated it within their own networks. This open distribution likely contributed to a relatively diverse sample in terms of age, religion, and education. Although most participants were Portuguese, English proficiency was inferred from their voluntary engagement with the English-language test, as outlined in the introductory explanation. No demographic filters were applied, and participation was unrestricted to anyone with access to the link. The study was conducted in accordance with the ethical guidelines of NOVA School of Science and Technology. Informed consent was obtained through a consent declaration embedded in the online form before the actual test. Four participants were removed from the data set due to error rates above 20%, following Greenwald's assumption that participants might have either misunderstood the instructions or responded too rapidly in these cases (Carpenter et al., 2019; Greenwald et al., 1998), and no participants were discarded for having mean latency below 300ms. A final sample size of 31 participants was retained. The age range varied from 17 and 59 years old ($M = 34.23$; $SD = 9.07$). 20 participants identified as women, 10 as men, and 1 as other. The sample size was determined based on a power analysis conducted using G*Power version 3.1.9.7 (Erdfelder et al., 2009). With an expected Cronbach's alpha value of at least 0.5, an alpha level of 0.05, and a desired power of 0.95, the analysis indicated that the sample size meets the required conditions for internal consistency (Bujang et al., 2018; Kang, 2021).

5.3.1.2 Design

In an implicit association test, participants are asked to sort words into positive and negative attributes that have to be defined in the design phase, as well as a set of two target words and respective stimuli exemplars (Carpenter et al., 2019; Greenwald et al., 1998). This study collected recommendations from two experts in semi-structured interviews (see Appendix A): i) a social psychologist based in the United States who pioneered the use of IAT in environmental psychology and developed several IAT studies measuring connectedness with

nature – which is categorized as oneness in sustainability studies (Coomber & Harré, 2022) – and ii) a psychoanalyst specialist based in Portugal developing research work in oneness studies. The experts were selected based on their respective qualifications – one for developing an IAT from the ground up to measure connectedness with nature, and the other for expertise in oneness studies – with both demonstrating willingness to engage in a one-hour online interview. The selection of words was guided by the interviewees’ responses and supported by referred literature, following the recommended practices for selecting categories and exemplar stimuli (Greenwald et al., 2022). The exploratory nature of this study prompted integrating diverse perspectives coming from the experts’ inputs and literature, while acknowledging potential limitations in construct validity and category coherence. Table 5.2 summarizes the stimuli words for each target and attribute used for the IAT.

The test replicates Schultz’s (2004, 2007, 2010, 2017) self-referential valence framework, with the attributes “Me” (positive) and “Not-me” (negative) and their respective five related words. “Me” represents personal identification and “Not-me” signals psychological distance. The use of “Not-me” is supported by Greenwald’s recommendation A6 “negations can be satisfactory in category labels” (Greenwald et al., 2022). Because the oneness experience is perceived as a fundamental *unboundedness* or a sense of dissolved boundaries (Van Lente & Hogan, 2020), target words were set to be “Bounded” and “Unbounded”. Two groups of seven stimuli words were selected for each target, ensuring both target groups were balanced in terms of pleasant and unpleasant words. For example, the “Unbounded” group of words includes terms like “cosmos” and “transcendence”, integrated with an extended perception of self (Diebels & Leary, 2019); “infinity” because of the consistent reporting of a sense of being “infinite” (Van Lente & Hogan, 2020); and “unknown”, due to Winnicott’s (D. Winnicott, 1971; Donald Woods Winnicott, 1965, 1988) and Bion’s (Wilfred R. Bion, 1965; Wilfred Ruprecht Bion, 1970) embracement of the unknown and of the unthinkable to be in oneness (Eshel, 2019; Van Lente & Hogan, 2020). Conversely, words like “darkness”, “void” and “death” are also part of the “Unbounded” target to counterbalance the essentiality of “suffering” in the oneness experience (Van Lente & Hogan, 2020). Oneness literature pictures the self-other overlap in the interpersonal psychic space as a “black hole” experience (Akhtar, 2009; Bion, 1970; Eshel, 2019). Oneness or “at-one-ment” is described as the “bottomless void of primary meaninglessness, nothingness, chaos, and dread” (Eshel, 2019), and ultimately an acceptance of “death” (Van Lente & Hogan, 2020), or the feeling of “deadness” itself and “going through annihilation and death” (Eshel, 2019). The “Bounded” group of words includes terms of Shalom Schwartz’s (Schwartz, 2012) theory of values conveying the self-centred conceptualization of restraint “power” as opposed to “self-transcendence”. The inclusion of the

words “domination” and “control” in the “Bounded” target group is reinforced by the negative relation between spiritual oneness and dominion beliefs (Garfield et al., 2014) and the definition of oneness experience as a feeling of “no longer needing to control” (Van Lente & Hogan, 2020).

The interviews were additionally useful to sharpen details about the software used for conducting the IAT (see next section), used both for the test and data analysis, the desirable setting, procedures and limitations.

Table 5.2 – Words used for oneness assessment on the IAT of study 1.

Target		Attribute	
Unbounded	Bounded	Me (positive)	Not me (negative)
Cosmos	Authority	I	Another
Darkness	Control	Me	It
Death	Dominance	My	Other
Infinity	Power	Myself	Them
Transcendence	Prestige	Self	They
Unknown	Status		
Void	Wealth		

5.3.1.3 Materials

IAT. A modified version of Greenwald’s IAT was used to assess automatic associations (Greenwald et al., 1998, 2022). A computerized test was developed online in Testable.org with a default setting of an implicit association test, which was later adapted to the number of blocks, trials, and stimuli words of Harvard’s Project Implicit, applying the words above, and also according to Greenwald’s directives on structure (Greenwald et al., 2022). This test measures the reaction time (in milliseconds) participants take to sort words into categories and target-concepts. Figure 5.1 presents four samples of the computerized test.

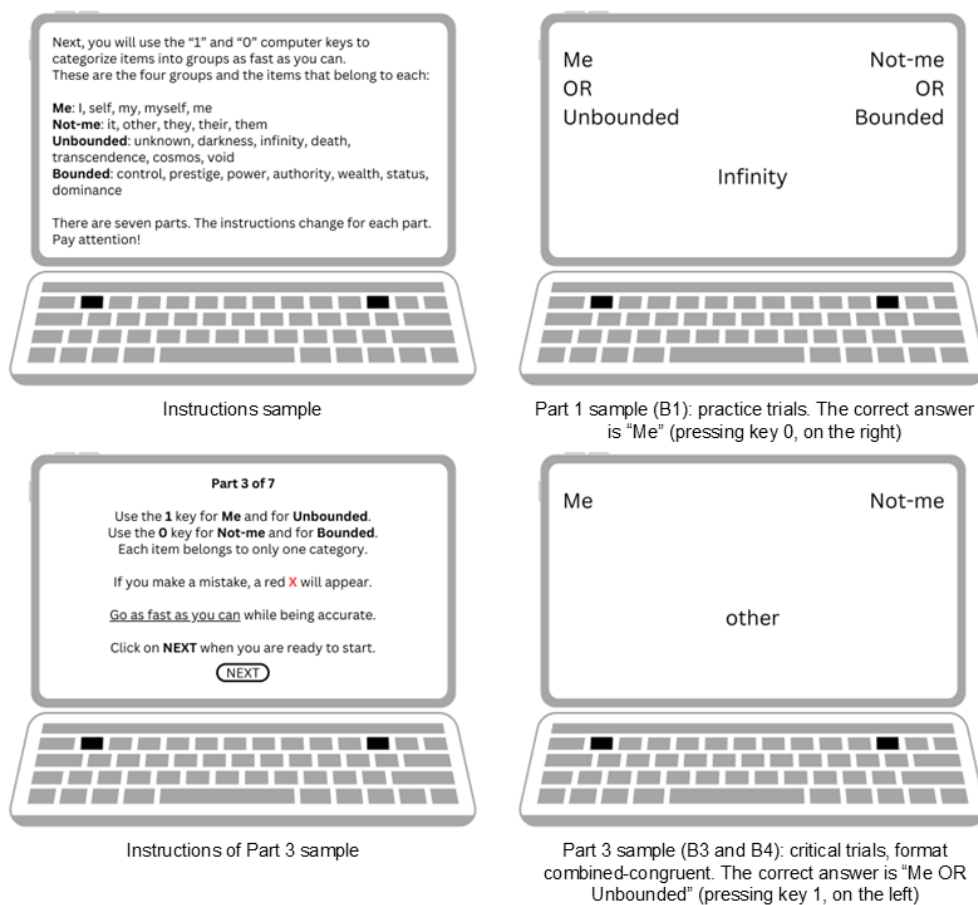


Figure 5.1 – Sample screenshots of the IAT in Testable: the initial instructions, a trial of part 1, the introduction to part 3, and a trial of part 3.

The IAT of this study consisted of 180 trials distributed in five parts – three blocks for practice and two parts containing a practice block with a critical block – summarizing a total of seven blocks. Practice blocks are designed to help participants become familiar with the task and the categories they will be using. The two critical blocks - one *combined and congruent*, where the categories that are typically associated together for oneness (e.g., “me” and “transcendence”) share the same response key, and one *combined and incongruent*, where the categories that are typically associated together correspond to different response keys - issue the reaction times that will further generate the D-score by standardizing the differences between both means.

The D-score is a standardized measure derived from response latencies in the IAT. It quantifies the relative strength of one pair of associations compared to another by comparing response times across task blocks. Testable randomizes the order in which stimuli words appear on screen but also ensures that repetitions on both attributes and targets are counterbalanced. Table 5.3 shows the schematic description of the implicit measure of the IAT.

Table 5.3 – Schematic diagram of the IAT in Testable

Part	Block	Type	Trials	Format	Left attribute/target(1)	Right attribute/target(0)
1	B ₁	Practice	20	Simple	Me	Not me
2	B ₂	Practice	20	Simple	Unbounded	Bounded
3	B ₃	Practice	20	Combined–congruent	Me OR Unbounded	Not me OR Bounded
	B ₄	Critical	40	Combined–congruent	Me OR Unbounded	Not me OR Bounded
4	B ₅	Practice	20	Simple	Bounded	Unbounded
5	B ₆	Practice	20	Combined–incongruent	Me OR Bounded	Not me OR Unbounded
	B ₇	Critical	40	Combined–incongruent	Me OR Bounded	Not me OR Unbounded

Demographics of the IAT include age, gender, education level, and two yes-or-no questions about whether participants considered themselves religious and whether they considered themselves spiritual. This study acknowledges gender as socially constructed roles and behaviours, following SGBA best practices (Heidari et al., 2016), including a non-binary option “other” that allows participants to self-identify. The demographics of this test were chosen based on previous research, which indicates that respondents identifying as women have significantly higher oneness, that oneness increases with age and decreases with education level (Edinger-Schons, 2020), and positive relations between oneness and spirituality and between oneness and religiosity (Diebels & Leary, 2019; Garfield et al., 2014; Levin, 2023).

5.3.1.4 Procedure

Participants used individual computers to follow the hyperlink that was sent to them by email along with a brief written explanation of the aim of the study. The hyperlink took them to a computerized test (in Testable.org) in which they were invited to read and sign a consent form to assure their understanding of the IAT procedure, followed by a demographic form of compulsory filling. Before initiating the actual implicit measure, subjects were asked if they agreed to be contacted further on to be part of the next research phase that would follow the present study. Subjects were then prior presented with the list of words and categories that they were supposed to put together in the sorting task (see table 5.1) and were also advised to do it as accurately and as fast as they could, keeping their left and right fingers on top of the “1” and “0” keys of the keyboard at all times. The test automatically records the reaction time (RT) in milliseconds for each of the 180 trials and notes whether each response was correct or incorrect, which is used for calculating the error rate. Once the last submit button is hit, the test is complete and Testable.org automatically generates a file per participant, which can be immediately accessed and downloaded by the authors for further analysis. The data is then organized into a single table or data frame, including the D-score, demographics, average reaction times (RT), and error rates. This data frame is designed to be accessed and analysed

using R version 4.3.2 (R Core Team, 2024). The analysis utilizes various function: *lm* for linear multiple regression, *cor.test* for correlation tests, *alpha* for Cronbach's alpha test and *splitHalf* for split-half test. The latter two are intended to evaluate the reliability of the implicit measure.

5.3.2 Results

The first study yielded an average D-score of 0.18 ($SD = 0.63$), ranging from -1.17 to 1.28 . The D-score for each participant is calculated using the formula below, after neutralizing responses with reaction times (RT) over $10,000ms$, and replacing the RT of incorrect responses with the respective block's average RT plus a penalty of $600ms$, following the protocol recommended by Greenwald (Carpenter et al., 2019; Greenwald et al., 2003, 2022) (equation 1).

$$d = \frac{M_{incongruent} - M_{congruent}}{SD} \quad (\text{eq.1})$$

In a preliminary analysis, p-values were calculated with a linear multiple regression in R version 4.3.2 (R Core Team, 2024), relating the D-score and participants' demographics like age, gender, education, religiousness and spirituality (the latter two are yes-or-no questions). The multiple regression delivered no noteworthy relations between the D-score and the predictors referred above. However, a correlation test yielded a marginally significant negative correlation between the subjects' age and their D-score ($r = -0.362$; $p = 0.046$).

The data analysis procedure to evaluate whether the words used were easy enough to classify consists of calculating the participants' average response latency of the first two practice blocks (see B_1 and B_2 in table 2) and error rates. The majority of the subjects should range their average time, measured in milliseconds, between 600 and 800, while also presenting error rates below 10% (Greenwald et al., 2022). The first 52 percentile of participants in this study scored between 600 and 800 milliseconds, and 97% of participants had error rates below 10%. These results configure favourable outcomes for a positive pilot testing and the content validity of the test. Reaction times ranged from $650.3ms$ to $1261.4ms$, with a median of $784.1ms$ ($M = 854.1$; $SD = 154.8$). Figure 5.2 shows the density of participants' average reaction time (RT) and error rates in both block 1 and block 2. Both histograms reveal positively skewed distributions. As expected in typical reaction time histograms (Rousselet & Wilcox, 2020), most reaction times are clustered towards the lower end, with a few outliers extending the distribution towards higher values, as most reactions happen quickly, but a few outliers take much longer.

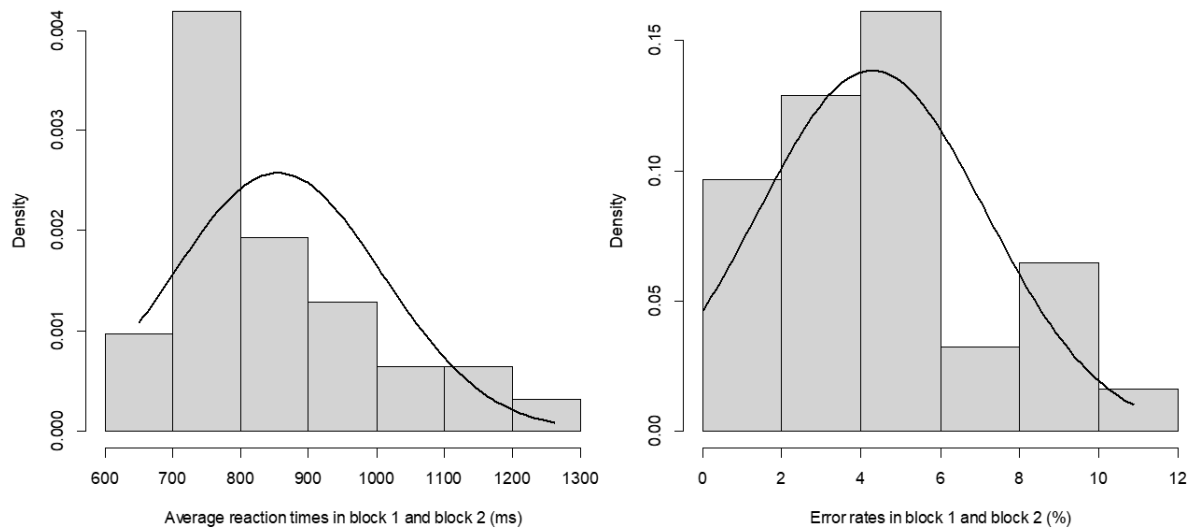


Figure 5.2 – Histogram of reaction times (RT) in the pilot testing of the implicit association test (on the left) and histogram of participants' error rates in the implicit association test (on the right). The density of the average RT between 600 and 800 milliseconds and the density of participants responding incorrectly to less than 10% of trials shows that the words used in the test are easy enough to classify, which configures a positive result for a valid pilot testing.

A split-half reliability test delivered excellent internal consistency, with an average of 0.95 across the 80 trials of the implicit association test's critical blocks, both congruent and incongruent (see B₄ and B₇ in Table 3), with a sample size of 31 respondents. The Cronbach's alpha analysis indicates excellent internal consistency of the IAT as well, with a raw alpha of 0.94 and a standardized alpha of 0.95, which is considered to indicate excellent levels of reliability (Taber, 2018). The average inter-item correlation is 0.2, suggesting moderate relationships between items. By taking out specific stimuli words, consistency did not significantly increase or decrease the coefficient of the Cronbach's alpha analysis. Table 5.4 shows the summary of split-half reliability and Cronbach's Alpha results of the IAT.

Table 5.4 – Summary of the analysis of internal consistency of the IAT.

Trials	split-half reliability	Cronbach's alpha	std.alpha	G6 (smc)	average r	median r
80	0.95	0.94	0.95	0.99	0.2	0.17

Note: n=31. std.alpha = standardized alpha median; G6 = Guttman's lambda 6; average r = average inter-item; median r = median inter-item correlation.

An additional exploratory analysis revealed a significant difference in reaction times (RT) between participants with the highest and lowest D-scores on the IAT. A Pearson correlation analysis revealed a highly significant negative correlation between the variables ($r = -0.731$; p

= 3.071×10^{-6}). Participants with higher D-scores demonstrated significantly lower RTs than those with lower D-scores, indicating they were faster at sorting words in the critical blocks (which included an equal number of congruent and incongruent trials).

