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Consumers' purchase intention towards eco-friendly packaging in Kidapawan City, the Philippines

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Consumers' purchase intention towards eco-friendly packaging in Kidapawan City, the Philippines

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Abstract

The severity of the plastic problem in the Philippines has prompted the public and private sectors to take measures to address it. As the country shifts to sustainable ways, information about green consumer behaviour is essential to effectively implement policies and programmes. This study aimed to determine consumers' level of purchase intention towards eco-friendly packaging, whether a significant difference in consumers' purchase intention exists when they are grouped according to socio-demographic characteristics and identify the factors that significantly affect consumers' purchase intention. A total of 393 consumers from Kidapawan City were selected as respondents using purposive random sampling. The results revealed that respondents have a high level of purchase intention for eco-friendly packaging. There were also significant differences in the level of purchase intention when the respondents were grouped according to age and sex. Notably, females had a higher level of purchase intention. The findings from the hierarchical moderated regression analysis show that attitude, subjective norms, perceived behavioural control, environmental concern, awareness, willingness to pay and quality significantly and positively influence purchase intention towards eco-friendly packaging. In particular, it willingness to pay, quality and awareness strongly affect purchase intention. Meanwhile, the moderating variables do not affect the dependent and independent variables. The results of the study infer that purchase intention is greater among consumers when they have favourable attitudes and supportive social circles, perceive that it is easy to buy eco-friendly packaging, are more willing to support or participate in environmental initiatives, more knowledgeable, more willing to pay and have a positive perception of the quality of eco-friendly packaging.

Keywords: Eco-friendly packaging, Factors, Hierarchical moderated regression, Marketing, Purchase intention

Introduction

As countries experience economic progress, the natural environment deteriorates as a trade-off. Countries address this by adopting sustainable development, which includes the promotion of green behaviour, i.e. pro-environment behaviour that minimizes harm to the environment (European Commission, 2012). This involves research that aims to develop sustainable production techniques, innovate technologies, craft business strategies and understand consumer behaviour in relation to environmental concerns.

Filipino consumers' green behaviour needs to be researched because businesses lack the information they need to decide whether to adopt sustainable ways, such as using eco-friendly packaging. As the country has recognized the plastic problem, groups and individuals from the public and private sectors are combatting this problem by practising and promoting sustainable practices, such as using eco-friendly packaging. However, the adoption of eco-friendly packaging remains slow because some businesses view this as a costly alternative (Alpad, 2021) and they lack information on consumers' behaviour towards it (Prakash et al., 2019).

Previous research on green behaviour, especially green consumption, has mostly been conducted in other countries. Existing research has addressed several aspects of green consumption, including the purchase of green products, consumer theory to be used and determinants of green purchase (Zhang & Dong, 2020). Focusing on eco-friendly packaging, most research has been conducted in China, the United States, India, Brazil, Italy, the United Kingdom, Spain, Malaysia, Canada and Germany (Wandosell et al., 2021).

In the Philippines, research on green consumption is relatively new. The topics that have been studied are consumers' profile, purchase intention and preferences. For example, Gregorio (2015) and Resurreccion (2015) pioneered green consumer research by creating a profile of Filipinos as green consumers. In addition, San Juan-Nable (2016) and Palmero and Montemayor (2020) investigated consumers' purchase behaviours for green products. Consumer studies about green behaviour, particularly eco-friendly packaging, in the Philippines remain scarce. The closest literature is the study by Gano-an (2018) about consumer preferences and perceptions of the use of eco-bags. To date, many opportunities for research about green behaviour in the country remain.

Some of these unexplored concepts about green behaviour appear to be important and worthy of investigation in the context of the Philippines. An investigation of these issues is essential because consumer preferences are shifting, and people are paying close attention to sustainable development. Moreover, promoting green consumerism must strike a balance among the perspectives of not only businesses, government and environmentalists but also consumers (Gano-an, 2018). Furthermore, previous empirical research has focused primarily on establishing Filipino consumers' green profile and green products, and little consumer research has been conducted on eco-friendly packaging.

This paper seeks to address the following objectives: (1) to determine the level of purchase intention of consumers towards eco-friendly packaging; (2) to determine significant differences in the level of purchase intention when grouped according to socio-demographic profiles; and (3) to identify the factors affecting purchase intention. This research contributes to the scant literature on green consumerism in the Philippine context. More importantly, it presents consumers' perspectives on the adoption of eco-friendly packaging that could prove useful in business decisions and policymaking.

Literature review

Green behaviour, also known as pro-environment or sustainable behaviour, involves actions that impact water conservation, air quality, energy efficiency and use, transportation, agriculture and waste reduction (McKenzie-Mohr et al., 2011). Businesses have viewed green behaviour, especially by consumers, as a commercial opportunity, and it has developed further as a research field (Peattie, 2010). As such, research related to green marketing is important, as it can foster cleaner production by businesses and sustainable consumption through successful marketing to consumers (Dangelico & Vocalelli, 2017). In particular, green consumption has been widely studied to gain a better understanding of consumers' changing behaviour in relation to their environmental concerns. According to Peattie (2010), green consumption research encompasses studies related to consumers' intentions and behaviours and studies founded in industrial ecology or environmental economics.

The existing literature shows that research related to green consumer behaviour in the Philippines is scarce and relatively new. Pioneering research includes Gregorio (2015), who aimed to understand the impact of green marketing and provide the profile of green consumers. The study revealed that the lack of green consumerism behaviour was attributed to the convenience and availability of non-eco-friendly products

compared to eco-friendly products. Another study provided a profile of Filipino green consumers. Using cluster analysis, Resurreccion (2015) found two groups of sustainable consumers: the “mature and product cautious” and the “young and socially pressured”.