The first study concludes that the IAT developed is suited to be applied in the oneness assessment of the following study without any further adaptations except for an adequate sample size according to the required correlations for psychometric properties analysis.

5.4 Study 2: IAT psychometric properties

The second study consists of examining the psychometric properties of the oneness IAT developed in study 1 (see previous chapter) and analysing relationships between implicit oneness and demographics. The psychometric properties ascertain the instrument's construct validity, criterion-related validity and consistency-reliability, by checking for correlations between implicit oneness and former oneness scales and between implicit oneness and variables that have been correlated in previous research.

5.4.1 Method

5.4.1.1 Participants

Participants were recruited from school of science and technology of a university in Portugal. The recruitment process involved obtaining permission from the university to administer the test to students in a set of classes held in the university's computer lab, as well as during the seminar of a doctoral program and an open day event for high school students, happening within a period of ten months from July 2023 to May 2024. This study was conducted in accordance with the ethical guidelines of NOVA School of Science and Technology. A total of 95 subjects completed the online test by following the hyperlink provided via email. However, three participants were removed from the data set due to error rates above 20%, and one participant was discarded for having a mean latency below 300ms. This resulted in a final sample size of 92 participants. The age range of the participants varied from 16 to 52 years old ($M = 23.18$; $SD = 8.42$). Among the participants, 57 identified as women, and 35 identified as men. Also in this study, no recruitment services or incentives were used for participant recruitment. Informed consent was obtained through a consent declaration embedded in the online form before the actual test. In order to determine an adequate sample size for a correlation test and multiple linear regression, a power analysis was conducted using G*Power version 3.1.9.7 (Erdfelder et al., 2009). With an anticipated medium effect size, an alpha level

of 0.05, and a desired power of 0.90, the analysis indicated that the minimum sample size is comfortably below the number of collected responses.

5.4.1.2 Materials

IAT. The same implicit measure of the IAT developed in the previous study to assess oneness was used in study 2 (see chapter 3.1.3), with the same structure and words listed in Table 5.2. The IAT was complemented with the three explicit measures described below.

Oneness beliefs scale (OBS). The oneness beliefs scale (Garfield et al., 2014) is designed to assess individuals' beliefs in oneness. The scale consists of two subscales: spiritual oneness (SO), including premises that reflect the interconnectedness of all things on a spiritual level, and physical oneness (PO), with premises that reflect the psychical interconnectedness of all things. Participants are asked to respond to a series of statements that reflect these beliefs, indicating their level of agreement or disagreement on a Likert scale. The Oneness Beliefs Scale has been tested across multiple studies, demonstrating internal consistency, convergent and discriminant validity, and temporal stability (ibid). This study uses the OBS to validate the Oneness Implicit Association Test (IAT) psychometric properties by running a correlation test between the OBS results – i.e., of an existing and previously validated oneness measure – and the D-score.

Oneness experience. The oneness experience is a Likert-scale questionnaire designed using statements from Van Lente and Hogan's collective intelligence study (Van Lente & Hogan, 2020). The selected statements were those that ranked highest among the most voted categories, making them the most commonly used by the five groups of experienced meditators to describe the experience of oneness. This resulted in a total of 15 sentences for participants to indicate their level of agreement or disagreement. The oneness experience serves as an alternative oneness predictor, allowing for further analytical comparison between experience and belief, as established in Coomber and Harré's categorization study (Coomber & Harré, 2022).

New environmental paradigm (NEP). The NEP scale (R. E. Dunlap & Van Liere, 1978) measures individuals' environmental attitudes and beliefs. It assesses the extent to which people recognize the ecological limits of growth and the need for sustainable practices. The questionnaire consists of a series of statements to which participants respond on a Likert scale, indicating their level of agreement or disagreement (ibid). The NEP scale was validated through extensive testing for reliability and consistency and has become the most widely used measure of environmental concern in the world, employed in hundreds of studies in dozens of nations (R. Dunlap, 2008). This study uses this scale to validate the Implicit Association Test

(IAT) psychometric properties by running a correlation test between the results of the NEP questionnaire – i.e., a validated assessment tool that yielded a positive correlation test with oneness in past research – and the D-score. Previous correlations between the NEP scale and the oneness beliefs scale (OBS) yielded a moderate positive relationship ($p < 0.01$) with a Pearson coefficient of 0.22 (Garfield et al., 2014).

5.4.1.3 Procedure

Participants completed the test by clicking on a hyperlink provided via email, which directed them to a Testable.org computerized test, similar to the procedure in Study 1. Participants had to read and sign the same consent form to start the test, ensuring they understood the study's aim, the anonymity of their responses, and what was expected of them. The demographics were also the same, and the test followed the exact same structure, number of blocks, and respective trials. The order of stimuli words might differ, as Testable.org randomizes the order in which the exemplars appear on the screen for sorting. After hitting the submit button at the end of the implicit part, participants were required to complete the three Likert-scale questionnaires described above. A file was generated for each participant, containing all reaction times and responses.

5.4.2 Results

The second study yielded an average D-score of -0.04 ($SD = 0.44$), ranging from -1.17 to 0.84 . The D-score is calculated following the same protocol as in Study 1. The average percentage of error in the test was 7.3% ($SD = 5.63$). 68% of participants delivered a test with error rates below 10% and half of participants were quick enough to configure favourable results for content validity. Cronbach's alpha and split-half analysis in R version 4.3.2 (R Core Team, 2024) were used once again to evaluate the internal-consistency reliability of the implicit measure, as well as of all the questionnaire measures. McDonald's omega was additionally computed for the questionnaires to provide a more robust estimate of reliability. The implicit association test yielded an alpha value of 0.94 and an average split-half reliability of 0.94 , indicating excellent internal consistency across the 80 trials of the test's critical blocks, with a sample size of 92 respondents. All questionnaires yielded high to very high levels of reliability: OBS ($\alpha = 0.85$; $\lambda = 0.84$; $\omega = 0.9$), OE ($\alpha = 0.79$; $\lambda = 0.78$; $\omega = 0.83$), NEP ($\alpha = 0.69$; $\lambda = 0.74$; $\omega = 0.82$) (Table 5.5).

Table 5.5 – Summary of the analysis of internal consistency reliability of all measures.

Measure	items	split-half reliability	Cronbach's alpha	std.alpha	G6 (smc)	ω_t	average r	median r
IAT	80	0.94	0.94	0.94	1	–	0.17	0.16
OBS	11	0.84	0.85	0.84	0.88	0.90	0.33	0.31
OE	15	0.78	0.79	0.78	0.82	0.83	0.19	0.19
NEP	15	0.74	0.69	0.71	0.84	0.82	0.14	0.13

Note: n=92. Items = number of analysed trials/questions; std.alpha = standardized alpha median; G6 = Guttman's lambda 6; ω_t = McDonald's omega; average r = average inter-item; median r = median inter-item correlation.

The examination of construct validity was performed in R, by conducting a correlation test between the IAT's D-score and the oneness belief scale (OBS) – a scale of the same construct. The Pearson analysis yielded a moderate positive correlation with OBS ($r = 0.265$; $p = 0.011$) and a marginally significant correlation with OE ($r = 0.197$; $p = 0.06$). The examination of criterion-related validity was conducted through a correlation test between the IAT's D-score and the new environmental paradigm (NEP) – a measure that is positively related to OBS. The test delivered a moderate positive correlation ($r = 0.254$; $p = 0.015$) (Table 5.6).

Table 5.6 – Summary of the analysis of construct validity and criterion-related validity

Response variable	Predictor	<i>r</i>	<i>p-value</i>	<i>CI (95%)</i>
D-score	OBS	0.265	0.011**	[0.064, 0.446]
	OE	0.197	0.06 *	[-0.008, 0.386]
	NEP	0.254	0.015**	[0.052, 0.436]

*Note: r = Pearson's correlation coefficient; CI (95%) = confidence interval; D-score = IAT metric; OE = oneness experience; OBS = oneness believe scale; NEP = new environmental paradigm; * / * Marginally significant; ** Significant; *** Highly significant.*

Additionally, a linear multiple regression was performed in R, relating the D-score with a group of five predictors, which are the demographics collected in the initial part of the implicit association test, also included in Study 1. The words used to categorize each of the demographics are described in Table 5.7, along with the count of participants corresponding to each category.

Table 5.7 – Categorization of the demographics of the test

Demographic	Categorization	Description	<i>n</i>
Age	<18	Participants who typed their age as being less than 18 years old	7
	18-27	Participants who typed their age as being between 18 and 27years old	64
	28-37	Participants who typed their age as being between 28 and 37years old	11
	38+	Participants who typed their age as being over 38 years old	10
Gender	Woman	Participants who identified themselves as women	57
	Man	Participants who identified themselves as men	35
	Other	Participants who selected “other”	0
Education level	Less	Participants who selected “Less than high school”	7
	High-school	Participants who selected “High school or equivalent”	57
	College	Participants who selected “College or technical school”	6
	Bachelor	Participants who selected “Bachelor degree”	7
	Master/Doc	Participants who selected “Master/Doctorate”	15
Religiousness	Religious	Participants who replied “yes” to “Do you consider yourself religious?”	24
	Non-religious	Participants who replied “no” to “Do you consider yourself religious?”	68
Spirituality	Spiritual	Participants who replied “yes” to “Do you consider yourself spiritual?”	42
	Non-spiritual	Participants who replied “no” to “Do you consider yourself spiritual?”	50

Note: *n*=92.

The *step* function (R Core Team, 2024) identified the most efficient model for explaining the variability in the D-score in relative to the initial group of five predictors by calculating and comparing the models’ AIC (Akaike Information Criterion), a measure of the relative quality of a statistical model given the data. The final step regression model includes gender, religiousness and spirituality (Table 5.8). The overall model was statistically significant, $F(3, 88) = 5.37$, $p = 0.002$, $R^2 = 0.15$, Adjusted $R^2 = 0.13$, indicating that gender, religiousness, and spirituality explain 15% of the variance in D-scores. Participants identifying as women and spiritual show an increase in the D-score. Religiousness is associated with a slight decrease in the D-score, indicating a marginally significant negative effect. The *emmeans* function (Lenth, 2025) validated the final model by estimating marginal means for the remaining predictors and providing a clear understanding of the effect of each predictor (Figure 5.3). The *effect* function (John Fox, 2003) supported the creation of the plots in Figure 5.4, which display the estimated D-scores for each predictor category, with 95% confidence intervals.

Table 5.8 – Results of the reduced multiple regression model. The regression coefficients indicate the positive or negative relationship between the IAT results and gender, religiousness and spirituality.

Response variable	Predictor	Beta	SE	<i>t</i> value	<i>p</i> -value
D-score	(intercept)	−0.208	0.081	−2.573	0.012*
	Woman	0.245	0.090	2.726	0.008**
	Religious	−0.166	0.098	−1.691	0.094•
	Spiritual	0.129	0.088	1.457	0.149

Note: *n*=92. D-score = IAT metric; Beta = estimate/regression coefficient; SE = standard error; • / * Marginally significant; ** Significant; *** Highly significant.

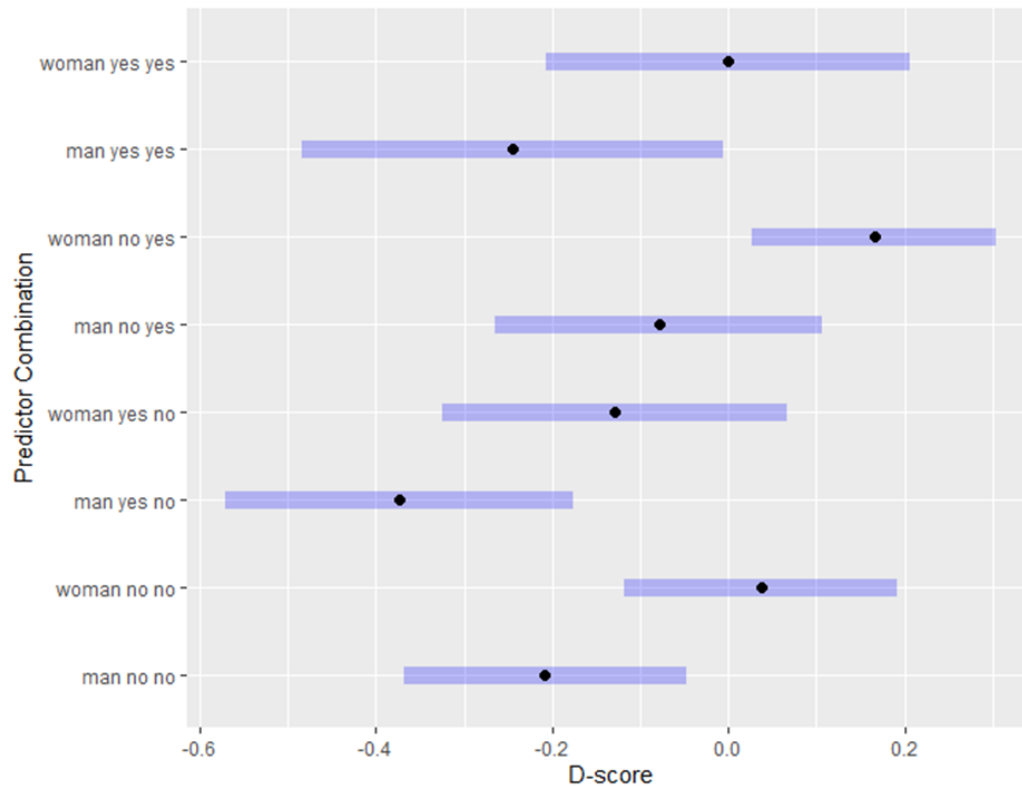


Figure 5.3 – Estimated marginal means from the final simplified regression model, depicting D-scores on the x-axis across combinations of gender, religiousness, and spirituality on the y-axis. Each point on the plot represents an estimated mean score for a specific combination of predictors. The confidence intervals (95%) provide a range within which the true mean score is expected to fall.

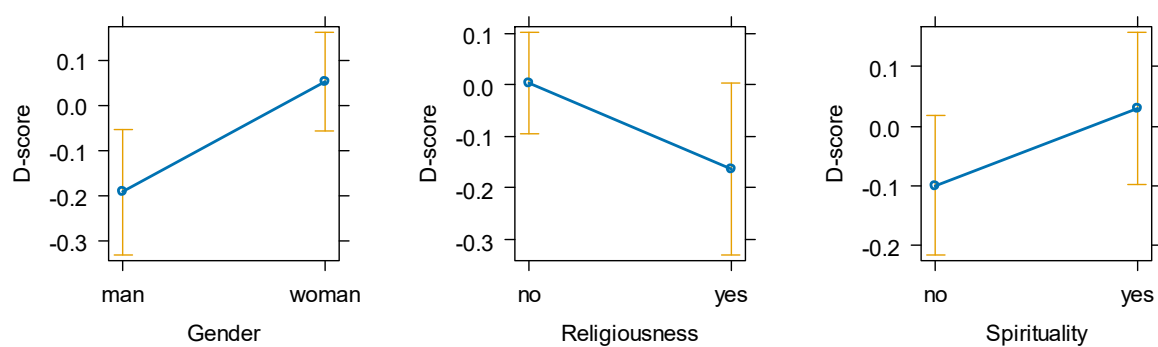


Figure 5.4 – Partial effects of the multiple regression model relating the participants' D-score with their gender, religiousness and spirituality. The D-scores for women are significantly higher than those for men. The light vertical lines represent confidence intervals of 95%, showing the range within which the true effect is likely to fall.

5.5 Discussion

5.5.1 Summary of results and findings from study 1 and study 2

The development of an implicit association test to assess oneness considered the complexity of the construct and the exploratory character of this research work. The literature review and expert interviews highlighted the importance of framing oneness correctly, taking into account its unbounded nature, its mystical dimension, and its dreadful angle beyond the blissful one. The first study showed that the implicit association test had excellent internal consistency reliability. The pilot testing using exemplars sourced from literature and the interviews configured a valid set of words that were easy to classify. A preliminary analysis did not show significant relations between implicit oneness and any of the five demographics (age, gender, education level, religiousness, and spirituality). However, a correlation test indicated a marginally significant negative relation between implicit oneness and age, countering previous research (Edinger-Schons, 2020). Exploratory findings showed that participants with stronger implicit associations with oneness were faster, i.e., more efficient in performing the task. While not part of this study's initial hypotheses, these results substantiate previous findings in neuroscience that high-scoring participants tend to have better cognitive control, enabling them to respond faster even in incongruent trials (Healy et al., 2015). The second study repeated the same implicit measure with a wider sample and yielded similar results in terms of internal consistency reliability. The psychometric analysis of the oneness IAT configured valid, positive results. Correlations with a measure of the same construct and with a related measure were significant, highlighting the construct validity and criterion-related validity of the IAT. All explicit measures (questionnaires) showed significant levels of internal consistency as well. A predictive model relating the IAT scores with demographics indicated that women and spiritual participants scored higher while religious participants scored lower.

All relationships between oneness and the analysed variables align with previous research (Diebels & Leary, 2019; Edinger-Schons, 2020; Garfield et al., 2014; Levin, 2023), except for the negative relation between oneness and religiousness. In this study, religiousness is categorized by participants' affirmative responses to the question "Do you consider yourself religious?". This raises concerns about the adequacy of this construct. While previous research indicates that oneness and spiritual well-being are positively related to *intrinsic* religiosity, it shows no significant correlation with *extrinsic* religiosity (Chowdhury, 2018; Hood, 1975).

Further scrutiny about the nature of religiosity and employment of religiosity scales will likely generate more comprehensive insights.

5.5.2 Limitations and future directions

The prior involvement of experts in the selection of words likely contributed to the instrument's content validity. However, although the pilot test results established a valid set of words, the number of participants responding quickly enough was arguably close to the threshold. Confidence levels could increase with a subsequent expert review of the words and further refinement of the categorization (American Educational Research Association et al., 2014).

A key limitation of study 2 is the sample size, which hinder the ability to provide robust empirical evidence for the validation of the proposed assessment tool. Small to moderate correlations, as the ones in this study, require larger samples to yield reliable estimates and power analyses can become insufficient in addressing this concern (Schönbrodt & Perugini, 2013). Future research should focus on increasing sample sizes and conducting multiple well-articulated studies to enhance the measure's reliability and validity. The psychometric properties of the IAT provided evidence of reliability in terms of internal consistency. However, both studies fail to ascertain the instrument's consistency over time. Administering the same test to the same sample of participants at two different points in time would contribute to predictive analysis as well. Furthermore, it would likely benefit future research if participants were asked whether they have previously taken an implicit association test. This would help control for reaction times, which are expected to be lower for repeat participants (Healy et al., 2015), and enable the detection of potential test faking and the necessary adjustments (Cvencek et al., 2010).

Although the pilot testing protocol and exploratory nature of the studies did not require representative samples, fairness and diversity in sampling are still crucial for ethical integrity and reducing the risk of bias, ensuring that conclusions are objective and reliable. The sampling of this study over-relied on a single source, albeit from multiple channels within the same school of the university. This likely limited the sample to specific age groups and individuals with access to higher education, potentially excluding minority groups. Participation in this test also discriminates against individuals with limited computer literacy. While this study countered Eurocentric bias by diversifying the literature review, it likely reinforced the overrepresentation of European research in the web of science by conducting the studies among Portuguese participants.

Although the majority of participants were native Portuguese speakers, the study relied on the assumption that all had sufficient English proficiency, based solely on their prior acceptance of an English-language test via the introductory email. This may have affected comprehension

and reaction times in a linguistically sensitive task like the IAT. Future studies should either use participants' native language or include language proficiency in demographics.

The appeal to design an implicit association test emerges from a need to outperform self-report methods. A response latency technique would overcome the biased responses of questionnaires and access participants' subconscious associations. However, in order to subject a new IAT to a validity test, scale questionnaires had to be integrated into its design, and the self-report responses had to be related to the IAT results. This fundamental paradox raises questions about accurately answering the research question: How is it possible to ascertain if this new IAT is a valid measure compared to existing scales, and to what extent are both compatible?

Regarding the measurability of oneness, another fundamental chasm remains unsettling. Unlike implicit association tests for measures whose binary categorizations are enabled by opposite concepts, such as self-esteem (e.g., Me – Successful, Not-me – Failure) (Greenwald et al., 1998) and connectedness with nature (e.g., Me - Trees, Not-me – Building) (Schultz et al., 2004), setting paired concepts to determine whether each attribute dimension is associated with a person's self-concept was arguably challenging in the case of oneness. Whereas the natural world can be separated from the artificial world as its opposite, oneness – or the “everything” (Coomber & Harré, 2022) – cannot be set apart from anything else. Expert interviews – and certainly expert reviews – are critical to navigate the conceptualization of oneness towards an assessment construct without losing sight of its radical dimension and significance. Another layer of complexity is the fact that the IAT is not measuring oneness, but participants' reaction time in associating their concept of self with transcendental unbounded concepts – most accurately, with an expanded self or self-transcendence. The possibility that this is interfering with the idea of “Me” and “Not-me” is yet to be unravelled in future research. Future studies could also empirically compare the Oneness IAT with the Connectedness with Nature IAT to examine their convergence and divergence, specifically the extent to which they predict overlapping or distinct constructs. Testing whether stimuli like “bounded” and “unbounded” generalize across languages would also strengthen cross-cultural applicability.

5.6 Conclusion

The present study aimed to develop an implicit measure to assess oneness and to examine its psychometric properties, driven by the need to evaluate the implicit bias potentially concealed by self-report questionnaires. The study was conducted in two phases. In a first study, an implicit association test was developed with input from expert interviews, followed by

a pilot-test. In a second study, the test's psychometric properties were analysed. The implicit association test demonstrated content validity, construct validity, criterion-related validity, and internal consistency reliability, according to the psychometric analysis it underwent. However, larger samples are suggested to yield reliable estimates. Additional predictive analysis to assess consistency over time is recommended for future studies, such as test-retest and inter-rater reliability. Greater diversity and fairness in sampling are suggested. The IAT's internal structure and alignment with previous research establish it as a valid assessment tool applicable across fields of research integrating oneness studies. Nonetheless, the necessity of integrating scale questionnaires to validate the IAT posed conflictual conclusions, questioning the accuracy of comparing the new IAT with existing scales: if the implicit measure overcomes a fundamental hindrance of self-reporting that compromises results reliability, (A) why are scales based on self-report questionnaires used as references for the implicit measure's validity testing, and (B) should the IAT results not differ from previous research? Measuring oneness is challenging due to its complex, non-binary nature. This study highlights these difficulties and contributes to a better understanding of oneness and its potential – though still limited – methods of measurement. Expert reviews are crucial to navigate this complexity.

This study serves as an initial attempt to assess the implicit associations with spiritual oneness, laying the ground for researchers to explore the potential of redefining the self in climate action. Rather than perceiving the world as a separate entity to be saved, the oneness perspective considers life itself – as one – resisting and thriving. It provides a foundation for methodological advancements and sets the stage for future discoveries.

References

- Akhtar, S. (2009). *Comprehensive Dictionary of Psychoanalysis*. Routledge.
- Alisobhani, A., & Corstorphine, G. (2019). *Explorations in Bion's 'O': Everything We Know Nothing About*. Routledge.
- American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (2014). *Standards in educational and psychological testing*. American Educational Research Association.
- Aron, A., Aron, E. N., & Smollan, D. (1992). *Inclusion of Other in the Self Scale and the Structure of Interpersonal Closeness*.
- Aron, A., Aron, E. N., Tudor, M., & Nelson, G. (1991). Close Relationships as Including Other in the Self. In *Journal of Personality and Social Psychology* (Vol. 60, Issue 2).

- Aşkun, D., & Çetin, F. (2017). How Do We Demonstrate Oneness as a Behavior? Operationalizing Oneness Through Scale Measurement. *Journal of Spirituality in Mental Health*, 19(1), 34–60. <https://doi.org/10.1080/19349637.2016.1184998>
- Aşkun, D., & Çetin, F. (2024). Understanding possible personal correlates of organizational citizenship behavior: Mindfulness and oneness behaviors. *Journal of General Management*, 49(2), 133–145. <https://doi.org/10.1177/03063070221104587>
- Axt, J. R., Feng, T. Y., & Bar-Anan, Y. (2021). The good and the bad: Are some attribute words better than others in the Implicit Association Test? *Behavior Research Methods*, 53, 2512–2527. <https://doi.org/10.3758/s13428-021-01592-8>/Published
- Barrett, F. S., Johnson, M. W., & Griffiths, R. R. (2015). Validation of the revised mystical experiences questionnaire in experimental sessions with psilocybin. *Drug and Alcohol Dependence*, 156, e16. <https://doi.org/10.1016/j.drugalcdep.2015.07.961>
- Bion, Wilfred R. (1965). *Transformations*. William Heinemann Medical Books.
- Bion, Wilfred Ruprecht. (1970). *Attention and Interpretations*. Basic Books.
- Boccia, M., Piccardi, L., & Guariglia, P. (2015). The meditative mind: A comprehensive meta-Analysis of mri studies. *BioMed Research International*, 2015. <https://doi.org/10.1155/2015/419808>
- Bragg, E. A. (1996). Towards Ecological Self: Deep Ecology Meets Constructionist Self-theory. *Journal of Environmental Psychology*, 16, 93–108.
- Bruni, C. M., & Schultz, P. W. (2010). Implicit beliefs about self and nature: Evidence from an IAT game. *Journal of Environmental Psychology*, 30(1), 95–102. <https://doi.org/10.1016/j.jenvp.2009.10.004>
- Bujang, M. A., Omar, E. D., & Baharum, N. A. (2018). A review on sample size determination for cronbach's alpha test: A simple guide for researchers. *Malaysian Journal of Medical Sciences*, 25(6), 85–99. <https://doi.org/10.21315/mjms2018.25.6.9>
- Campos, V., & De Luca-Noronha, D. (2024). Spiritual oneness and the cognitive science of religion. *International Journal for Philosophy of Religion*, 95(3), 323–338. <https://doi.org/10.1007/s11153-024-09902-8>
- Carpenter, & Cruz, S. M. (2021). Promoting Climate Change Abatement Policies in the Face of Motivated Reasoning: Oneness With the Source and Attitude Generalization. *International Journal of Communication*, 15, 4525–4545. <http://ijoc.org>.
- Carpenter, T. P., Pogacar, R., Pullig, C., Kouril, M., Aguilar, S., LaBouff, J., Isenberg, N., & Chakroff, A. (2019). Survey-software implicit association tests: A methodological and empirical analysis. *Behavior Research Methods*, 51(5), 2194–2208. <https://doi.org/10.3758/s13428-019-01293-3>
- Chang, T., Askun Celik, D., & Klatt, S. (2018). From Mindfulness to Oneness: “Inner Engineering” of the Complex Adaptive Human System. *Academy of Management Proceedings*, 2018(1), 11819. <https://doi.org/10.5465/ambpp.2018.11819abstract>
- Chirban, S. (2000). Oneness Experience: Looking Through Multiple Lenses. *Article in Journal of Applied Psychoanalytic Studies*. <https://doi.org/10.1023/A:1010158006411>

- Chowdhury, R. M. M. I. (2018). Religiosity and Voluntary Simplicity: The Mediating Role of Spiritual Well-Being. *Journal of Business Ethics*, 152(1), 149–174. <https://doi.org/10.1007/s10551-016-3305-5>
- Cohoe, C. M. (2017). Why the One cannot have parts: Plotinus on divine simplicity, ontological independence, and perfect being theology. *Philosophical Quarterly*, 67(269), 751–771. <https://doi.org/10.1093/pq/pqx008>
- Coomber, T., & Harré, N. (2022). Psychological Oneness: A Typology. *Review of General Psychology*, 26(1), 49–67. <https://doi.org/10.1177/10892680211034457>
- Cvencek, D., Greenwald, A. G., Brown, A. S., Gray, N. S., & Snowden, R. J. (2010). Faking of the implicit association test is statistically detectable and partly correctable. *Basic and Applied Social Psychology*, 32(4), 302–314. <https://doi.org/10.1080/01973533.2010.519236>
- DeCicco, T. L., & Stroink, M. L. (2007). A Third Model of Self-Construal: The Metapersonal Self. *International Journal of Transpersonal Studies*, 26, 82–104. <https://www.researchgate.net/publication/41576539>
- Diebels, K. J., & Leary, M. R. (2019). The psychological implications of believing that everything is one. *Journal of Positive Psychology*, 14(4), 463–473. <https://doi.org/10.1080/17439760.2018.1484939>
- Dunlap, R. (2008). The new environmental paradigm scale: From marginality to worldwide use. *Journal of Environmental Education*, 40(1), 3–18. <https://doi.org/10.3200/JOEE.40.1.3-18>
- Dunlap, R. E., & Van Liere, K. D. (1978). The “new environmental paradigm”. *Journal of Environmental Education*, 9(4), 10–19. <https://doi.org/10.1080/00958964.1978.10801875>
- Edinger-Schons, L. M. (2020). Oneness beliefs and their effect on life satisfaction. *Psychology of Religion and Spirituality*, 12(4), 428–439. <https://doi.org/10.1037/rel0000259>
- Egerton, C. (2023). Exiting Whiteness and Patriarchy: Embracing Oneness, Breaking Free of Incarcerating Ideologies, and Enabling Pathways to Belonging. In *The Paradox(es) of Diasporic Identity, Race and Belonging* (pp. 153–174). Palgrave Macmillan, Cham. https://doi.org/https://doi.org/10.1007/978-3-031-38797-5_8
- Ejelöv, E., Bergquist, M., Hansla, A., & Nilsson, A. (2022). Why are they eco-friendly? Attributing eco-friendly descriptive norms to intrinsic motivation increases pro-environmental purchase intention. *PLoS ONE*, 17(10 October). <https://doi.org/10.1371/journal.pone.0265839>
- Erdfelder, E., FAul, F., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149–1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Eshel, O. (2019). *The Emergence of Analytic Oneness: Into the Heart of Psychoanalysis* (Donnel Stern, Ed.). Routledge (Taylor & Francis Group).
- Finnerty, S., Piazza, J., & Levine, M. (2024). Scientists’ identities shape engagement with environmental activism. *Communications Earth and Environment*, 5(1). <https://doi.org/10.1038/s43247-024-01412-9>

- Frantz, C. M. P., & Mayer, F. S. (2014). The importance of connection to nature in assessing environmental education programs. *Studies in Educational Evaluation*, 41, 85–89. <https://doi.org/10.1016/j.stueduc.2013.10.001>
- Freud, S. (1930). Civilization and its Discontents. In J. Strachey (Trans.), *The Standard Edition of the Complete Psychological Works of Sigmund Freud, Volume XXI (1927-1931): The Future of an Illusion, Civilization and its Discontents, and Other Works* (pp. 57–146). Hogarth Press.
- Friedman, H. L. (1983). The Self-Expansiveness Level Form: a Conceptualization and Measurement of a Transpersonal Construct. *The Journal of Transpersonal Psychology*, 15(1).
- Fromm, Erich. (1976). *To have or to be?* Continuum.
- Gál, V., & Dömötör, Z. (2023). The role of connection with nature in empirical studies with physiological measurements: a systematic literature review. In *Biologia Futura* (Vol. 74, Issue 3, pp. 281–294). Akademiai Kiado ZRt. <https://doi.org/10.1007/s42977-023-00185-0>
- Garfield, A. M., Drwecki, B. B., Moore, C. F., Kortenkamp, K. V., & Gracz, M. D. (2014). The Oneness Beliefs Scale: Connecting Spirituality with Pro-Environmental Behavior. *Journal for the Scientific Study of Religion*, 53(2), 356–372.
- Gawronski, B., Morrison, M., Phillips, C. E., & Galdi, S. (2017). Temporal Stability of Implicit and Explicit Measures: A Longitudinal Analysis. *Personality and Social Psychology Bulletin*, 43(3), 300–312. <https://doi.org/10.1177/0146167216684131>
- Ghazani, R. R. (2022). *The Oneness of Being In Ibn 'Arabī and Plotinus* (Asim Kaya). Instambul University. <https://www.researchgate.net/publication/366544407>
- Goldberg, P. (2019). Where are We When We are At-One? Discussion of Bion's O and His Pseudo-Mystical Path. *Psychoanalytic Dialogues*, 29(4), 404–417. <https://doi.org/10.1080/10481885.2019.1632652>
- Golzar, J., & Tajik, O. (2022). *Convenience Sampling*. <https://doi.org/10.22034/ijels.2022.162981>
- Greenwald, A. G., Brendl, M., Cai, H., Cvencek, D., Dovidio, J. F., Friesse, M., Hahn, A., Hehman, E., Hofmann, W., Hughes, S., Hussey, I., Jordan, C., Kirby, T. A., Lai, C. K., Lang, J. W. B., Lindgren, K. P., Maison, D., Ostafin, B. D., Rae, J. R., ... Wiers, R. W. (2022). Best research practices for using the Implicit Association Test. *Behavior Research Methods*, 54, 1161–1180. <https://doi.org/10.3758/s13428-021-01624-3/Published>
- Greenwald, A. G., Mcghee, D. E., & Schwartz, J. L. K. (1998). Measuring Individual Differences in Implicit Cognition: The Implicit Association Test. In *Journal of Personality and Social Psychology*, 74, (6).
- Greenwald, A. G., Nosek, B. A., & Banaji, M. R. (2003). Understanding and Using the Implicit Association Test: I. An Improved Scoring Algorithm. *Journal of Personality and Social Psychology*, 85(2), 197–216. <https://doi.org/10.1037/0022-3514.85.2.197>
- Grotstein, J. S. (2002). Bion's 'Transformation in "O" and the Concept of the "Transcendent Position"'. *Journal of Psychoanalysis*, 83(4), 982–986.
- Healy, G. F., Boran, L., & Smeaton, A. F. (2015). Neural patterns of the implicit association test. *Frontiers in Human Neuroscience*, 9(NOV). <https://doi.org/10.3389/fnhum.2015.00605>

- Heidari, S., Babor, T. F., De Castro, P., Tort, S., & Curno, M. (2016). Sex and Gender Equity in Research: rationale for the SAGER guidelines and recommended use. *Research Integrity and Peer Review*, 1(1). <https://doi.org/10.1186/s41073-016-0007-6>
- Hess, G. (2024). Virtue Ethics and the Ecological Self: From Environmental to Ecological Virtues. *Philosophies*, 9(1). <https://doi.org/10.3390/philosophies9010023>
- Hood, R. W. (1975). The Construction and Preliminary Validation of a Measure of Reported Mystical Experience. In *Source: Journal for the Scientific Study of Religion* (Vol. 14, Issue 1).
- Hood, R. W., Nima, J. R., Watson Ahad, G. P. J., Ghramaleki, F., Bing, M. N., Kristl Davison, H., Morris, R. J., & Williamson, W. P. (2001). Dimensions of the Mysticism Scale: Confirming the Three-Factor Structure in the United States and Iran. *Journal for the Scientific Study of Religion*, 40, 691–705.
- IPCC. (2022). *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. <https://doi.org/10.1017/9781009325844>
- Isham, A., Elf, P., & Jackson, T. (2022). Self-transcendent experiences as promoters of ecological wellbeing? Exploration of the evidence and hypotheses to be tested. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.1051478>
- Ivanhoe, P. J., Flanagan, O. J., Harrison, V. S., Sarkissian, H., & Schwitzgebel, E. (2018). *The Oneness Hypothesis: Beyond the Boundary of Self*. Columbia University Press.
- John Fox. (2003). Effect Displays in R for Generalised Linear Models. *Journal of Statistical Software*, 8(15), 1–27.
- Jordan, C. H. (2020). Implicit Association Test. In V. Zeigler-Hill & T. K. Shackelford (Eds.), *Encyclopedia of Personality and Individual Differences* (pp. 1–3). Springer International Publishing. https://doi.org/10.1007/978-3-319-28099-8_2026-1
- Josipovic, Z. (2014). Neural correlates of nondual awareness in meditation. *Annals of the New York Academy of Sciences*, 1307(1), 9–18. <https://doi.org/10.1111/nyas.12261>
- Kang, H. (2021). Sample size determination and power analysis using the G*Power software. In *Journal of Educational Evaluation for Health Professions* (Vol. 18). Korea Health Personnel Licensing Examination Institute. <https://doi.org/10.3352/JEEHP.2021.18.17>
- Kaplan, L. J., & Hackett, C. D. (1981). Oneness and Separateness: From Infant to Individual. *Journal of Religion and Health*, 20(3), 253–254.
- Klein, M. (1932). *The Psychoanalysis of Children* (Alix Strachey, Trans.). Hogarth Press.
- Klein, M. (1937). *Love, Guilt and Reparation* (Roger Money-Kyrle, Ed.). The Free Press.
- Klein, M. (1957). *Envy and Gratitude* (Roger Mney-Kyrle, Ed.). The Free Press.
- Krenak, A. (2020). *Ideas to Postpone the End of the World* (Anthony Doyle, Trans.). Anansi International.
- Lachmann, F. M., & Beebe, B. (1989). Oneness Fantasies Revisited. *Psychoanalytic Psychology*, 6(2), 137–149.