Few purchase intention studies on eco-friendly products have been conducted in the country. San Juan-Nable (2016) determined the factors affecting the intentions and behaviours of young consumers towards buying green products. The author found that parental influence and media exposure are significant predictors. Meanwhile, Palmero and Montemayor (2020) identified the factors that influence purchase intention toward organic local food. Their findings revealed that environmental concern and health and social responsibility are important drivers of young consumers’ purchase intention toward organic products. Overall, green consumer research in the country has covered profiling and marketing research on eco-friendly products. Consumer research focusing on eco-friendly packaging is lacking.

Methods

This research utilized a descriptive-correlational quantitative design using a survey method for data gathering. Given the limitations that the COVID-19 pandemic brought during the study period, a nonprobability sampling technique, i.e. purposive random sampling, was used to determine the respondents. The selection criteria for the respondents included being a resident of Kidapawan City, earning his/her income and having a fair level of understanding of green consumerism.

The instrument used in the study was a self-administered survey questionnaire adapted and modified from Auliandri et al. (2019), Hoai (2017), Paul et al. (2016), Prakash et al., (2019), Rajendran et al. (2019) and Witek and Kuźniar (2021). The questionnaire was designed to obtain information about the respondent’s socio-demographic profile, namely age, educational attainment, income and sex. In addition, statements about purchase intention towards eco-friendly packaging and the factors affecting it were included in the instrument. The factors considered in the study were attitude, subjective norm, perceived behavioural control, environmental concern, awareness, willingness to pay and quality. The questionnaire consisted of 40 items, which were measured using a 6-point Likert scale. This underwent reliability and validity tests to ensure the quality and unobtrusiveness of the statements.

The researcher utilized offline and online surveys to maximize the benefits of both. Ethical considerations were also considered during the data collection. The respondents were informed about the study and their consent to participate was obtained. For the offline survey, respondents were reached in urban residential areas, businesses and offices within the city. Surveys in businesses and offices were only conducted after the letters of request were approved.

A total of 393 responses were determined usable for the statistical analysis. The weighted mean was used to determine the consumer’s level of purchase intention. An independent samples *t*-test and one-way ANOVA were used to determine significant differences in the level of purchase intention when the respondents were grouped according to their socio-demographic characteristics. Hierarchical regression analysis was employed to identify the significant factors that affect consumers’ purchase intention towards eco-friendly packaging.

Results and discussion

The consumers' level of purchase intention towards eco-friendly packaging is shown in Table 1. The findings show that consumers have a high intention to purchase products with eco-friendly packaging when offered in the market (5.30). This finding is in line with the study by Palmero and Montemayor (2020), which found that young Filipino consumers have the intention to buy eco-friendly products. Consequently, their purchase intention significantly influenced their decision to purchase. The possible reasons for this are Filipino consumers becoming more informed of the ecological impact of plastic packaging (Cahiles-Magkilat, 2020) and the consequent initiatives launched by both the public and private sectors.

The respondents strongly agreed that they would consider buying eco-friendly packaging because it is less polluting (5.42), and they wanted to purchase products with eco-friendly packaging in the near future (5.37). A recent survey revealed that 75% of Filipinos were actively looking for brands that offset their impacts on the environment (Cahiles-Magkilat, 2021). This shows the changing preferences of Filipino consumers, which are geared towards sustainability. Furthermore, the results demonstrated the respondents' plans to spend more on eco-friendly packaged products (5.18). Gregorio's (2015) study found that consumers are willing to pay an average 12.5% premium for eco-friendly products. No literature in the Philippine context has specified the particular demographics of these consumers. However, several considerations are weighed by Filipino consumers when purchasing eco-friendly products, which are usually perceived as more expensive than their conventional counterparts. These important considerations are value for money (Palmero & Montemayor, 2020), information and social acceptance (Resurreccion, 2015).

Table 1: Consumers' level of purchase intention towards eco-friendly packaging.

Statements	Weighted Mean	Interpretation
1. I will pay attention to the eco-friendly aspects of the packaging of the products I buy.	5.22	Strongly agree
2. I will consider buying eco-friendly packaging because it is less polluting.	5.42	Strongly agree
3. I will consider switching to eco-friendly brands for ecological reasons.	5.33	Strongly agree
4. I plan to spend more on products packaged in eco-friendly materials rather than those that are not.	5.18	Strongly agree
5. I want to purchase eco-friendly packaged products in the near future.	5.37	Strongly agree
Total	5.30	Strongly agree

Tests of difference were conducted to determine differences in the level of consumer purchase intention when grouped according to age, educational attainment, income and sex. Table 2 shows the results of the one-way ANOVA. There was a significant difference in the level of purchase intention of consumers when grouped according to age (p -value = 0.025). This finding conforms to the research conducted by Witek and Kuźniar (2021), which found statistically different levels of green purchase intention among young and old consumers.

On the other hand, the level of purchase intention for eco-friendly packaging was not statistically different across educational attainment (p -value = 0.511) or income (p -value = 0.188) groups. This finding is like the results of the studies conducted by Naz et al. (2020) and Rahim et al. (2017). They posited that eco-friendly

products are accepted by consumers regardless of their income due to the popularity and increase in marketing campaigns. The findings could also be attributed to the growing consciousness of Filipino consumers about the detrimental effects of plastics and the availability of eco-friendly alternatives.