- Laszlo, A., & Laszlo, E. (2021). Understanding Oneness: How Science and Spirituality See the World. *World Futures*, 77(3), 155–162. <https://doi.org/10.1080/02604027.2020.1871165>
- Lenth, R. (2025). *_emmeans: Estimated Marginal Means, aka Least-Squares Means_* (R package version 1.10.7, <<https://CRAN.R-project.org/package=emmeans>>).
- Leopold, Aldo., Schwartz, C. W. ., & Finch, Robert. (1949). *A Sand County Almanac: and Sketches here and there*. Oxford University Press.
- Levin, J. (2023). Nothingness, Oneness, and Infinity: Transcendent Experience as a Promising Frontier for Religion and Health Research. *Journal of Religion and Health*, 62(3), 2065–2080. <https://doi.org/10.1007/s10943-023-01740-8>
- MacDonald, D. A., Friedman, H. L., Brewczynski, J., Holland, D., Salagame, K. K. K., Mohan, K. K., Gubrij, Z. O., & Cheong, H. W. (2015). Spirituality as a scientific construct: Testing its universality across cultures and languages. *PLoS ONE*, 10(3). <https://doi.org/10.1371/journal.pone.0117701>
- MacLean, K. A., Leoutsakos, J. M. S., Johnson, M. W., & Griffiths, R. R. (2012). Factor Analysis of the Mystical Experience Questionnaire: A Study of Experiences Occasioned by the Hallucinogen Psilocybin. *Journal for the Scientific Study of Religion*, 51(4), 721–737. <https://doi.org/10.1111/j.1468-5906.2012.01685.x>
- Maté, G. (2022). *The Myth of Normal: Trauma, Illness and healing in a Toxic Culture*. Avery.
- Mayer, F. S., & Frantz, C. M. P. (2004). The connectedness to nature scale: A measure of individuals' feeling in community with nature. *Journal of Environmental Psychology*, 24(4), 503–515. <https://doi.org/10.1016/j.jenvp.2004.10.001>
- McDonald, J. D. (2008). Measuring Personality Constructs: The Advantages and Disadvantages of Self-Reports, Informant Reports and Behavioural Assessments. *Enquire*, 1(1), 75–94.
- McGowan, T. (2013). *Enjoying What We Don't Have*. University of Nebraska Press.
- McGowan, T. (2016). *Capitalism and Desire: The Psychic Cost of Free Markets*. Columbia University Press.
- Meissner, F., Grigutsch, L. A., Koranyi, N., Müller, F., & Rothermund, K. (2019). Predicting Behavior With Implicit Measures: Disillusioning Findings, Reasonable Explanations, and Sophisticated Solutions. In *Frontiers in Psychology* (Vol. 10). Frontiers Media S.A. <https://doi.org/10.3389/fpsyg.2019.02483>
- Mills, P. J., Peterson, C. T., Pung, M. A., Patel, S., Weiss, L., Wilson, K. L., Doraiswamy, P. M., Martin, J. A., Tanzi, R. E., & Chopra, D. (2018). Change in Sense of Nondual Awareness and Spiritual Awakening in Response to a Multidimensional Well-Being Program. *Journal of Alternative and Complementary Medicine*, 24(4), 343–351. <https://doi.org/10.1089/acm.2017.0160>
- Mishra, S., Khosa, S., Singh, S., Moheb, N., & Trikamji, B. (2017). Changes in functional magnetic resonance imaging with Yogic meditation: A pilot study. *AYU (An International Quarterly Journal of Research in Ayurveda)*, 38(2), 108. https://doi.org/10.4103/ayu.ayu_34_17

- Nour, M. M., Evans, L., Nutt, D., & Carhart-Harris, R. L. (2016). Ego-dissolution and psychedelics: Validation of the ego-dissolution inventory (EDI). *Frontiers in Human Neuroscience*, 10. <https://doi.org/10.3389/fnhum.2016.00269>
- Ogden, T. H. (2004). The analytic third: Implications for psychoanalytic theory and technique. In *Psychoanalytic Quarterly* (Vol. 73, Issue 1, pp. 167–195). Wiley-Blackwell Publishing Ltd. <https://doi.org/10.1002/j.2167-4086.2004.tb00156.x>
- Pandit, S. A. (2021). Advaita: Oneness as a Lived Reality—Examining Aspects of Profound and a Radical Psychology. *Psychology and Developing Societies*, 33(2), 190–207. <https://doi.org/10.1177/09713336211038814>
- Piedmont, R. L. (2001). Spiritual Transcendence and the Scientific Study of Spirituality. *Journal of Rehabilitation*, 67(1).
- Piron, H. (2001). The meditation depth index (MEDI) and the meditation depth questionnaire (MEDEQ). *Journal for Meditation and Meditation Research*.
- R Core Team. (2024). R: A Language and Environment for Statistical Computing. *Foundation for Statistical Computing*. <https://www.R-project.org/>.
- Reiner, A. (2022). *W. R. Bion's Theories of Mind: A Contemporary Introduction*. Routledge.
- Ritskes-Hoitinga, M., & Baerentsen, K. (2003). *MRI scanning during Zen meditation: The picture of enlightenment?* www.fil.ion.ucl.ac.uk/spm/
- Rousselet, G. A., & Wilcox, R. R. (2020). Reaction Times and other Skewed Distributions. *Meta-Psychology*, 4. <https://doi.org/10.15626/mp.2019.1630>
- Saarinen, J. (2015). The concept of the oceanic feeling in artistic creativity and in the analysis of visual artworks. *Journal of Aesthetic Education*, 49(3), 15–31. <https://doi.org/10.5406/jaesteduc.49.3.0015>
- Schönbrodt, F. D., & Perugini, M. (2013). At what sample size do correlations stabilize? *Journal of Research in Personality*, 47(5), 609–612. <https://doi.org/10.1016/j.jrp.2013.05.009>
- Schultz, P. W., Shriver, C., Tabanico, J. J., & Khazian, A. M. (2004). Implicit connections with nature. *Journal of Environmental Psychology*, 24(1), 31–42. [https://doi.org/10.1016/S0272-4944\(03\)00022-7](https://doi.org/10.1016/S0272-4944(03)00022-7)
- Schwartz, S. H. (2012). An Overview of the Schwartz Theory of Basic Values. *Online Readings in Psychology and Culture*, 2(1). <https://doi.org/10.9707/2307-0919.1116>
- Seed, J., Macy, J., Fleming, P., & Naess, A. (1988). *Thinking like a mountain: towards a council of all beings*. New Society Publishers.
- Sella, Y. (2018). From dualism to oneness in psychoanalysis: a Zen perspective on the mind-body question. In *Body, Movement and Dance in Psychotherapy* (Issue 4). Routledge. <https://doi.org/https://doi.org/10.1080/17432979.2019.1682673>
- Sen, S. (2023). *Vivekananda, Beethoven and the Philosophy of Oneness*. <https://www.researchgate.net/publication/370134184>
- Shiva, V., & Shiva, K. (2020). *Oneness vs The 1% : Shattering Illusions, Seeding Freedom*. Chelsea Green Publishing.

- Silverman, L. H., Lachmann, F. M., & Milich, R. H. (1982). *The Search for Oneness*. International Universities Press.
- Taber, K. S. (2018). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. *Research in Science Education*, 48(6), 1273–1296. <https://doi.org/10.1007/s11165-016-9602-2>
- Taylor, D. M., & Segal, D. (2015). Healing Ourselves and Healing the World: Consumerism and the Culture of Addiction. In 77 *Journal of Futures Studies* (Vol. 19, Issue 3).
- Urrutia, J., Anderson, B. T., Belouin, S. J., Berger, A., Griffiths, R. R., Grob, C. S., Henningfield, J. E., Labate, B. C., Maier, L. J., Maternowska, M. C., Weichold, F., Yaden, D. B., & Magar, V. (2023). Psychedelic Science, Contemplative Practices, and Indigenous and Other Traditional Knowledge Systems: Towards Integrative Community-Based Approaches in Global Health. In *Journal of Psychoactive Drugs* (Vol. 55, Issue 5, pp. 523–538). Taylor and Francis Ltd. <https://doi.org/10.1080/02791072.2023.2258367>
- Van Lente, E., & Hogan, M. J. (2020). Understanding the Nature of Oneness Experience in Meditators Using Collective Intelligence Methods. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.02092>
- Van Reekum, G. (2018). 'One Is The Loneliest Number ...' Back to Bion's Basic Assumption. *Organisational & Social Dynamics*, 18(1), 122–130.
- Wang, J., Geng, L., Schultz, P. W., & Zhou, K. (2019). Mindfulness Increases the Belief in Climate Change: The Mediating Role of Connectedness With Nature. *Environment and Behavior*, 51(1), 3–23. <https://doi.org/10.1177/0013916517738036>
- Winnicott, D. (1971). *Playing & Reality: Transitional Objects and Transitional Phenomena*. Penguin Books.
- Winnicott, Donald W. (1965). *The Maturation Processes and the Facilitating Environment: Studies in the Theory of Emotional Development*. Karnak Books Ltd.
- Winnicott, Donald Woods. (1988). *Human nature*. Routledge, Taylor & Francis Group.
- Yaden, David B., Kaufman, S. B., Hyde, E., Chirico, A., Gaggioli, A., Zhang, J. W., & Keltner, D. (2019). The development of the Awe Experience Scale (AWE-S): A multifactorial measure for a complex emotion. *Journal of Positive Psychology*, 14(4), 474–488. <https://doi.org/10.1080/17439760.2018.1484940>
- Yaden, David Bryce, Haidt, J., Hood, R. W., Vago, D. R., & Newberg, A. B. (2017). The varieties of self-transcendent experience. *Review of General Psychology*, 21(2), 143–160. <https://doi.org/10.1037/gpr0000102>

FROM ONENESS TO BUYING DECISION: THE ROLE OF VOLUNTARY SIMPLICITY AND SUSTAINABLE CONSUMPTION

Paper to be submitted:

Areias, S., Disterheft, A., & Gouveia, J. P. (nd). From oneness to buying decision: the role of voluntary simplicity and sustainable consumption. To be submitted.

Abstract

Every year, massive volumes of cheaply produced – yet overpriced – clothing exceeding demand are expected to entice compulsive purchasing that significantly offsets unsold stock. While curbing consumption is urgent, superficial reduction policies that overlook subconscious reactions to overwhelming stimuli, such as fashion at discount prices, are backfiring in the opposite direction. In an era where essential human needs such as connection to nature and spirituality remain unfulfilled, consumerism thrives on these deficiencies, exploiting people's disconnection from self to attune with an external pursuit of unfulfilling material possessions. However, an expansion of the self and a sense of unity with the universe, referred to as 'oneness' in psychology and religious studies, has drawn attention from sustainability scientists. Oneness has been positively related to pro-environmental behaviour, stemming from a self-preservation perspective (as nature protecting itself), as well as to concepts that emphasize realignment with intentional living and essential wellbeing.

Considering fashion's objectification of the self and consumers' susceptibility to the neurological triggers of clothing sales, this psychological study aims to explore links between oneness and buying behaviour. An implicit association test was conducted to identify oneness biases in a group of students ($n = 62$), using a response latency technique to measure reaction times while sorting words into categories. Additional questionnaires were completed for two scales: the voluntary simplicity engagement scale and the young consumer's sustainable consumption behaviour scale. Before taking the tests, participants underwent a social experiment adapted from a study by the University of Deusto in Bilbao, where their money transactions for purchases and donations were recorded and analysed in relation to their assessed scores.

Multiple regression analyses followed by a moderation and mediation test show that oneness might predict buying-decision with a negative relation is weak yet significant enough to inspire future research and test refinements. This study questions conventional approaches to consumption reduction by bringing oneness into the consumer awareness debate, laying the groundwork for future research addressing consumerism through methods that unravel subconscious bias.

Keywords: buying decision, consumption reduction, fashion, implicit association test, oneness, sustainable consumption, voluntary simplicity

6.1 Introduction

The EU generated an estimated 6.95 million tonnes of textile waste in 2020 (European Environment Agency, 2024). The fashion industry is more reliant on fossil fuels than ever, with plastic-based fibres accounting for 69% of global textile production, a figure projected to rise to 73% by 2030 (Changing Markets Foundation, 2024). This growing dependence stands in stark contrast to the urgent calls from the scientific community to phase out fossil fuels in order to prevent global temperatures from exceeding 1.5°C above pre-industrial levels (IPCC, 2022). By 2030, the Extended Producer Responsibility (EPR) framework proposes a textile waste reduction of 10-15% (European Parliament, 2023), while the European Climate Law, part of the Fit for 55 package, sets a target to reduce net greenhouse gas emissions by at least 55%. Consumption reduction plays a critical role in achieving these challenging goals (Schlacke et al., 2022).

However, the EU's Circular Economy plans for textiles risk promoting a misleading narrative due to the ambiguity of key terms: waste circulation is being incorrectly framed as circularity. In reality, the proposed reuse and repair policies, without a more critical approach to production reduction and an acknowledgment of the economic dependence on consumption, may perpetuate the very problem they aim to solve. Addressing the root causes of overproduction and consumerism requires political commitment and further investigation.

Sustainability is a systemic phenomenon, meaning individual consumption cannot be analysed in isolation from resource extraction and production policies, of which consumers have little influence over. There is widespread debate about which specific behaviours or purchases truly align with sustainable consumption. Navigating this ambiguity, greenwashing has evolved from simply concealing harmful practices to distorting environmental terms in ways that ultimately mask consumerist agendas. The EU's Circular Economy plan includes measures to tackle planned obsolescence, but it does not address *perceived* obsolescence, suggesting that longer-lasting products are encouraged, but reducing overall consumption is not. Instead, the continued systematic replacement of goods is still implied to accelerate the resale market for durable items. Nonetheless, in an overproducing economy where production far exceeds demand, increasing new products, along with second-hand and refurbished goods, struggle to find economic relevance. The sheer inability to absorb both excess production and discarded items, glorified by the act donation, leads to massive waste accumulation. Policies that promote the expansion of repair activities and the systematic circulation of waste end up reinforcing waste colonialism, as seen in the massive textile landfills, such as the one in Chile's Atacama Desert, which is now visible from space (The Or Foundation, 2025).

The rebound effects to EU measures happen along with consumers' intention-decision gap. Sufficiency, defined as meeting needs without excess, fails to curb consumption when still embedded in a consumerist culture. As long as buying and discarding remain habitual under the decluttering culture, consumers will continuously rotate their sense of "enough" within existing consumption cycles. Owning fewer items does not necessarily mean consuming less, as people may discard more frequently, making room for new purchases.

Approaches that fail to address the deep-rooted spiritual dimensions of consumerism risk worsening its consequences. To reduce consumption, society can move beyond normative frameworks and embrace a psychological and philosophical shift toward intentional living, reassessing needs with a greater connection to home, nature, and the present moment. This concept is explored in behavioural science through the term voluntary simplicity.

The experience of oneness, a sense of interconnectedness with others, nature, and the universe, drawn from ancient literature and psychoanalysis, has gained increasing attention in environmental science, where studies suggest positive correlations between oneness, pro-environmental behaviour (Coomber & Harré, 2022; Edinger-Schons, 2020; Garfield et al., 2014). This study's theoretical framework posits that oneness, voluntary simplicity, and sustainable consumption can be interrelated dimensions of consumption reduction. Understanding these relationships is essential for developing effective strategies to address contemporary environmental challenges. This paper aims to explore connections between oneness and individuals' decisions to purchase fashion items, by also exploring how voluntary simplicity and sustainable consumption may mediate or explain this relationship, potentially serving as conceptual bridges between the two variables. The study begins with a theoretical framework, drawing on literature from environmental psychology, particularly regarding reduction-oriented behaviours and lifestyles, as well as behavioural science research on consumer attraction to fashionable at cheap prices. The following sections present the results of a social experiment in which participants' purchasing decisions were observed and related to oneness, voluntary simplicity, sustainable consumption and a list of demographics through an implicit association test and measurement scales. The paper concludes with a discussion of the findings, acknowledging limitations and offering directions for future research.