Table 2: Differences in the level of purchase intention when grouped according to age, educational attainment and income.

Profile	Mean Square		Test Statistic	p-value
	Between Groups	Within Groups		
Age	1.350	0.518	2.604	0.025*
Educational Attainment	0.437	0.531	0.823	0.511
Income	0.778	0.517	1.504	0.188

Table 3 presents the results of the independent samples t-test. The results showed a significant difference in the level of purchase intention for eco-friendly packaging in terms of sex (p-value = 0.009). Comparing the mean scores of the males (5.1656) and the females (5.3720) revealed that the latter had a higher level of purchase intention for eco-friendly packaging. These findings are supported by the studies by Witek and Kuźniar (2021) and Rahim et al. (2017), who found a significant difference in the green purchase intentions of females and males. They attributed this finding to female consumers possessing higher environmental concerns than male consumers.

Table 3: Significant difference in the level of purchase intention when grouped according to sex.

Profile	Mean Difference	Standard Error Difference	p-value
Sex	-0.2064	0.0786	0.009**

The influence of the independent variables, namely attitude, subjective norm, perceived behavioural control, environmental concern, awareness, willingness to pay and quality, on the purchase intention towards eco-friendly packaging were analysed using hierarchical regression. These variables were entered into the models after all assumptions of the regression model were met. In the first model, the independent variables established in the Theory of Planned Behaviour, namely attitude, perceived behavioural control and subjective norm, were entered. The additional variables, specifically environmental concern, awareness, willingness to pay and quality, were added in the second model.

At stage one, attitude, subjective norm and perceived behavioural control contributed significantly to the regression model ($\Delta F = 253.019$, $p < 0.001$). Moreover, the coefficient of determination (R^2) showed that the independent variables explained 66.3% of the variability in the purchase intention towards eco-friendly packaging. This indicates that model one (1) is a good fit. Adding environmental concern, awareness, willingness to pay and quality to the model explained an additional 9% of the variation in purchase intention, and this change was significant at the 1% level ($\Delta F = 34.873$, $p < 0.001$). Furthermore, all the independent variables accounted for 75.4% of the variance in purchase intention. These suggest that adding the other independent variables yielded a model that better predicts purchase intention. Table 4 provides the b-values (b), beta coefficients (β), t-test scores and p-values for each variable accounted for in both models.

Table 4: Summary statistics of the variables.

Variable	b	β	t	p-value
Model 1				
(Constant)	.839		5.012	.000
Attitude	.383	.379	8.586	.000**
Subjective norm	.186	.217	4.716	.000**
Perceived behavioural control	.290	.315	6.967	.000**
Model 2				
(Constant)	.190		1.178	.240
Attitude	.110	.108	2.198	.029*
Subjective norm	.085	.099	2.417	.016*
Perceived behavioural control	.121	.131	3.070	.002**
Environmental concern	.129	.120	2.229	.026*
Awareness	.183	.168	3.433	.001**
Willingness to Pay	.174	.213	5.779	.000**
Quality	.176	.187	4.759	.000**

The findings show that all the independent variables considered in this study significantly and positively influenced purchase intention towards eco-friendly packaging. In particular, attitude ($t = 2.198$, $p = 0.029$), subjective norm ($t = 2.417$, $p = 0.016$) and environmental concern ($t = 2.229$, $p = 0.026$) are statistically significant at the 5% level, while perceived behavioural control ($t = 3.070$, $p = 0.002$), awareness ($t = 3.433$, $p = 0.001$), willingness to pay ($t = 5.779$, $p = 0.000$), and quality ($t = 4.759$, $p = 0.000$) were significant at the 1% level. The results also show that willingness to pay ($\beta = .213$), quality ($\beta = .187$), and awareness ($\beta = .168$) were the strongest predictors of purchase intention.

The findings on attitude, subjective norm and perceived behavioural control provide additional empirical evidence that supports the Theory of Planned Behaviour as a theoretical framework for research about purchase intention. Consistent with the studies in the literature, attitude was found to significantly affect purchase intention towards eco-friendly packaging. When consumers' beliefs and feelings towards buying eco-friendly packaging are favourable, they have a greater intention to buy it (Martinho et al. 2015; Moorthy et al., 2021; Prakash & Pathak, 2017; Trivedi et al., 2018). The results indicate that Filipino consumers' favourable attitudes towards buying eco-friendly packaging led to greater intention to purchase them. An explanation for this relationship is the exposure to information about environmental problems. This develops the consumer's favourable attitude to participate in efforts to solve these problems, such as buying eco-friendly packaging.

Subjective norm was also found to positively influence purchase intention. This indicates that the consumers' perceived social pressures from family, friends and/or important people influence them to purchase eco-friendly packaging (Auliandri et al., 2019; Martinho et al., 2015). The finding suggests that Filipino consumers are conscious of how people close to them and/or society in general view their actions, especially those that affect the environment. Culture may also play a part in this relationship. Conforming to the norm and the actions of the majority is deemed important in Philippine society. Consumers' perceptions of how easy or difficult it is to buy eco-friendly packaging, which could be determined by their ability to purchase and the availability of resources, was also found to affect purchase intention (Auliandri et al., 2019; Moorthy et al., 2021). When consumers perceive that it is easy for them to buy eco-friendly

packaging, the more likely it is that they intend to buy it. Consumer preference for convenient shopping can explain this relationship. Access and availability of eco-friendly packaging are essential to realize purchase intention.

Consumers' concern for the environment also influences their intention to purchase eco-friendly packaging (Martinho et al., 2015; Prakash & Pathak, 2017). This shows that consumers have a greater intention to purchase eco-friendly packaging when they are more willing to support efforts to solve environmental problems. Like attitude, exposure to information about environmental degradation caused by consuming single-use plastics among others may explain this relationship. This is manifested by consumers' growing demand for sustainable products and practices nowadays. Among all variables in the model, the strongest predictor is willingness to pay. The more willing consumers are to pay for eco-friendly packaging, the greater their intention to buy it. This finding coincides with the findings of the studies conducted by Auliandri et al. (2019) and Prakash and Pathak (2017). In the Philippine context, several authors have noted that Filipino consumers are willing to pay more for eco-friendly products in general (Gregorio, 2015; Palmero & Montemayor, 2020; Resurreccion, 2015). This relationship may be attributed to consumers' desire to protect the environment and/or to contribute to solutions, since eco-friendly packaging is more beneficial to the environment. This benefit could be seen as an added utility to the money spent on eco-friendly packaging. Palmero and Montemayor (2020) also noted that Filipino consumers greatly consider value for money when purchasing.

Another strong predictor of purchase intention towards eco-friendly packaging is quality. The quality of eco-friendly packaging is deemed an important determinant of intention to purchase it. Like the results found by Rajendran et al. (2019), in this study consumers had a greater intention to purchase eco-friendly packaging when they perceived it to have better quality. The notion that eco-friendly packaging is less polluting to the environment and is as good as conventional packaging could explain this relationship. The quality of eco-friendly packaging remains an important consideration to consumers, especially if they are paying more for it. Lastly, the study found that awareness is a significant predictor of purchase intention, i.e. consumers have a greater purchase intention for eco-friendly packaging when they are more aware and knowledgeable about it. This finding is consistent with the results of Rajendran et al. (2019) but contrasts with the results of Aleenajitpong (2013). One reason for this relationship is that Filipino consumers are becoming more informed about environmental problems, particularly plastic pollution, and more aware of the available eco-friendly alternatives. As such, this is manifested in their increasing demand for sustainable products and practices at present.

Conclusions and recommendations

The findings of this study revealed that consumers have a relatively high level of purchase intention for eco-friendly packaging. In addition, the test of significant difference revealed that a significant difference in the purchase intention of respondents only when they are grouped according to age and sex. In particular, female consumers have a higher level of purchase intention for eco-friendly packaging. Also, the results of the regression analysis imply that purchase intention is greater among consumers when they have the following: a favourable attitude, supportive social circles, positive perception of the ease of buying eco-friendly packaging, willingness to support or participate in environmental initiatives, knowledge about eco-friendly packaging, willingness to pay for eco-friendly packaging and a positive perception of the quality of eco-friendly packaging. Among these, willingness to pay, quality and awareness of eco-friendly packaging influence consumers' purchase intention the most.

Understanding the consumer perspective is essential for business decisions and policymaking. As this study has determined the purchase intention towards eco-friendly packaging, businesses and policymakers are provided with information regarding the receptiveness of consumers to its adoption in the country. In particular, businesses, manufacturers of packaging materials and inventors/innovators of eco-friendly packaging could use this information when deciding to expand the use, production and development of eco-friendly packaging. Together with government units, they could find the results about the significant factors useful in making business strategies, policies and programmes.

The current work only explored the direct relationship between the dependent and independent variables. Future researchers may consider exploring the interrelationships of the independent variables examined in this study. Moreover, they may use other statistical tools that include the analysis of the interrelationships of the independent variables. To give substantial support to the quantitative findings, it is suggested to include a qualitative analysis in future research. Hence, a mixed research design employing either in-depth interviews or focus group discussions is recommended.

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Co-design for social innovation and organisational change: Developing horizontal relationships in a social enterprise through walking

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Co-design for social innovation and organisational change: Developing horizontal relationships in a social enterprise through walking

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Abstract

Although an emerging body of literature identifies co-design as a promising approach to addressing the most urgent social challenges, little research has been undertaken about how co-design can support social change within the communities and organisations with which they collaborate. This is important because behavioural and organisational change is usually associated with the emergence of social innovations. These pressing socio-cultural challenges require interdisciplinary expertise, and we argue that the practice of co-design is an approach that provides such expertise. Co-design by its nature is collaborative and can respond to the cultural demands of a society eager to participate. These demands require significant research to better understand how the practice of co-design can be a catalyst for social change and social innovation. In this paper, we explore what is meant by co-creation, social design, and co-design within the theoretical context of this study. We present a case study that focuses on a social enterprise committed to sustainability operating within the Highlands and Islands of Scotland. Here we examine the transformative process - associated with co-design - that the social enterprise and its members encountered. Participatory Action Research (PAR) was implemented as the research approach to this study informed by ethnographic and co-design methods. The analysis suggests that the co-design process empowered the social enterprise and its members, enabling them to co-develop responsive and empathetic attitudes among themselves. Co-design supported organisational changes by nurturing collaborative attitudes, expanding perspectives about social issues and releasing latent human abilities and assets.

Keywords: Design for social change, Social design, Co-design, Social innovation, Participatory design, Mutual learning, Co-creation, Participatory architecture, Community architecture.