6.2 The science of buying less

Buying less is not the same as buying better or making products last, nor are these behaviours interdependent or mutually causal. Studies on consumption reduction often assume that extending a product's life cycle or opting for a repairable design will, in some way, suppress

purchases at some point in the process (Freudenreich & Schaltegger, 2020; Levanen et al., 2021). A similar misinterpretation occurs with resale purchases: buying second-hand does not mean not buying first-hand. The heavily marketed narrative of behavioural substitution is built on the assumption that introducing a new behaviour will not be incorporated into existing consumerist habits but will instead overcome and replace them. This is a disproportionate leap, and its oversight in the EU's plans for a circular economy is now showing signs of backfiring. All clothing markets have expanded exponentially, leading to increased textile waste (Brooks, 2015).

Adopting consumption reduction policies within growth-driven economies, without considering systemic change and without a profound transformation of inner-realities, is likely to result in a number of rebound effects. Rebound effects happen when an individual or household actual savings in emissions, energy or waste are lower than the savings induced by a pro-environmental approach, because they are offset by a deviant behaviour (Reimers et al., 2021; Santarius & Soland, 2018). Freudenreich and Schaltegger present three pro-environmental business approaches: *eco-efficiency*, *consistency*, and *sufficiency*, highlighting the latter as the most promising regarding its aim at refraining from acquiring ever more products, by changing consumers behaviour and lifestyle (Gorge et al., 2015). Whereas *efficiency* is defined as reducing resource use to produce the same output (Niinimäki et al., 2020), *consistency* aims to create closed loops of material flows (Ellen MacArthur Foundation & McKinsey & Company, 2014), and both are considered to generate rebound effects, which are mostly based on the increase of production encouraged by the decrease of resource use, if businesses do not step away from the profit-driven fast-fashion mindset (Freudenreich & Schaltegger, 2020a).

As a consumption approach or in the realm of spendings within a household, *efficiency* can result in different rebound effects. The financial savings consumers get out of their deliberate reduction of consumption of certain goods and services are usually spent in other commodities, and the energy savings in one device can be compensated by overusing another (Reimers et al., 2021; Santarius & Soland, 2018). In extreme cases, the potential savings can even be overcompensated, generating “backfire effects” (Santarius & Soland, 2018). Reimers' findings consider that *sufficiency's* rebound effects are not different from *efficiency's* as she defines *sufficiency* as “abandoning or reducing the consumption of resources, goods, and services whereby the burden on the environment is decreased”, unlike Freudenreich and Schaltegger who include in its definition a philosophic or belief-based component called “*voluntary simplicity*” going along with the decrease of consumption. Reimer's *sufficiency*-based rebound effects are also encouraged by resulting financial savings to be spent in other goods or

services, but its categorization falls into two types of rebound effects: the *economic mechanisms*, that consist in income effects and substitution effects; and the *psychological mechanisms* that result in compensating the consumer's effort with a permission to be careless in other context, which is called *moral licensing* or "moral credits". The *moral licensing* follows a mindset of "credential" and assumes that "previous moral behaviours influence how individuals perceive their subsequent actions", as long as they see sustainability as a self-concept to be maintained at a certain steady state and their correspondent actions as a currency (Reimers et al., 2021). Another study on *sufficiency* shows that it can be subject to the rebound effect, but as a "self-imposed restriction of consumption" (Figge et al., 2014), making an important point about the motivation behind the reduction, that can be purchasing power, normative imposition, political stance towards consumption, or spiritual beliefs.

The practice of *voluntary simplicity* is not accomplished through consumption and it is motivated by the search for authentic self-identity (Kropfeld et al., 2018). Studies on *voluntary simplicity* define it as "a downward reassessment of need" (Gorge et al., 2015; Princen, 2005) "a practice of conscious living" (Kropfeld et al., 2018), living "in a way that is outwardly simple and inwardly rich" (Elgin & Mitchell, 1977), "limiting material consumption to free one's money and time to seek for satisfaction of non-material aspects of life" (Etzioni, 1998; Wei et al., 2021), a downward of "consumption desires that [makes] simplifiers achieve a higher level of life satisfaction" (Boujbel & Astous, 2012). *Life satisfaction* is positively linked to voluntary simplicity (Boujbel & Astous, 2012), and so is *altruistic behaviour* (Shaw & Newholm, 2002; Wei et al., 2021), *mindfulness* (Wei et al., 2021), *spirituality* (Chowdhury, 2016) and *oneness* (Wei et al., 2021; Zylstra et al., 2014).

A number of studies relate the feeling of "joy" to *voluntary simplicity* (Chowdhury, 2016; Elgin & Mitchell, 1977; Fischer, Stanszus, et al., 2017), showing an effortless and even pleasurable side of engaging in pro-environmental behaviour, supporting Leopold's (Leopold, 1949) assertion that a sense of "we-ness makes protective behaviour more likely, even if that behaviour is inconvenient (Aron et al., 1991; Frantz & Mayer, 2013).

In 2021, Liyuan Wei and her colleagues developed a study on *voluntary simplicity* in which respondents were asked to rate their own consistency in lessening their consumption, engaging with their community and developing their spirituality, among other variables. They concluded that consumption reduction can be either manifested in *voluntary simplicity* or *frugal purchasing* (Wei et al., 2021). Whereas *frugal purchasing* consists in a conditioning behaviour which is driven by the pleasure of saving rather than the pain of spending (Rick et al., 2008), and hence relates to self-interests (Nepomuceno & Laroche, 2015), *voluntary simplicity's* sense of pleasure is redefined along with the reassessment of needs and search for the

authentic self, and hence relates to societal interests (Nepomuceno & Laroche, 2015). *Frugality* is regarded as an independent but significant predictor of spending little on oneself as a pro-environmental behaviour (Kropfeld et al., 2018). Self-control is considered an important variable to determine one's ability to resist consumption (Nepomuceno & Laroche, 2015). Egea and Garc's (Egea & Garc, 2013) research on consumption reduction is also based on the distinction between altruistic and egoistic motivations. Findings show that altruism is a more effective motivation than egoism in driving pro-environmental behaviour (Barr, 2007; Egea & Garc, 2013).

The reduction of waste or discarding behaviour is also considered part of the scope of pro-environmental consumption. Premature disposal of functional products due to perceived obsolescence is a common problem of fashion consumerism, but it can result from *frugal purchasing* too (Philp & Nepomuceno, 2020). Because frugal consumers have self-interest motivations related to marketplace opinions of their owned products, negative opinions may lead owner to suspend usage and thus leading to premature waste.

6.3 The science of cheap and scarce

Cheap is a construct. Cheapness has significant chemical effects on the human brain, cutting across financial strata and social class. In the case of fast fashion, for instance, the idea of a low price needs to be opened to discussion in studies aimed at breaking down calcified consumerism. In reality, fast fashion is overpriced, given the low costs of exploitative labour versus the high profit margins – not to mention the negative environmental and human rights externalities that would raise the final price even further, if they were to be converted into cumulative markups. The liberalization of markets in the height of globalization did not bring cheap fashion to the masses; it brought cheap *labour* to the fashion industry. In other words, it was not cheap fashion – but cheap *labour* – that was ultimately democratized and legalized. Despite the massive abundance of clothing, so much so that international trade policies facilitate its overflow into landfills in Sub-Saharan Africa, South America, and Southeast Asia, scarcity remains a powerful construct, manipulated through stock conditioning and advertised timeframes. For years, marketing studies have confirmed the influence of items that are marketed as both scarce and inexpensive in driving consumerist behaviour, even when they are neither rare nor cheap.

Today's centralized massive production models based on transglobal supply chains have caused a physical separation between the raw material extractor, the farmer, the artisan, and the final consumer, that leaves an emotional void between the final consumer and the finalized

product. When looking at the fashion industry, the consumer's involvement with the maker and with the process of making a garment has a positive effect on the willingness to pay a fair price for it (Sonja Geiger & Keller, 2018).

Nonetheless, the reality of today's mass-marketed fashion is that consumers process tens of thousands of different clothing items per day that they have not seen being produced, holding very little control over the information available, which consists mostly in how it looks, where it was made, what it is made of, and ultimately, its price (Becker-Leifhold & Heuer, 2018; Fashion Revolution CIC, 2021). Facing the available data, and after being triggered by a signal that can go from an online advertisement to a window display, the consumer's brain tries to balance the activation of three essential parts: (1) the release of dopamine – a neurotransmitter related to the process of reward anticipation, motivation, and learning – over the *nucleus accumbens*, which is a chain-link of neurons that lights up when the body desires something, and once stimulated enough, it requires higher and higher doses to feel satisfied; (2) the anterior *insula*, which processes pain and negative emotions and thus is mainly activated by the concern with the price; and (3) the *prefrontal cortex*, responsible for the consumer's willpower in decision-making (Karmarkar et al., 2015; Karmarkar & Plassmann, 2019; Lindstrom, 2009; Sapolsky, 2017).

Dopamine fuels the goal-driven behaviour needed to gain a reward. Once consumers consider a fashion item to be an attainable reward, this neurotransmitter will give them the motivation to invest the required money or perform the required work in order to attain it. This means that the pleasure is felt before and until the purchase, after which there is an abrupt decrease of its release (Sapolsky, 2017). That is when the "hangover" feeling steps in (Greenpeace International, 2017). However, when choosing between getting an immediate reward or a delayed (but better) reward, which activate mesolimbic and mesocortical pathways respectively, the greater the activation of the latter, the more likely individuals will choose the delayed gratification (Sapolsky, 2017).

Nevertheless, marketing campaigns focused on selling mass-produced fashion products take many strategies in following the consumer's chemical reactions to impulsive buying (Jelenc & Dlacic, 2013; Muruganantham & Bhakat, 2015). Because the factor price is fear-inducing and the insula is activated once a price is perceived as excessive, during sales season, fashion brands often present the reduced price over the original price to soothe the feeling of pain that would primarily condition buying decision. The *sequence of price information* during a purchasing decision is determinant to influence choice behaviour (Karmarkar et al., 2015). A similar strategy can be showing to the consumer that an item is cheaper than they thought. When subjects view luxury products being sold at full price, the consumer gets in conflicting

mode, but once consumers are shown the same products later priced at a significant discount, the reward feeling goes up and the conflict signal decreases (Lindstrom, 2009). Displaying apparently *unavailable* items along with the items for sale, e.g. displaying “sold” garments online, side to side with the available ones, is also an effective sales strategy for the same fear-driven motivation, as long as the presented items are similar or related (Karmarkar, 2016). An item that is *almost unavailable*, e.g. a product that is only available for a certain amount of time, a limited edition product, a product that has already been chosen by another consumer, is also part of a marketing strategy to soothe the conflicting activation of the nucleus accumbens and insula (Lindstrom, 2009). As Karmarkar (Karmarkar & Plassmann, 2019) believes, consumers are fairly good at stating what they want and what they like, but they are not as good at accessing the values and motivations that support their choices, nor at noticing when they are being manipulated by sales-driven tactics.

6.4 Method

This study examines the relationship between oneness and buying decisions, exploring how they intersect with consumption-related variables such as voluntary simplicity and sustainable consumption. The methodology combines an implicit association test (IAT) for oneness (developed in the previous chapter) with a social experiment involving a T-shirt market sale and two scales measuring voluntary simplicity (VSES) and sustainable consumption (YCSCB). Regression analysis was used to generate predictive models, which then informed moderation and mediation analyses to further explore significant interactions between variables.

6.4.1 Participants

Participants were recruited from a school of science and technology at a university in Portugal. A total of 66 individuals completed the test. However, three participants were excluded due to error rates exceeding 20%, and one participant was removed for having an average response latency below 300ms, resulting in a final sample size of 62 participants. The participants' ages ranged from 16 to 32 years ($M = 19.37$, $SD = 2.92$). Among them, 35 identified as women, and 27 identified as men. No recruitment services or incentives were used for participant engagement in this initial study. The recruitment process involved obtaining university approval to set up the experiment and conduct the test in computer lab sessions for enrolled students, as well as during an open day event for high school students. The study took place over a ten-month period, from July 2023 to May 2024, following the ethical guidelines of NOVA School of Science and Technology.

To determine the appropriate sample size for multiple linear regression, a power analysis was conducted using G*Power version 3.1.9.7 (Erdfelder et al., 2009). Assuming a medium effect size, an alpha level of 0.05, and a desired statistical power of 0.90, the analysis confirmed that the required minimum sample size was well below the number of responses collected, ensuring sufficient statistical power for reliable results.

6.4.2 Materials

The One-euro T-shirt Social Experiment is an adaptation of the vending machine intervention conducted by the University of Deusto (Rodríguez-Barbará et al., 2022), in Bilbao, Spain. In the original version, pedestrians could purchase a T-shirt for one euro and were then provided with information about garment workers' conditions. This study modifies the approach by removing the informational component and instead inviting passersby to participate in an Implicit Association Test (explained further below). Rather than using a vending machine, a pop-up market stall was set up, featuring a sign that read “T-shirt €1” and displaying seven plain white T-shirts in a row, organized by size from extra-small to triple extra-large, each tagged with a red €1 label.



Figure 6.1 – Picture showing participants engaging in the social experiment, next to a market stall with white T-shirts displayed in different sizes and a three-slot donation box.

Adjacent to the vending section, a €1 donation box with three slots allows participants to choose among three non-profit organizations supporting social and climate justice in the fashion sector. A vendor is present to facilitate transactions and systematically collect quantitative data, recording whether participants purchased a T-shirt or donated to one of the organizations. In this study, participants were not provided with any information regarding the origin, material, or production cost of the T-shirts, nor did they inquire about it. The study used a surplus stock of 40 plain white organic cotton T-shirts with no labels, purchased from a local young designer for €2.50 each. Setting the price at 1 euro was a deliberate choice to ensure

that the study remained accessible to individuals across all economic strata, removing financial barriers that might otherwise influence participation. The cheap price also acts as a psychological trigger, making the choice *not* to buy more challenging. This setup minimizes additional variables by lowering the likelihood that participants perceive the purchase as a sustainable choice. By creating this distinction, the study can more accurately assess the relationship between oneness – expected to reduce purchasing behaviour – and the final buying decision. The donation option was introduced to help distinguish participants' reasons for choosing not to buy. By offering an alternative form of spending – expectedly more selfless – it allows for a clearer analysis of cases where individuals opt to donate instead of making a purchase. The simple design, high-quality fabric, and size options minimize the likelihood that participants opt out of purchasing due to aesthetic or fit concerns, allowing the study to focus on other influences.

The *implicit association test (IAT)* used in this study assesses automatic associations related to oneness (Areias et al., n.d.). It is conducted online using Testable.org (Rezlescu et al., 2020), a platform specialized in psychological experiments. The test consists of 180 trials divided into seven blocks, including three practice blocks to help participants familiarize themselves with the task and two critical blocks designed to measure implicit associations. The stimuli words are randomized to control for ordering effects. The IAT records reaction times in milliseconds, while participant demographics – including age, gender, education level, and whether they identify as religious and/or spiritual – were also collected. The scoring algorithm follows the standard D-score calculation.

The *Voluntary Simplicity Engagement Scale (VSES)*, developed by Rich, Wright, and Bennett (2020), measures how actively individuals engage in voluntary simplicity. It consists of 21 items, rated on a five-point Likert scale, assessing behaviours related to low-consumption lifestyles. The scale is divided into key aspects of voluntary simplicity, including frugality, time, pragmatism, self-sufficiency, sustainability and social connection. The questionnaire was refined through statistical validation and is designed to capture both attitudinal and behavioural dimensions of voluntary simplicity.

The *Young Consumer's Sustainable Consumption Behaviour (YCSCB) Scale*, developed by Daniel Fischer, Tina Böhme, and Sonja M. Geiger (2017), measures how actively young consumers engage in sustainable consumption practices. The scale consists of two key domains: food consumption (14 items) and clothing consumption (13 items). Responses are recorded on a Likert scale, assessing behaviours related to acquiring, using, and disposing of consumer goods in a sustainable manner. The scale was developed through a mixed-methods

approach, including qualitative interviews and quantitative validation. For this study, only the clothing consumption section was used, as it aligns with the specific sector being analysed.

6.4.3 Procedure

Subjects in both the classroom and event room receive a brief explanation of the study's purpose while being presented to a market stall selling plain white T-shirts. The stall displays a sign reading "T-shirt €1" positioned next to a €1 donation box offering three non-profit organizations supporting social and climate justice. Participants are informed that they can decide whether to buy a T-shirt and whether to donate €1 to one of the organizations. Both purchases and donations are real transactions, with participants using actual money to acquire a T-shirts in their preferred size, while donations are properly forwarded to the designated recipients. Both buyers and non-buyers have the option to donate, provided their total spending does not exceed €2, creating four possible binary response combinations: (0,0); (0,1); (1,0); (1,1).

Participants are then invited to complete a 15-minute computerized test using one of the available computers in the room. They first receive a brief written explanation of the study's aim, followed by a hyperlink directing them to the Testable.org platform, where they read and sign a consent form confirming their understanding of the Implicit Association Test (IAT) procedure. Next, they complete a mandatory demographic questionnaire. Before starting the sorting task, participants are introduced to the list of words and categories they will organize and are instructed to respond as quickly and accurately as possible, keeping their fingers on the "1" and "0" keys throughout the task. The test automatically records reaction time (RT) in milliseconds for 180 trials, noting correct and incorrect responses for error rate calculation.

After completing the IAT, participants proceed to the Likert-scale questionnaires for VSES and YCSCB, selecting responses based on their level of agreement.

The sequence of methods is intentional. The social experiment takes place before the test and questionnaires to ensure that the buying decision remains unbiased and that the study's purpose remains unclear enough to prevent it from influencing participants' choices.