Getting together in the era of participation

In the last half-century, there have been calls to consider new design methods (Sanders & Stappers, 2008). According to Cross (1972), traditional design by its nature excludes people from the creative process and so fails to address the complexity of current challenges. The 21st century is witnessing diverse challenges: human migration (Ahmed, 2017), environmental sustainability, climate change, cutbacks in public services, increasing social inequality, privatisation of education and healthcare (Silverman & Patterson, 2015), the current pandemic etc. All of these challenges impact our everyday lives, constraining our possibilities to choose based on our needs. Cross (2011, p. 15) observes: "...we are on a journey from an industrial world ruled by certainty, precision, and logic to a natural world characterized by unity, unpredictability, and complexity". In examining the impact of co-design, methodological frameworks must now be capable of capturing the dynamic processes of social change. The calls for change embrace democratic principles that are embedded in a myriad of practices and which aim to support the increasing demands on participation. Practices such as co-creation, social design and design activism, co-design and participatory design are intertwined (Bason, 2010). They share the idea that creativity resides in everyone and therefore any creative process should include participants covering the social spectrum – private, public and voluntary sectors, and involving all types of citizens. Jungk (1973) envisioned a motivational shift in design which would radically reshape the future of the discipline. This shift has arrived (Fuad-Luke, 2017); society now

requires designers back in the public sphere, with greater involvement in socio-political problems and civil society (Swann, 2002). These challenges require interdisciplinary expertise, and we argue that the practice of co-design is an approach that provides such expertise (Meroni, Selloni & Rossi, 2018).

In this paper, we examine how the practice of co-design in the voluntary sector, driven by social demands, can support the flourishing of 'boundary spaces' where the participants can re-negotiate their interpersonal bonds, and support organisational changes. Boundary space is a notion introduced by Gutiérrez et al. (1995), with the term 'third space', to describe situations where people who have different roles and perspectives encounter each other in power-balanced and horizontal terms, expanding the boundaries of both. It depicts a theoretical space of confluence where individuals approach from their different perspectives (Calvo, 2019a). We explore the notions of co-creation, social design, and community-based co-design to describe the theoretical context of this study. We follow this with a case study that focuses on a social enterprise in which we examine how a co-design project functioned as a catalyst for a transformative process of behavioural and organisational changes. Participatory Action Research (PAR) was implemented as the research approach to this study informed by ethnographic and co-design methods. Finally, we discuss the findings of the analysis in terms of: (i) moving from hierarchical to horizontal organisational relationships; (ii) sprouts of behavioural and organisational change; and (iii) interpersonal learning.

Literature review

In this section we investigate the theoretical conceptions about co-creation, the socialisation of design, and community-based co-design, leading us to narrow the scope of this study and reformulate the key focus of research – how co-design can become a catalyst for social innovation and organisational change.

Co-creation

Ideas of co-creation can be found in management disciplines (Prahalad & Ramaswamy, 2004) to explain the shift in business models from a centred to a customised view of products. Tseng and Piller (2003) illustrate enterprise models adopting mass customisation, rather than mass production. They identify a gap in understanding the impact of integrating users into value-creation processes in knowledge management. They describe the necessity for further research on methods of a customer-centred enterprise - a kinship of user-centred design - which has yielded benefits relating to consumer products such as value chain, customisable offer and knowledge-transfer (Fogliatto, Da Silveira & Borenstein, 2012). Sanders and Stappers (2008, p. 6) refer to co-creation as "any act of collective creativity", comprising a wide range of processes. Bason (2010, p. 144) defines co-creation as the process of "...placing people's wants, needs and situations at the centre of the creative process as a powerful way to generate the insights that allow us to create with people and not for them". These are the prime insights influencing the landscapes of design that are expanding its frontiers towards fields such as service design or organisational design. 'Design-with-people' merges a society eager to participate with the principle that everyone is creative - hence we all design (Manzini, 2015).

According to Bason (2010), co-creation brings two benefits: divergence and execution. Divergence appears when an increase in the number of ideas and inspirations brought about by diversity prompts more appropriate solutions. Divergence has a direct relationship to the introduction of different knowledge-based approaches, such as the application of ethnographic research and qualitative data-gathering where researchers become participant-observers. Hess and Adams (2007) add that divergence enables conversations with a fresh slant on the same issue, hence changing perspectives and inviting new solutions. Execution refers to human agency and anchors the participants throughout the whole creative process to ensure success (Bason, 2010; Halse et al., 2010). Further, Gillinson, Horne and Baeck (2010) disclose their

'radical efficiency model' after analysing more than one hundred case studies from different contexts which follow co-creation processes with a focus on reshaping public services. In the report, they chronicle ten successful social innovations. The radical efficiency model offers an opportunity for profound transformations in designing and delivering public services through centralised-strategies towards supporting local action and change. Like Nygaard and Bergo's (1975) local knowledge-production strategy at the dawn of participatory design, Gillinson et al. (2010) recommend that governments devolve power to local communities who have the responsiveness and empathy required to enable social innovation. They identify four steps to pursue this: (i) developing 'new insights' through divergence; (ii) 'new customers' – redefining the notion of users; (iii) 'new suppliers', that means paying attention to who does the job – this includes re-contextualising the role of users; and (iv) 'new resources' – releasing latent human abilities, forgotten assets, and strengthening institutional networks. The aim focuses on engendering new perspectives about social issues. This leads to innovative transformations of services – based on the people experiencing them.

Socialisation of design

Design research increasingly concentrates on exploring approaches that can foster social innovation, shifting from design driven by the market to design motivated by social demands, promoting meaningful social impact towards sustainability (Manzini & Meroni, 2014). Design methods have been applied in the public sphere (e.g. public services, community-based development, architectural transformations, etc.) aiming to achieve creative solutions that meet the needs and desires of people, going beyond conventional methods (Mulgan, 2014). Design is ubiquitous in contemporary life (Fuad-Luke, 2009). This is evident in the spread of rapid urban transformations (e.g. China's urban development) and manufacturing technologies, which mediate in human interactions – an upward trend in pandemic times. Papanek (1972) observes we all design all the time, as design embeds itself with human agency. From this perspective, people can adopt design roles (knowingly or unknowingly) in reshaping their everyday life – blurring the frontiers of design and raising tensions between the distribution of design competences, between professional designers versus non-professionals collaborating in a design process (Manzini, 2015). The socialisation of design is a conscious act "...geared to goals, objectives and aims within a broad societal context..." (Fuad-Luke 2017, p. 281), thereby "...in the intimate interweaving between aesthetics and the political... an interesting answer to the activist nature of design activism is to be found" (Markussen, 2013, p. 39). The research literature considers 'the political' (Mouffe, 2013) dimension of design as the condition of dissent that each individual may experience within a concrete designerly situation. The political dimension of design could be used to re-mould pervasive and conventional structures of power because such dimension embodies activist strategies for transforming community paradigms and values (Calvo & De Rosa, 2017).

Design, as social action, has the potential to raise awareness of sustainable ways of living and working together; it assists in renegotiating the relationships we establish within the socio-material culture of human situations – between what we do and how we feel about doing it (Markussen, 2013). Design aesthetics thus embeds emotional reconfigurations and the allocation of meaning into such socio-material culture. It involves incorporating people's needs within the designing process to foster alternative forms of inhabiting and reshaping identities, hence eliciting social and behavioural change (Calvo & De Rosa, 2017). It also requires methodologies able to study human agency and its interactions with the socio-materials of situations, and we argue that co-design is capable of intervening in people's perceptions and affecting their behaviour. Underpinning such a behaviour change is mutual learning which also supports the flourishing of networked communities and interpersonal bonding. Building trust, engaging with social conventions, norms of cooperation and partnership, networking and community engagement, as well as formal and informal organisations, play a key role in behavioural change, which can lead to organisational change and social

innovation (Ostrom & Ahn, 2009). That is why, increasingly, design research pursues evidencing about mutual trust and empathetic relationships established with their partners and stakeholders. Qualitative inquiry has been gaining relevance in social design as it provides the means to systematically document human interaction and participation. In this sense, ethnographic research - used in this study - provided a set of methods that enable the design-researchers to gather meaningful data.

Community-based co-design

Co-design as a design strategy increasingly resonates in community engagement and the voluntary sector. Due to the democratic and open-ended nature of the design process, co-design aims to confront societal issues in the public sphere (Fuad-Luke, 2009). User-centred design, on the other hand, seems unable to address those challenges as it objectifies people in the design process and serves consumer products. Gay and Hambrooke (2004, p. xvii) illuminate a "...shift from user-centered design to context-based design... from a focus on human-computer interaction to a focus on human interaction that is mediated by technology in context". This shift emerged in the 1980s and 1990s in the field of interaction design (see Kaptelinin and Nardi, 2006; Spinuzzi, 2005; Zahedi, 2011) when its definition expands: from being focused on the computer, moving towards designing the sociocultural (hybrid) spaces of human interaction (Winograd, 1996). As Kaptelinin and Nardi (2006, p. 10) state, our society is increasingly designed, "furnished with technologies at every turn". These statements recognise the relevance of the social environment in configuring human interactions ('designerly' situations); and emphasise the intentionality (emotions, motivations and subjectivities) behind any design outcome. Bannon (1991) advocates for a change in the systems design process, from meeting ergonomic specifications (human factors) to foregrounding greater involvement of the people acting with technology (to human actors) on the whole design spectrum. Consonant with the insight that the ultimate input is on the users (people) to define their functionality, technology is then understood as an important part of human activity with a mediating role in their development. In user-centred design, social scientists were brought to mediate between designers and users (Simonsen & Robertson, 2013). Over time, as Sanders (2002) describes, both disciplines mutually learnt that the most productive designs come from a direct exchange of experiences when the stakeholders come together (Gay & Hambrooke, 2004; Zahedi, 2011). Both disciplines found strong allies in their combination (Brandt et al., 2013; Sanders, 2002). With a focus on participatory experiences, co-design emerges as pledging to address "...the most pressing societal challenges..." (Meroni et al., 2018, p. 17). Sanders (2002) uses the term post-design, a distinctive attitude to people, who, given appropriate tools to configure a hybrid language (Ehn, 2017), become creative contributors to the design process.

Selloni (2017) illustrates co-design as a form of community engagement to strengthen communities, and as a prior step to co-production. Co-design is also associated with social innovation as it can create a 'third space' (Muller, 2009) where the multiplicity of expertise and perspectives (divergence) can be disclosed and assembled (Manzini, 2015). Cruickshank et al. (2012) define innovation as a systemic process requiring collective and creative activities to be performed by interdisciplinary expertise that emphasises knowledge-exchange amongst participants and disciplines (Cruickshank, 2010). Collier and Williams (2013) propose 'reflective practice' to solidify such knowledge, out of what we learn and experience in the community.