Once participants complete the test by clicking the final submit button, Testable.org automatically generates a .csv file for each participant, which can be immediately accessed and downloaded for analysis. The data undergoes a processing protocol to refine the final sample, excluding specific error rates and reaction times (RT) while calculating a D-score for each participant. The cleaned dataset is then compiled into a single table or data frame, incorporating the variables: buying decision, donation decision, D-score, demographics, and

scale scores (VSES and YCSCB). This structured data frame is designed for analysis using R version 4.3.2 (R Core Team, 2024).

Since the response variables are binary – participants either buy or do not buy, and separately, either donate or do not donate – the dataset follows a binomial distribution of categorical choices. This structure requires a logistic regression analysis, integrating the potential predictors (i.e., oneness, voluntary simplicity, and sustainable consumption), which was accomplished with the *glm* function (R Core Team, 2024). Additional linear multiple regression analyses were conducted using the *lm* function to explore relationships between other variables. In cases in which predictive models identified significant associations within a triad of variables, a moderation analysis was performed to assess interaction effects. Additionally, a *mediation* function was applied to further investigate significant indirect relationships.

6.5 Results

Out of the 62 participants across all settings, 45% (28) opted to purchase a T-shirt, while 23% (14) chose to make a donation. A total of 10% (6) of participants engaged in both actions, whereas 35% (22) bought a T-shirt without donating. Conversely, 13% (8) donated without purchasing a T-shirt, and 42% (26) refrained from both transactions. Figure 6.1. shows the number of participants in each one of the decision's combinations. These behaviours remained consistent across demographics, with education level, gender, and personal religious or spiritual identification showing no significant influence on the likelihood of purchase or donation. The logistic regression analysis yielded no significant relation between the two transactions either.

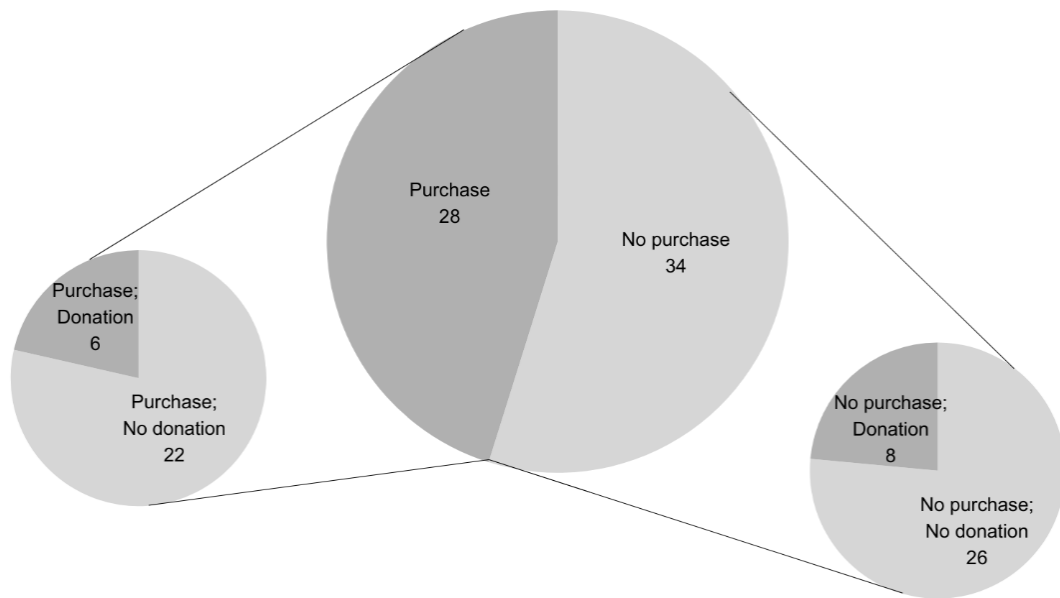


Figure 6.2 - Distribution of purchases and donations among the participants ($n = 62$)

The oneness implicit association test yielded an average D-score of -0.13 ($SD = 0.39$), with values ranging from -0.83 to 0.84 . A binary logistic regression assessing the relationship between the D-score and buying-decision indicated a marginally significant association. The D-score has a negative estimate (-1.226) with a marginal significance level ($p = 0.082$), indicating that higher levels of oneness may slightly reduce the likelihood of purchasing, though this effect is weak. Figure 6.2. shows the negative relation between the D-score (predictor) and buying (binary response).

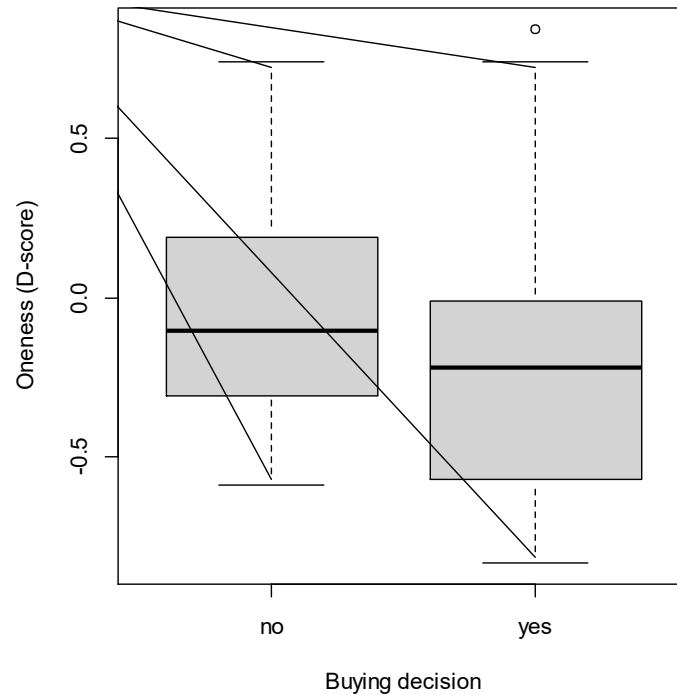


Figure 6.3 – Boxplot showing the negative relation between oneness and buying decision. Although inconclusive, there is a marginally significant decrease on purchases by participants with higher D-score.

Similarly, regression analyses exploring whether the voluntary simplicity engagement scale (VSES) predicts purchasing decision also returned a negative estimate (-0.496). However, the p-value was not significant. This lack of statistical significance is extended to all analyses involving VSES scores. The same is true for the donation response variable. Conversely, scores from the YCSCB revealed a significant relationship with buying decision ($p = 0.044$), though no association was observed between YCSCB and the D-score. Interestingly, when YCSCB and the D-score were combined in a multiple logistic regression model to predict the buying decision, the YCSCB score not only decreased its p-value but also contributed to a notable decrease in the p-value of the D-score, suggesting a possible interaction effect. Table 6.1 lists the values resulting from the multivariable logistic regression model. The overall logistic regression model was statistically significant, $\chi^2(2) = 8.563$, $p = .014$, indicating that the D-score and YCSCB are meaningful predictors of the likelihood of buying a T-shirt. The model explained approximately 17% of the variance in buying decisions. Table 6.2 presents the logistic regression model summary.

Table 6.1 – Multiple logistic regression model for predicting buying-decision.

Response variable	Predictor	Beta	SE	z value	p-value
Buying-decision	(Intercept)	4.102	2.102	1.952	0.051•
	D-score	–1.388	0.729	–1.904	0.057•
	YCSCB	–1.439	0.673	–2.137	0.033*

*Note: n=62. D-score = IAT metric; YCSCB = young consumer's sustainable consumption behaviour scale (clothing sub-section); Beta = estimate/regression coefficient; SE = standard error; • / * Marginally significant; ** Significant; *** Highly significant.*

Table 6.2 – Logistic regression model summary^b.

Nagelkerke R ²	AIC	Residual deviance	X ² (2)	p-value
0.173 ^a	82.805	76.805	8.563	0.014

Note: n=62. a = Predictors: D-score, YCSCB; b = Response variable: Buying-decision (the participant buys the T-shirt). R² values are pseudo R-squared measures appropriate for binary logistic regression.

A moderation analysis was conducted to assess interactions among the three variables, but no significant effects were found. Additionally, two mediation tests were performed, each using either the D-score or YCSCB as the mediator. Neither test showed an indirect effect between the independent and dependent variables, with average causal mediation effect values of $p = 0.694$ and $p = 0.712$, respectively.

6.6 General discussion

6.6.1 Summary of results and findings

This study examined the relationship between oneness, as assessed by an implicit association test (IAT), and buying decisions, while also exploring connections to voluntary simplicity and sustainable consumption behaviour. The data revealed a marginally significant negative relationship between the D-score and the likelihood of purchasing a T-shirt. These findings indicate that oneness might have a subtle, though not strongly conclusive, effect on consumption behaviour, potentially making individuals less likely to buy. This aligns with the idea that those with a higher sense of interconnectedness might place less importance on material consumption, though further research is needed to establish a stronger link. Individuals who more readily associate their self with unbounded oneness-related concepts might be less triggered by marketing stimulus, aligning with the theoretical underpinning of voluntary simplicity and sustainable consumption. It can also mean that the same individuals

more thoroughly reassess their needs. This study lays ground for future research that can further explore the participants' motives and improve the assessment methods.

The scores from the *young consumers' sustainable consumption behaviour* (YCSCB) showed a significant relationship with buying decisions, indicating that young consumers who report sustainable consumption behaviours are less likely to engage on impulsive purchases. However, the relationship between YCSCB and oneness remained non-significant, suggesting that while these constructs intersect with sustainable consumption, their interdependence requires further exploration. Conversely, scores from the *voluntary simplicity engagement scale* (VSES) failed to predict the participants' buying decision. Despite its theoretical connection to non-materialism and sustainability, this scale did not demonstrate statistical significance in predicting the study's binary response variables. This might suggest that while individuals with a simple lifestyle ideology exist, their purchasing decisions do not automatically align with their beliefs, perhaps due to situational factors in the experimental setup. Similarly, donations showed no meaningful relationship with the analysed scales, with no discernible relation between both transactional behaviours. Since no predictor reached strong statistical significance, these results hint at a potential trend rather than definitive conclusions.

Nonetheless, the study contributes to the growing body of research on psychological constructs in consumption reduction. By integrating the IAT with self-report measures, such as VSES and YCSCB, the study advances the methodology for assessing buying behaviour. It also highlights the relevance of oneness in shaping consumer decisions that aligns with broader environmental goals. The interaction effects observed between D-score and YCSCB suggest that combined predictors may provide deeper insights into consumer behaviour. These findings underscore the value of exploring multi-variable models in future research.

6.6.2 Limitations and future directions

While the study uncovered predictive relationships between variables, the acknowledgement of limitations related to sampling, assessment tools, data collection and the experiment's setup hopes to improve future research on oneness and buying decision. The sample size, although statistically powered, was relatively narrow in scope and demographically homogenous. This may limit the generalizability of the findings. Additionally, the reliance on self-report measures for VSES and YCSCB could introduce biases, as participants may not accurately reflect their true behaviours or attitudes. Furthermore, the lack of significant moderation and mediation effects suggests that detecting these interactions may require larger datasets or more advanced analytical methods.

Another limitation of this study is the self-selection bias in participant engagement. The experiment primarily attracted individuals with an existing buying intention, while those less inclined to purchase were underrepresented. The study setting also created distinct participation dynamics: some individuals were already in a classroom, while others were passersby at an open-day event. This difference in context likely influenced engagement, as passersby may have felt pressured to take the test if they were already inclined to buy, while those uninterested in purchasing might have opted out entirely. Conversely, classroom participants may have felt a greater obligation to complete the test due to the structured environment, potentially skewing results.

Additionally, financial constraints and purchasing power were not explicitly controlled in the study. The decision to price the t-shirt at 1 euro aimed to ensure affordability for all participants; however, the study did not account for differing financial situations among respondents. This oversight means that the ease of spending 1 euro, which varies based on purchasing power, was not measured, potentially influencing engagement. A simple solution would be to incorporate a demographic question addressing financial background, whether by identifying participants' social class or specifying salary ranges.

Future research should seek to replicate and expand these findings using larger, more diverse samples, rather than limiting the study to students, especially those from the same institution. It may also be valuable to explore alternative measures of voluntary simplicity and sustainable consumption that account for implicit attitudes alongside explicit responses, following the use of a response latency technique to assess oneness. For that, investigating the role of cultural or societal factors in shaping consumer behaviour and the downward reassessment of need could provide a richer context for these phenomena.

These results offer actionable insights for policymakers seeking to promote consumption reduction as a fulfilling practice—an approach relying on a mindful reassessment of needs and fostered by a rewired sense of self. Policymakers exploring the spiritual harm associated with consumerism, as well as government programs focused on post-capitalist approaches to mental health and cultural security, must take into account the depth of spiritual and cultural transformation involved. These recommendations for future research can help refine studies to more effectively assess participants' sense of oneness and purchasing decisions.

6.7 Conclusions

This study emerges from a need to extend oneness studies and deepen consumer behaviour research to a spiritual dimension and selfless motivation in reduction. It aims to explore the

relationship between oneness and buying decisions, highlighting how they intersect with voluntary simplicity and sustainable consumption. By employing an implicit association test (IAT) alongside a real-world social experiment involving a T-shirt market sale and validated scale, the study yielded a few marginally significant relationships between variables.

While the statistical significance of predictors was limited, the multiple regression and correlation test highlight a marginal trend suggesting that higher oneness levels may slightly reduce purchasing behaviours, albeit weakly. The significant relationship between YCSCB scores and buying decisions further reinforces the idea that sustainability-conscious individuals tend to engage less in impulsive buying. However, the absence of a direct correlation between YCSCB and oneness suggests that these constructs operate independently, requiring further exploration. The lack of significant results for voluntary simplicity implies that personal ideology was not translated into practical purchasing habits in this study. Moreover, donations did not show meaningful correlations with any predictors.

By integrating implicit measures with experimental and self-report methodologies, this research advances the study of psychological determinants in consumption-related behaviours. Future work should refine measurement tools and explore additional variables that may moderate or mediate these relationships. Expanding sample sizes, controlling for financial constraints, and incorporating implicit measures alongside explicit responses could enhance the understanding of psychological influences on consumption behaviour and inform policies promoting production and consumption reduction. Despite its limitations, this study provides groundwork for continued investigation into how intrinsic psychological factors shape consumer choices.

References

- Areias, S., Disterheft, A., Gouveia, J. P., Fischer, D. (nd). The Oneness IAT: a New Assessment Tool for Sustainability Research. *Discover Sustainability*. Submitted and under review.
- Aron, A., Aron, E. N., Tudor, M., & Nelson, G. (1991). Close Relationships as Including Other in the Self. *Journal of Personality and Social Psychology*, 60(2), 241–253. <https://doi.org/10.1037/0022-3514.60.2.241>
- Barr, S. (2007). Factors influencing environmental attitudes and behaviors: A U.K. case study of household waste management. In *Environment and Behavior* (Vol. 39, Issue 4). <https://doi.org/10.1177/0013916505283421>
- Becker-Leifhold, C., & Heuer, M. (2018). *Eco-Friendly and Fair: Fast Fashion and Consumer Behaviour*. Routledge.

- Boujbel, L., & Astous, A. D. (2012). *Voluntary simplicity and life satisfaction : Exploring the mediating role of consumption desires*. 494(October), 487–494. <https://doi.org/10.1002/cb>
- Brooks, A. (2015). *Clothing Poverty : The Hidden World of Fast Fashion and Second-Hand Clothes*. Zed Books Ltd.
- Changing Markets Foundation. (2024). *Fashion's plastic paralysis: How brands resist change and fuel microplastic pollution*. <https://changingmarkets.org/report/fashions-plastic-paralysis/>
- Chowdhury, R. M. M. I. (2016). Religiosity and Voluntary Simplicity: The Mediating Role of Spiritual Well-Being. *Journal of Business Ethics*. <https://doi.org/10.1007/s10551-016-3305-5>
- Coomber, T., & Harré, N. (2022). Psychological Oneness: A Typology. *Review of General Psychology*, 26(1), 49–67. <https://doi.org/10.1177/10892680211034457>
- Edinger-Schons, L. M. (2020). Oneness beliefs and their effect on life satisfaction. *Psychology of Religion and Spirituality*, 12(4), 428–439. <https://doi.org/10.1037/rel0000259>
- Egea, M. O., & Garc, N. (2013). Toward Consumption Reduction: An Environmentally Motivated Perspective. *Psychology & Marketing*, 30(8), 660–675. <https://doi.org/10.1002/mar>
- Elgin, B. D., & Mitchell, A. (1977). Voluntary Simplicity in Co-Evolution. *Co-Evolution Quarterly*.
- Ellen MacArthur Foundation, & McKinsey & Company. (2014). Towards the Circular Economy : Accelerating the scale-up across global supply chains. In *World Economic Forum*.
- Erdfelder, E., Faul, F., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149–1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Etzioni, A. (1998). Voluntary simplicity: Characterization, select psychological implications, and societal consequences. *Economic Psychology*, 19(5), 619–643.
- European Environment Agency. (2024). *Management of used and waste textiles in Europe's circular economy*. <https://www.eea.europa.eu/publications/management-of-used-and-waste-textiles>
- European Parliament. (2023). EU Strategy for Sustainable and Circular Textiles (2022/2171(INI)). *Official Journal of the European Union*. https://www.europarl.europa.eu/doceo/document/TA-9-2023-0215_EN.html
- Fashion Revolution CIC. (2021). Fashion Transparency Index 2021 by Fashion Revolution - issuu. *Fashion Revolution*.
- Figge, F., Young, W., & Barkemeyer, R. (2014). Sufficiency or efficiency to achieve lower resource consumption and emissions? the role of the rebound effect. *Journal of Cleaner Production*, 69, 216–224. <https://doi.org/10.1016/j.jclepro.2014.01.031>
- Fischer, D., Böhme, T., & Geiger, S. M. (2017). Measuring young consumers' sustainable consumption behavior: development and validation of the YCSCB scale. *Young Consumers*, 18(3), 312–326. <https://doi.org/10.1108/YC-03-2017-00671>
- Fischer, D., Stanszus, L., Geiger, S., Grossman, P., & Schrader, U. (2017). Mindfulness and sustainable consumption: A systematic literature review of research approaches and findings. *Journal of Cleaner Production*, 162, 544–558. <https://doi.org/10.1016/j.jclepro.2017.06.007>

- Frantz, C. M. P., & Mayer, F. S. (2013). The importance of connection to nature in assessing environmental education programs. *Studies in Educational Evaluation*, 41, 85–89. <https://doi.org/10.1016/j.stueduc.2013.10.001>
- Freudenreich, B., & Schaltegger, S. (2020). Developing sufficiency-oriented offerings for clothing users: Business approaches to support consumption reduction. *Journal of Cleaner Production*, 247. <https://doi.org/10.1016/j.jclepro.2019.119589>
- Garfield, A. M., Drwecki, B. B., Moore, C. F., Kortenkamp, K. V., & Gracz, M. D. (2014). The Oneness Beliefs Scale: Connecting Spirituality with Pro-Environmental Behavior. *Journal for the Scientific Study of Religion*, 53(2), 356–372.
- Geiger, S., & Keller, J. (2018). Shopping for Clothes and Sensitivity to the Suffering of Others: The Role of Compassion and Values in Sustainable Fashion Consumption. *Environment and Behavior*, 50(10), 1119–1144. <https://doi.org/10.1177/0013916517732109>
- Gorge, H., Herbert, M., Özçağlar-Toulouse, N., & Robert, I. (2015). What Do We Really Need? Questioning Consumption Through Sufficiency. *Journal of Macromarketing*, 35(1), 11–22. <https://doi.org/10.1177/0276146714553935>
- Greenpeace International. (2017). After the Binge the Hangover. Greenpeace International. In *Greenpeace.Org*.
- IPCC. (2022). *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. <https://doi.org/10.1017/9781009325844>
- Jelenc, L., & Dlacic, J. (2013). *The pulse of the impulsive buying behaviour: New strategic perspective*.
- Karmarkar, U. R. (2016). The Impact of “Display-Set” Options on Decision-Making. *Journal Of Behavioral Decision Making*. <https://doi.org/10.1002/bdm.1998>
- Karmarkar, U. R., & Plassmann, H. (2019). Consumer Neuroscience: Past, Present, and Future. *Organizational Research Methods*, 22(1), 174–195. <https://doi.org/10.1177/1094428117730598>
- Karmarkar, U. R., Shiv, B., & Knutson, B. (2015). Cost conscious: The neural and behavioral impact of price primacy on decision making. *Journal of Marketing Research*, 52(4), 467–481. <https://doi.org/10.1509/jmr.13.0488>
- Kropfeld, M. I., Nepomuceno, M. V., & Dantas, D. C. (2018). *The Ecological Impact of Anticonsumption Lifestyles and Environmental Concern*. 37(2), 245–259.
- Leopold, A. (1949). A Sand County Almanac. In *The Top 50 Sustainability Books*. Oxford University Press. https://doi.org/10.9774/gleaf.978-1-907643-44-6_3
- Levanen, J., Uusitalo, V., Harri, A., Kareinen, E., & Linnanen, L. (2021). Innovative recycling or extended use? Comparing the global warming potential of different ownership and end-of-life scenarios for textiles. *Environmental Research Letters*, 16(5). <https://doi.org/10.1088/1748-9326/abfac3>

- Lindstrom, M. (2009). *Buyology: Truth and Lies About Why We Buy*. Doubleday.
- Muruganantham, G., & Bhakat, R. S. (2015). *A Review of Impulse Buying Behavior A Review of Impulse Buying Behavior*. April 2013. <https://doi.org/10.5539/ijms.v5n3p149>
- Nepomuceno, M. V., & Laroche, M. (2015). When Materialists Intend to Resist Consumption: The Moderating Role of Self-Control and Long-Term Orientation. *Journal of Business Ethics*, 143(3), 467–483. <https://doi.org/10.1007/s10551-015-2792-0>
- Niinimäki, K., Peters, G., Dahlbo, H., Perry, P., Rissanen, T., & Gwilt, A. (2020). The environmental price of fast fashion. *Nature Reviews Earth & Environment*, 1(4), 189–200. <https://doi.org/10.1038/s43017-020-0039-9>
- Philp, M., & Nepomuceno, M. V. (2020). When the frugal become wasteful: An examination into how impression management can initiate the end - stages of consumption for frugal consumers. *Psychology & Marketing*, 37(2), 326–339. <https://doi.org/10.1002/mar.21303>
- Princen, T. (2005). Book Reviews. *MIT Press*, 401. <https://doi.org/10.1016/j.ecolecon.2006.09.030>
- R Core Team. (2024). R: A Language and Environment for Statistical Computing. *Foundation for Statistical Computing*. <https://www.R-project.org/>.
- Reimers, H., Jacksohn, A., Appenfeller, D., Lasarov, W., Hüttel, A., Rehdanz, K., Balderjahn, I., & Hoffmann, S. (2021). Indirect rebound effects on the consumer level: A state-of-the-art literature review. *Cleaner and Responsible Consumption*, 3(July), 100032. <https://doi.org/10.1016/j.clrc.2021.100032>
- Rezlescu, C., Danaila, I., Miron, A., & Amariei, C. (2020). More time for science: Using Testable to create and share behavioral experiments faster, recruit better participants, and engage students in hands-on research. *Progress in Brain Research*, 253, 243–262.
- Rich, S. A., Wright, B. J., & Bennett, P. C. (2020). Development of the Voluntary Simplicity Engagement Scale: Measuring Low-Consumption Lifestyles. *Journal of Consumer Policy*, 43(2), 295–313. <https://doi.org/10.1007/s10603-018-9400-5>
- Rick, S., Cryder, C. E., Loewenstein, G., Johnson, E., Khan, U., Lerner, J., Ozanne, J., Vohs, K., Vosgerau, J., Weber, R., & Wheeler, C. (2008). Tightwads and Spendthrifts. *Journal of Consumer Research*, 34. <https://doi.org/10.1086/523285>
- Rodríguez-Barbará, E., Gómez-Carmona, O., Ferrer, A., Gómez-Fortes, B., Kados, S. A., López-De-Ipiña, D., & Casado-Mansilla, D. (2022). The Street as a Reflective Space to Increase Citizen Awareness of Social Justice in the Fashion Industry. *ACM International Conference Proceeding Series*, 276–282. <https://doi.org/10.1145/3524458.3547249>
- Santarius, T., & Soland, M. (2018). How Technological Efficiency Improvements Change Consumer Preferences: Towards a Psychological Theory of Rebound Effects. *Ecological Economics*, 146(May 2017), 414–424. <https://doi.org/10.1016/j.ecolecon.2017.12.009>
- Sapolsky, R. M. (2017). *The Biology of Humans at our Best and Worst*.
- Schlacke, S., Wentzien, H., Thierjung, E. M., & Köster, M. (2022). Implementing the EU Climate Law via the ‘Fit for 55’ package. *Oxford Open Energy*, 1. <https://doi.org/10.1093/ooenergy/oiab002>

- Shaw, D., & Newholm, T. (2002). Voluntary Simplicity and the Ethics of Consumption. *Psychology & Marketing*, 19(2), 167–185. <https://doi.org/10.1002/mar.10008>
- The Or Foundation. (2025). *Stop Waste Colonialism: Addressing the global impact of textile waste*. <https://stopwastecolonialism.org/stopwastecolonialism.pdf>
- Wei, L., Li, Y., Zeng, X., & Zhu, J. (2021). Mindfulness in Ethical Consumption: The Mediating Roles of Connectedness to Nature and Self-control. *International Marketing Review*. <https://doi.org/10.1108/IMR-01-2019-0023>
- Zylstra, M. J., Knight, A. T., Esler, K. J., & Le Grange, L. L. L. (2014). Connectedness as a Core Conservation Concern: An Interdisciplinary Review of Theory and a Call for Practice. *Springer Science Reviews*, 2(1–2), 119–143. <https://doi.org/10.1007/s40362-014-0021-3>

GENERAL DISCUSSION

This thesis explores the linkages between oneness and buying behaviour, considering oneness' boundless sense of self and mystical dimension as a leverage for reassessment and realignment with essential needs. It emerges from a focus on consumption reduction, which has been identified as a priority by the scientific community but has yet to be adequately addressed by policymakers in governments and climate summits. The research project was conceived in response to the ongoing communication and ineffective implementation of insufficient policy plans for sustainable consumption and circular economy in the EU. These policies have fundamentally overlooked the psychological and spiritual dimensions intertwined with consumerism – dimensions long recognized by psychoanalysts and social psychologists over the past century (Bancroft, 2012b; Fromm, 1976b).

The following sections present and discuss responses to the three research questions that shaped the research design and guided the methodological approach of this thesis. Subsequently, a series of limitations are outlined, including issues related to variable categorizations and assessment, the adequacy and application of chosen methods, and broader considerations regarding the applicability of the thesis outcomes in governments and society.

7.1 Answering the research questions

This section presents the answers to the three research questions (RQ) explored in this thesis, considering that the findings result from an integrative approach combining a semi-systematic literature review, semi-structured expert interviews, an implicit measure, questionnaire-based scales, a social experiment, and a quantitative analysis using several statistical tests. The interpretation of results is influenced by the author's research paradigms and worldview, meaning alternative approaches could lead to different yet equally valid conclusions. The research questions are outlined below.

RQ1: How is connectedness conceptualised and how does it relate to pro-environmental consumption of fashionables?

Connectedness is defined as a sense of unity between the self and an "other" entity, whether that be nature, humanity, or a broader existential dimension. Across disciplines such as psychology, social sciences, and environmental studies, research consistently shows that higher levels of connectedness correlate positively with pro-environmental behaviour, including sustainable fashion consumption.

Although this thesis centres on the concept of *oneness*, its initial phase explored broader and more general interpretations of *connectedness* in order to examine how varying conceptions of the self–other relationship influence consumption behaviours. A semi-systematic literature review, detailed in Chapter 4, analysed 12 reports from international organizations and 29 relevant academic studies. These studies were identified through a structured keyword search combining three key themes: self-concept, pro-environmental behaviour and consumption. The review highlights that connectedness is also described in literature as connectedness to nature, interconnectedness, human-nature connectedness, and self-other overlap, among other terms. The concept represents an expansion or transcendence of the self, that either is felt as an inclusion of the other in the self, a perception that the self is part of something greater, or that the self and the external entity are fundamentally the same within an interwoven reality. This shift in self-perception redefines self-protection in a way that aligns with pro-environmental motivations. Instead of viewing sustainable choices as a personal sacrifice or for individual gain, individuals with strong connectedness may engage in pro-environmental behaviour from an intrinsic standpoint, seeing nature’s well-being as an extension of their own. The literature reviewed in Chapter 4 emphasizes the idea of “nature protecting itself,” distinguishing intrinsically motivated environmental action from behaviour driven by guilt, pride or social recognition.

During the first phase of the literature review, oneness emerged as a synonym for connectedness and as an epitome of total self-transcendence, often linked to spirituality and ancient religious texts. Chapter 5 analyses oneness categorization in great depth. Oneness is frequently discussed in mystical literature from multiple origins as the ineffable perception of unity between the self and a greater existence. Rooted in Hinduism, Greek philosophy, Christian mysticism, Buddhism, and Sufism, it transcends categories of being and non-being, signifying a direct, non-dual connection with all reality. This view suggests that oneness is beyond intellectual comprehension and can only be experienced through mystical union. In psychoanalysis, oneness manifests as a fusional experience, from infant-caregiver relationships to Freud’s “oceanic feeling”. Later theorists, like Bion and Ogden, extended oneness to intersubjective relationships. Modern research frames oneness as a sense of unity with other entities, categorized across five scopes: individuals, social groups, humanity, nature, and everything. Recent studies have sought to refine its measurement, categorizing it by scope, manifestation, and ontology, yet often underestimating its original mystical dimension.

Chapter 6 further explores how oneness relates to fashion consumption behaviour, particularly in the context of reducing consumption. Since refraining from buying aligns with pro-

environmental behaviour, a social experiment was conducted to assess whether individuals with higher implicit oneness scores were less likely to make impulse purchases. In the study, participants were given the choice to buy a T-shirt for 1 euro or abstain. While findings were inconclusive, there was a slight correlation suggesting that individuals with stronger implicit oneness were more inclined to refrain from buying.

RQ2: How can oneness be more accurately assessed and related to other variables?

A set of studies in Chapter 5 developed an implicit association test (IAT) to assess oneness with good psychometric properties—which constitutes a valid option. However, given the indescribable nature of oneness, no single tool can perfectly capture its essence while providing a metric comparable to other variables. Oneness, a concept rooted in ancient mystic literature, has only been systematically assessed, measured, and analysed since the twentieth century, largely due to the growing interest in the spiritual experience within psychoanalysis and social sciences. The psychoanalytic method, that typically unfolds in a series of individual sessions where the analyst carefully observes the subject in both clinical and non-clinical case studies, has been recognized as an effective approach for exploring the subject's and analyst's experience of oneness throughout the twenty-first century. However, as the study of oneness expanded into other scientific disciplines by the turn of the century, new concerns emerged regarding its assessment and integration in multivariable statistical analyses involving large samples. In response, questionnaire-based scales with strong psychometric properties were developed. Nonetheless, assessing oneness – an ineffable reality of unity with all existence, transcending both material and conceptual worlds – poses significant methodological challenges, requiring nuanced approaches beyond self-report measures.

A major limitation in assessing oneness has been the over-reliance on explicit measures, typically in the form of questionnaires and scales. While useful for capturing conscious beliefs, these instruments fail to access automatic cognitive processes that shape implicit perceptions of self-expansion and interconnectedness. Traditional self-report scales are vulnerable to social desirability biases, where participants unconsciously or deliberately respond in ways they believe are socially acceptable rather than reflecting their true experiences. This discrepancy between reported and actual cognitive associations underscores the need for alternative assessment strategies.

The development of an implicit association test (IAT) in this study aimed to overcome the limitations of explicit self-report methods, which are prone to response biases and fail to capture subconscious associations. The IAT approach bridges this gap by measuring reaction-time-based associations between self-concept and transcendental, unbounded concepts.

However, findings reveal inherent conflicts in validating this measure against conventional self-report scales, raising critical questions about the accuracy and compatibility of existing methodologies. Validating an implicit assessment tool using explicit measures presents an inherent paradox – if implicit measures are designed to bypass biased responses, how can their reliability be confirmed through comparison with inherently biased self-report assessment tools? This tension underscores the core challenge of refining the assessment of oneness.

The findings in Chapter 5 demonstrate that while the Oneness IAT exhibits strong internal consistency reliability, further scrutiny is required to ensure its consistency over time. A test-retest approach involving the same participants at different time intervals would strengthen predictive validity, ensuring that implicit associations are stable rather than influenced by short-term cognitive fluctuations. Another challenge in IAT construction is the word selection process. While expert reviews guided the inclusion of words representing oneness, future refinements could focus on increasing response efficiency and minimizing potential ambiguity in word categorization. Diversified, cross-cultural sampling, including individuals from varying educational and socioeconomic backgrounds, would enhance representativeness and reduce Western-centric biases in the findings, ultimately improving the precision of the implicit assessment. Despite these refinements, the study's discussion section reinforces that oneness is fundamentally non-binary, meaning pairing concepts within the IAT structure is inherently challenging. Expert reviews remain critical in conceptualizing oneness' all-encompassing nature without oversimplifying it.

RQ3: Can oneness predict buying behaviour? If so, in what ways?

Oneness may predict buying behaviour, though the correlation is still inconclusive. A study based on a semi-structured literature review in Chapter 4 and the literature review in Chapter 6 pointed towards a positive answer to this research question.

The reviewed literature suggests a potential correlation between oneness-related terms and buying behaviour, particularly in the context of consumption reduction. While connectedness to nature has been widely studied in relation to pro-environmental consumption, the literature also acknowledges oneness as a similar concept. Studies on connectedness-driven pro-environmental consumption indicate that individuals who feel deeply interconnected with nature are more likely to engage in sustainable behaviours, such as reducing electricity use, supporting local producers, and choosing ethical purchases. Given that oneness embodies a boundless sense of unity, it may similarly reduce materialistic tendencies and increase mindful consumption. Psychological studies on connectedness with nature reinforce this idea by

demonstrating its positive relationship with pro-environmental consumption and mindful reassessment of needs.

The study in chapter 6 combining the oneness IAT and an experiment registering the buying decision of over sixty participants provides preliminary insights into whether individuals who experience higher oneness levels engage less in purchasing behaviours. While findings indicate a marginally significant negative correlation between implicit oneness scores and purchasing behaviour—suggesting that individuals with stronger oneness associations may be slightly less likely to buy—this effect is weak and requires further validation and refinement of future research.

The intersection with other variables was tested to explore the impact of a multivariable model in predictive strength and potential mediation or moderation between oneness and buying behaviour—whether participants' level of voluntary simplicity or sustainable consumption, for instance, could help explain or intensify the negative correlation between the two variables. Nonetheless these attempts yielded no further significant results.

One possible explanation for these weak statistical relationships is the nature of the experimental setting, considering that participants already had an intention to purchase, limiting the ability to observe true non-consumerist behaviours. Additionally, the price of the T-shirt (1 euro) may have influenced the results, as financial constraints were not adequately controlled. Since spending 1 euro may not be perceived as a significant expense, the act of purchasing might not fully reflect deeper consumption motivations. Future research should integrate financial background assessment into the study design to ensure more accurate interpretations.

7.2 Limitations and future work

The sections on limitations and future directions discussed in Chapters 4, 5, and 6 focus on the constraints of each methodological approach used to address specific research aims and questions. However, when considering the overarching objective of this thesis and the sequential way in which all research questions were addressed, it is essential to critically assess the overall methodological framework and its adequacy in answering the key research questions.