The notion of co-design refers to the act of collective creativity applied throughout the whole design process (Sanders & Stappers, 2008). This paradigm shift also involves a shift in the role of designers, who move from designer-to-designer to designer-to-public, and more recently, to public-to-public roles. Here, designers need to acquire/emphasise social skills to facilitate 'public designerly engagements' (Lindström & Ståhl, 2016). In public-to-public relationships, those 'non-trained-in-design' still contribute to the designing (Lee & Ho, 2012), thereby democratising (and socialising) the design process. In designerly engagements,

designers intervene in public spheres, in a designer-public relationship, where people are perceived as experts, and designers adopt roles of support (Ehn, 2008). With grassroots and bottom-up social innovations, communities take the lead and designers serve as triggers for local action (execution), their role is to activate and facilitate civic-collective creativity (Lee & Ho, 2012), alongside designing the socio-materials of designerly engagements for 'the co-articulation of issues' (Lindström & Ståhl, 2016).

Methodology and case study

This section presents the methodological approach and the methods deployed in a case study conducted with rural communities in the Highlands and Islands of Scotland and associated with a three-year UK-AHRC funded design research project, called Leapfrog. Focused on transforming public engagement, Leapfrog explored the role of co-design in strengthening communities and involving them in the designing of engagement tools to invigorate public-community engagement.

This study adopted a participatory action research (PAR) approach to develop the methodology because it foregrounds participants and their context as the core of the investigation (Whyte, 1991). It also embeds social change as part of the research agenda – aiming to produce a positive social impact on communities (Walter, 2009). PAR stems from Lewin (1946), a social psychologist focused on shifting away from the scientific tradition and establishing democratic principles in research, to reshape research itself (Chevalier & Buckles, 2013). PAR is an applied research approach oriented to address social issues. It is open to innovations or contributions that may arise from its interaction with other disciplines. PAR is usually represented by a spiral of stages where each stage informs the next one, once the research-community partnership identifies a focal social issue: (i) initial planning; (ii) action; (iii) observation; (iv) reflection-informed planning (see Walter, 1993, p. 3).

PAR was implemented in this study as the meta-process of a methodological framework developed by the research team with four phases: (i) preparation for co-design; (ii) co-design situations; (iii) follow-up; and (iv) systematising learning. These phases structured the 'Tools for Renewal' research project, a case study where ethnographic and co-design methods were deployed to gather data about how co-design can support interpersonal and organisational changes in social enterprises.

Case study: Tools for renewal

'Tools for Renewal' consisted of a six-month co-design project with the Newbold Trust, a social enterprise based Forres, N-E of Scotland. Its mission is to consider sustainable ways of living together in the region. The trust had initiated a transformation - shifting away from an organic and unstructured community to a social enterprise. This internal shift involved the renewal of both its physical assets and its identity as a social enterprise. The Newbold community felt isolated from community life in Forres and the region. They wanted to open up the doors of their property to include local communities in the physical transformation and decision-making of their future spatial uses. The participants' reasons to participate in the project were largely related to commitment to sustainable causes, seeking to nurture their personal inner life and curiosity.

The flourishing of social connections was the ultimate motive of Newbold community's decision to embrace the project. The research aim was to identify ways to establish long-term community engagement by systematically inviting local communities to participate in the renewal of their facilities, as well as in the re-shaping of their identity. After a series of co-design situations, 'walking' (Careri, 2002; Ehrström, 2016) emerged as the principal method by which to engage such communities, and a postcard tool was co-designed to gather the insights of the participants who engaged in the facilitated walks.

Preparation for co-design

This first step comprised three stages: (i) initiation and planning; (ii) historical research; and (iii) interviews. During the initiation and planning stage, conversations were held with the community and public partners – collectively defining the problématique; establishing a bidirectional dialogue for identifying the challenge and focus; co-designing a research plan and timeline, and inviting participants to sign the informed consent agreement and gain ethical approval from the institutions involved. Semi-structured interviews and visits were then conducted to build rapport and trust, but also to begin understanding the personal context and motivations of participants. During the visits, we walked around the Newbold property (Figure 1), a Victorian house and approximately seven acres of grounds. Focused on seeing at first hand the spatial assets for renewal, design-researchers gathered accounts of the context of research while adopting a participant-observer role. Touring around the Newbold grounds, the research team and the Newbold community began building mutual understanding.



Figure 1. Route and map of the facilitated walk.

Co-design situations

This phase was the most intense and immersive engagement with participatory activities. It comprised several methods: catalysis workshop, co-design workshops, prototyping tests, semi-structured interviews, reflective group sessions, participant-observation, and tool delivery events.

Catalysis workshop

Designed to enhance the construction of group dynamics, the catalysis workshop brought participants together to share their personal experiences about the Newbold services and spatial assets. Twelve participants came from the Newbold Trust, the Findhorn Foundation and the Forres local community. After introducing the project, the facilitated walk began. Here the design-researchers adopted participant-observer roles. They mingled with the small group of people that moved naturally from one spot to another (see Figure 1, and steps 1-9). We all walked in small groups, feeling comfortable, observing our surroundings and letting ourselves be embraced by the environment. Two members of Newbold provided an improvised narrative connecting the physical spaces with the past, present and future desires of Newbold. Eventually, the participants started imagining possible changes and alterations that could be made as they walked through those spaces; they wrote or drew on the tools that were designed for data-gathering and analysis. People continued to organically form small groups. The act of walking closer together functioned as a way to initiate a conversation and the thread of the conversation became the way to connect the group until we reached the next spot (Figure 2). Walking was a means to break down the hierarchies of power between the members of the Newbold community. In the next activity, a group reflective session, Participant 1 said:

“...I felt freedom when people were walking; we were not in this situation, staring at each other. Here it is more difficult to express myself. When we were walking, we were talking at the same time freely.”