One major challenge identified is the measurability of oneness. The effectiveness of the Oneness IAT would benefit from expert reviews to reinforce its construct validity and a test-retest study with a cross-cultural approach to ensure consistency reliability. An alternative method for assessing oneness quantitatively could involve functional magnetic resonance

imaging (fMRI) scans, which identify neural activation patterns associated with self-transcendence. This approach has been applied in previous studies on meditation (as discussed in Chapter 5's literature review on oneness assessment tools). However, its feasibility depends on research funding due to high costs. Both the Oneness IAT and fMRI-based assessments enable segmentation of participants based on high vs. low oneness scores, facilitating comparisons with other variables and methodologies.

A key consideration about the methodological approach is its potential limitations in effectively measuring consumption reduction. While existing methods provide insights on impulsive buying, evaluating long-term consumption patterns may require tracking behavioural growth over time. A more effective approach would integrate behavioural tracking through real-world purchasing patterns. This could be achieved through longitudinal transaction data analysis in collaboration with retailers or digital payment services, granting access to anonymized transaction records over an extended period (e.g., six months to a year). By grouping consumers based on their implicit oneness scores, researchers could assess whether individuals with higher oneness scores demonstrate lower purchasing frequency or reduced overall spending. Retail loyalty programs and e-receipt databases would provide valuable insights into changing spending habits, enabling researchers to observe shifts toward more intentional consumption patterns over time. This method circumvents biases associated with self-reporting, offering a direct measurement of financial decisions.

Unconscious decision-making processes could also be studied using eye-tracking technology to examine whether individuals fixate longer on advertisements or product choices during simulated shopping experiences. Heatmap platforms can visually represent user interactions, such as clicks, scrolling, and hovering on webpages, providing detailed information on impulses and hesitations. This data would help scrutinize the relationship between belief, intention, and actual behaviour. Another option involves designing controlled, real-world experiments similar to the study in Chapter 6, but ensuring a test-retest setting with the same sample. This approach would allow researchers to track changes in participants' consumption behaviour over time.

Future research on oneness and consumption reduction can greatly benefit from a participatory action research (PAR) approach. This method actively involves participants in exploring their motivations, experiences, and the gaps between intention and behaviour. It also helps them reflect on their purchasing decisions, reassess their needs, and undergo inner transformation. By engaging participants in their own change process, PAR can uncover overlooked factors that previous research methods may have missed. The personal and subjective nature of concepts like oneness, self-transcendence (including the self-other

overlap and one's bodily self in fashion), sufficiency, and voluntary simplicity can be better understood through an open-ended approach. This allows participants to express their feelings and experiences, turning their perspectives into actionable insights.

7.3 Implications

This work introduces a new assessment tool for oneness, demonstrating validity and consistency in its psychometric analysis. Though it holds strong potential for refinement, its applicability spans multiple scientific fields worldwide. While some aspects of the methodological approach in this thesis produced inconclusive results, they nonetheless offer valuable insights that can be refined and incorporated into consumption reduction policies and research initiatives.

Given the radical nature of oneness and the subconscious and culturally driven consumption patterns, the practical applications of this research are most effective when implemented at a structural level rather than through incremental policy adjustments. The literature review across Chapters 1, 2, 4, 5, and 6 underscores a longstanding body of work that suggests consumerism, as a defining force in modern civilization, thrives on the fragmentation of human identity. The artificial elevation of the individual, separated from communal interdependence, nature, and a shared existential purpose, creates an endless void to be filled with consumption. If future research can establish a strong correlation between oneness and reduced consumption, alongside findings on the reassessment of perceived needs, this thesis posits that a deep, structural reorientation towards oneness can serve as the foundation for radically reorganizing human society beyond the hyper-individualist framework that drives consumerism.

A post-consumerist paradigm cannot be achieved through mere policy tweaks in education or culture. While such interventions might introduce new narratives, they remain superficial responses to deeper systemic fractures. What is required is nothing short of civilizational transformation. This section also aims to inspire future research in this direction. This begins by confronting the historical mechanisms of land occupation, resource extraction, and labour exploitation—particularly prevalent within the industry of fashionables—key drivers of consumerism that force populations into economic dependency, alienation from nature, and the relentless pursuit of external validation. Rather than preserving corporate economies that depend on scarcity-driven consumption, society could be reconfigured around community-based lifestyles where the fundamentals of well-being are collectively managed. A shift away from transactional relationships toward deep communal bonds could lay ground to cooperative

self-sustainability, reducing reliance on wasteful production. The motivation to mitigate consumerism is not solely driven by its potential to reduce consumption and environmental harm, but equally crucial in addressing a deep-seated spiritual crisis and existential void within modern society that constitutes an environmental and social issue as well. Time, labour and knowledge systems must be radically reimagined to meet Vandana Shiva's definition of oneness. She argues that the premise that human worth is tied to economic productivity should be thoroughly dismantled, freeing individuals to engage in decision-making processes that nurture holistic community development. Sharing communal activities that are non-extractive and synchronized with ecological cycles would allow for immersive human interaction with nature, fostering intrinsic fulfilment rather than consumer-driven compensation. Modern spaces, designed to aggressively spur consumerism through commercial centralization, could transition to communitarian spaces immersed in nature, collective care, organized resistance and cultural immersion—key elements in rebuilding a sense of spiritual security. Mental and spiritual health must be safeguarded through integrated support systems that dismantle internalized structures of oppression rather than relying on escapism through overconsumption.

The current dominant economic model thrives on the systemic disconnection between self and society, reducing fulfilment to perpetual external validation. To move beyond this conditioning, humanity must progressively dissolve the illusion of individual supremacy and embrace oneness as a lived, structural reality. This thesis does not call for incremental shifts; it suggests civilizational reconfiguration. Through the perspectives outlined above, future research in oneness studies can move toward radical applications that challenge conventional frameworks.

CONCLUSION

This thesis has explored the relationship between oneness and buying behaviour, examining how an unbounded sense of self can serve as a critical leverage for reassessing essential needs. The research is grounded in the urgency of consumption reduction, a widely recognized priority within the scientific community, yet one that remains inadequately addressed in EU policies and international climate summits. While policies have largely focused on economic incentives and regulatory frameworks, they have overlooked the deep psychological and spiritual dimensions underpinning consumerism that scientists have emphasized for over a century.

While methodological challenges remain in accurately assessing oneness, the development of an implicit association test in this study marks a significant step forward. Though the Oneness IAT demonstrated strong internal consistency reliability, further refinements including test-retest validation, optimized word selection, and cross-cultural adaptations are essential to strengthen its predictive capacity. The exploration of oneness as a predictor of buying behaviour yielded mixed results. Although the findings suggest a marginally significant negative correlation between implicit oneness scores and purchasing decision, the effect size is weak, requiring further investigation. Several factors, including the experimental setting, pre-existing purchase intent, and financial constraints, likely influenced the results, underscoring the need for more comprehensive study designs.

Beyond the methodological and empirical contributions, this thesis reinforces the broader societal implications of fostering oneness. The spiritual crisis intertwined with consumerism is not a secondary concern. It is a foundational environmental issue. The findings invite further interdisciplinary engagement, from psychology and neuroscience to environmental policy and cultural studies, to refine society's understanding of how oneness can be cultivated as a transformative force. Ultimately, this thesis calls for a structural reconfiguration of human society beyond consumerist conditioning. Future research must continue interrogating the subconscious mechanisms driving consumption while exploring radical pathways to reduce it in ways that foster inner-transformation and genuine wellbeing.

ANNEXES

This thesis includes two annexes, providing supplementary information for Chapters 5 and 6, as detailed in the corresponding chapters. The annexes are the following:

Annex A - Script of the semi-structured interviews (Chapter 5)

Annex B - Questionnaires of the IAT's explicit measures (Chapters 5 and 6)

SCRIPT OF THE SEMI-STRUCTURED INTERVIEWS

Introduction:

Thank you for taking the time to participate in this interview for CENSE, FCT-NOVA – Center for Environmental and Sustainability Research & CHANGE – Global Change and Sustainability Institute, NOVA School of Science and Technology. We are working on developing a new Implicit Association Test (IAT) to measure oneness.

This interview should not take more than one hour. The purpose of this interview is to gather your expert opinions and insights to support the development of a reliable and valid IAT for oneness. The information you provide will be used to inform the design and implementation of the test. Your responses will be kept confidential and will only be used for the purposes of this research. Do you have any questions before we begin?

Questions for experts in implicit measures:

- Can you describe your background and expertise in the field of implicit measures?
- What are the key components or dimensions of an implicit association test?
- What are the main challenges in developing an implicit association test?
- How do you address these challenges in your work?
- Are you familiar with the concept of oneness?
- What are the strengths and limitations of using implicit measures to assess variables like oneness (e.g. interconnectedness, self-transcendence)?
- What design considerations should we keep in mind when developing an implicit association test for oneness?
- If you were to develop an implicit association test to assess oneness, what target and attribute words would you consider using?
- Are there any specific methodologies or best practices you recommend?

Questions for experts in oneness:

- Can you please describe your background and expertise in the field of oneness?
- How would you define oneness?
- How would you define the opposite of oneness?
- What are the key components or dimensions of oneness?
- What are the main challenges in assessing oneness?
- How would you define oneness as a construct that can be assessed and compared with other measures?
- What are the most important aspects to consider when analysing oneness?
- How does oneness compare with other related constructs?
- What are the key differences and similarities?
- What is your experience with implicit measures or response latency techniques?
- If you were to develop an implicit measure to assess oneness, what concepts would you consider using to differentiate oneness from what it is not?
- What literature on oneness do you recommend for this purpose?

QUESTIONNAIRES OF THE IAT'S EXPLICIT MEASURES

Oneness beliefs scale (OBS) (Garfield et al., 2014):

Statement	Response
1. There is a unifying force (in the universe) through which all life is brought together in one great whole	1; 2; 3; 4; 5
2. There is a mysterious link, beyond the purely physical, that connects all human beings with each other and with the entire natural world	1; 2; 3; 4; 5
3. A vital thread of life joins all objects and beings in the universe	1; 2; 3; 4; 5
4. Human beings and nature are both part of a vast symphony of life directed by a single life-force	1; 2; 3; 4; 5
5. The peace and happiness of humankind is founded on being in harmony with the rhythm of the universe	1; 2; 3; 4; 5
6. All existence in the universe forms one great unified life system	1; 2; 3; 4; 5
7. The natural world does not consist merely of physical phenomena but contains spiritual and emotional elements as well	1; 2; 3; 4; 5
8. Every living and nonliving thing is an expression of the fundamental life-force of the entire cosmos	1; 2; 3; 4; 5
9. The entire cosmos is linked together by complicated and intricate physical laws	1; 2; 3; 4; 5
10. All parts of the universe—both living and nonliving—are composed of the same fundamental materials	1; 2; 3; 4; 5
11. All living beings are connected because they are produced and nourished by the same diverse forces, such as the pull of gravity in the universe, the flow of energy from the sun, and the web of life in the natural world	1; 2; 3; 4; 5

Note: 1 = Strongly disagree; 2 = Disagree; 3 = Neither agree nor disagree; 4 = Agree; 5 = Strongly agree.

Oneness experience (Van Lente & Hogan, 2020):

Statement	Response
1. A sense of being boundless or infinite	1; 2; 3; 4; 5
2. A sense of “me” dissolving	1; 2; 3; 4; 5
3. A feeling of inner peace and stillness	1; 2; 3; 4; 5
4. No longer feeling superior or inferior to others	1; 2; 3; 4; 5
5. A sense of no longer needing to control	1; 2; 3; 4; 5
6. A feeling of being connected to something greater	1; 2; 3; 4; 5
7. A sense of no longer having a fear of death	1; 2; 3; 4; 5
8. A sense of seeing that our nature is kindness	1; 2; 3; 4; 5
9. A recognition that suffering is part of oneness	1; 2; 3; 4; 5
10. An awareness that all of my actions have an impact on the universe	1; 2; 3; 4; 5
11. A feeling of love	1; 2; 3; 4; 5
12. A sense of being a conduit rather than a doer	1; 2; 3; 4; 5
13. A sense of the world being one energy field	1; 2; 3; 4; 5
14. Knowing that I am ultimately not separate from others	1; 2; 3; 4; 5
15. A sense of timelessness	1; 2; 3; 4; 5

Note: 1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Often; 5 = Always.

New environmental paradigm (NEP) (R. E. Dunlap & Van Liere, 1978):

Statement	Response
1. We are approaching the limit of the number of people the earth can support	1; 2; 3; 4; 5
2. Humans have the right to modify the natural environment to suit their needs*	1; 2; 3; 4; 5
3. When humans interfere with nature it often produces disastrous consequences	1; 2; 3; 4; 5
4. Human ingenuity will insure that we do NOT make the earth unliveable	1; 2; 3; 4; 5
5. Humans are severely abusing the environment	1; 2; 3; 4; 5
6. The earth has plenty of natural resources if we just learn how to develop them	1; 2; 3; 4; 5
7. Plants and animals have as much right as humans to exist	1; 2; 3; 4; 5
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations*	1; 2; 3; 4; 5
9. Despite our special abilities humans are still subject to the laws of nature	1; 2; 3; 4; 5
10. The so-called “ecological crisis” facing humankind has been greatly exaggerated*	1; 2; 3; 4; 5
11. The earth is like a spaceship with very limited room and resources	1; 2; 3; 4; 5
12. Humans were meant to rule over the rest of nature*	1; 2; 3; 4; 5
13. The balance of nature is very delicate and easily upset	1; 2; 3; 4; 5
14. Humans will eventually learn enough about how nature works to be able to control it	1; 2; 3; 4; 5
15. If things continue on their present course, we will soon experience a major ecological catastrophe	1; 2; 3; 4; 5

Note: 1 = Strongly disagree; 2 = Disagree; 3 = Neither agree nor disagree; 4 = Agree; 5 = Strongly agree;

** statement with reverse scoring.*

Voluntary Simplicity Engagement Scale (VSES) (Rich et al., 2020):

Statement	Response
1. I repair broken items rather than replace them	1; 2; 3; 4; 5
2. I make do with what I have on hand rather than purchase something new	1; 2; 3; 4; 5
3. I avoid buying products that are designed to be obsolete within a short period of time	1; 2; 3; 4; 5
4. I am very careful with how much power, water and fuel (including gas or wood) I use	1; 2; 3; 4; 5
5. When possible I get my produce from a food cooperative	1; 2; 3; 4; 5
6. I buy directly from producers to ensure they get full pay for their produce	1; 2; 3; 4; 5
7. When I purchase foodstuff, I make sure it is grown as locally as possible	1; 2; 3; 4; 5
8. I avoid packaged products where possible	1; 2; 3; 4; 5
9. I grow, raise or produce the food I eat	1; 2; 3; 4; 5
10. Growing food and being self-sufficient is too time consuming; I would rather pay others for their produce and enjoy more time for myself*	1; 2; 3; 4; 5
11. I preserve fruit and vegetables when they are in season for later use	1; 2; 3; 4; 5
12. I share my skills and labour with others, even when I am not at work	1; 2; 3; 4; 5
13. I share the fruits of my labour with others outside of my immediate family	1; 2; 3; 4; 5
14. I put effort into being engaged in and building my community	1; 2; 3; 4; 5
15. I do not need many material things to live a fulfilling life	1; 2; 3; 4; 5
16. I do not have many possessions	1; 2; 3; 4; 5
17. Keeping up with other people in terms of status and possessions is not important	1; 2; 3; 4; 5
18. I would say I work to live rather than live to work	1; 2; 3; 4; 5
19. Time is our most valuable commodity	1; 2; 3; 4; 5
20. Work status does not define my success as a human	1; 2; 3; 4; 5
21. I am content to adjust my spending if it means I can work less	1; 2; 3; 4; 5

Note: 1 = Strongly disagree; 2 = Disagree; 3 = Neither agree nor disagree; 4 = Agree; 5 = Strongly agree;

** statement with reverse scoring.*

Young Consumer's Sustainable Consumption Behaviour (YCSCB) (Fischer, Böhme, et al., 2017):

Statement	Response
1. I give away or swap clothes I do not wear anymore	1; 2; 3; 4; 5
2. I wait until my washing machine is full, before put on the wash	1; 2; 3; 4; 5
3. I buy fairly produced clothes	1; 2; 3; 4; 5
4. I air my clothes and decide afterwards if I have to wash them or not	1; 2; 3; 4; 5
5. Instead of buying a piece of wardrobe for special occasions, I borrow it	1; 2; 3; 4; 5
6. I buy ecologically produced clothes from organic materials	1; 2; 3; 4; 5
7. I use a laundry dryer*	1; 2; 3; 4; 5
8. I make my own clothes (e.g., sowing, knitting)	1; 2; 3; 4; 5
9. When I shop for clothes, I buy them second hand	1; 2; 3; 4; 5
10. I avoid clothes from countries with bad working conditions	1; 2; 3; 4; 5
11. I buy clothes with labels that guarantee they are free from chemicals	1; 2; 3; 4; 5
12. I buy high quality, long-lasting clothes	1; 2; 3; 4; 5
13. I sort out clothes, if they are out of fashion or my taste*	1; 2; 3; 4; 5
14. I repair clothes or let them be repaired	1; 2; 3; 4; 5
15. I look for ways of using old, discarded clothes (e.g., for cleaning cloths or recycling projects)	1; 2; 3; 4; 5

Note: 1 = Strongly disagree; 2 = Disagree; 3 = Neither agree nor disagree; 4 = Agree; 5 = Strongly agree;

** statement with reverse scoring.*



2025

SALOMÉ PIMENTEL AREIAS

TOWARDS REDUCTION: EXPLORING THE LINK
BETWEEN ONENESS AND FASHION CONSUMPTION