Figure 2. Facilitated walk at Newbold Trust.

The catalysis workshop created horizontal group dynamics. The group reached the point where participants started building other types of relationships. Working together, in this case, did not mean collaborating. Each staff member in charge of each department tended to work independently and autonomously. In their work with the Newbold community, the research team also observed a certain degree of intra-personal friction. There was an ideological split between two groups: those who pushed to turn Newbold into a sustainable and self-sufficient business and others who resisted the change and longed for the return of a bohemian lifestyle.

Co-design workshop 1

During this workshop the participants went through four main phases: 1) a reflective session on previous engagements, 2) deepening understanding and reaching a collective agreement, 3) idea-generation and prototyping activities, and 4) presenting concepts/prototypes and selecting proposals. The first co-design workshop aimed to reflect collectively upon the previous walking experience, and, as a collective, to co-design ideas where walking could be adapted as the Newbold Trust method for engaging local communities in the long-term. There were ten participants.

The day began with lunch and an opportunity to analyse the data collected during the catalysis workshop. Using string hanging from side to side across the room, the participants began organising the insights according to their collective criteria, shaping a timeline of interventions based on the values of the group (Figure 3). This helped them to consider what type of exchange they were looking for in engagement and the methods they might need to use to gather, interpret and act on information accumulated during the exchange. This activity sought to break with the hierarchical dynamics that the participants unconsciously brought to the workshop, an influence that would allow members to behave freely without wondering if they should agree with the ideas of a superior. This enabled participants to collectively identify different approaches to their strategic plan.

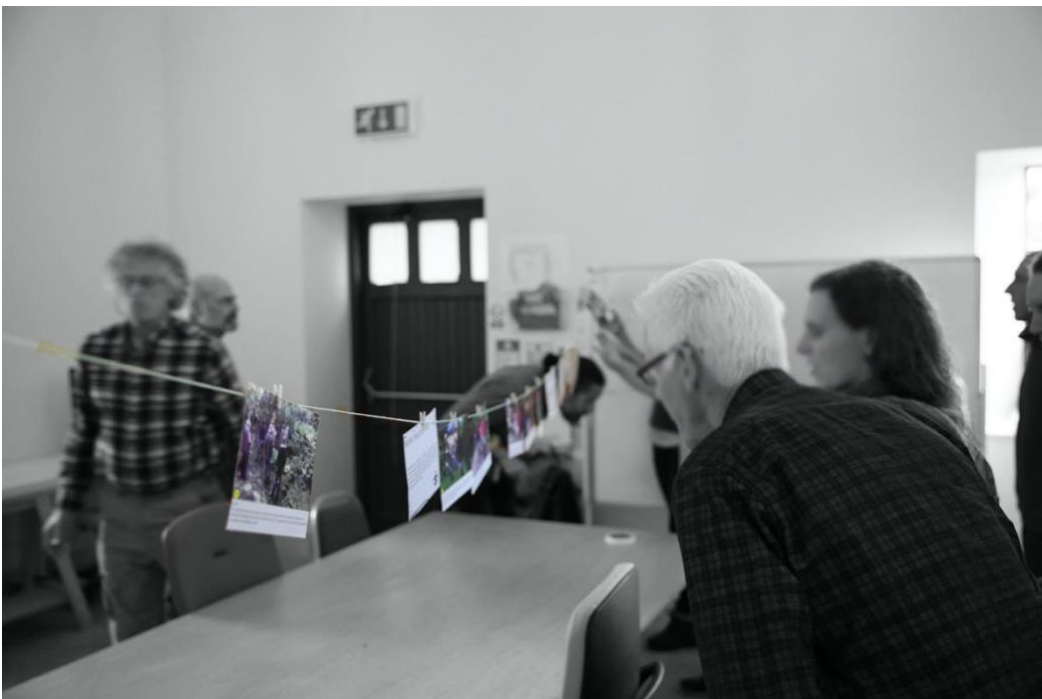


Figure 3. Hang-it-up collective activity (priority building).

The participants were then divided into groups comprising three people and sent on a 'discovery journey' around the Creative Campus, Glasgow School of Art, in Forres. The participants approached the activities with joy - going with the flow - and generally feeling comfortable. In turn, they gained the ability to put themselves in the place of their future walkers and built collaborative attitudes towards those they engaged within the co-design process. For instance, unconsciously, participants 3, 4 and 12 realised that they were not able to write their insights, so they used each other's backs as improvised support to write their thoughts, showing a collaborative attitude (Figure 4).



Figure 4. Discovering activity.

An interesting insight was the importance of somehow tailoring and planning the route of the walk into the purpose of the engagement. Participant 3 commented:

"The flow of the walk needs to be tied into how someone who does not know about this place may interact with it and how one feels. The reason why we are doing this is how to interact with the space. That would be also related within the experiences."

This session allowed them to gain a better understanding of their participation in the project. P6 said: "Walking around the fields stimulated emotional responses. It is more about qualities. Looking at that as a way to imaging the development of Newbold". Participant 10 mentioned:

"Similar to when we were using the tool in Newbold, we were imaging how the space could be transformed within the narrative. How do we develop that thing and how do we tell the story right from the entry gate? It is really the narrative, the story that we want to tell people."

The narrative was a crucial component that needed to be addressed. The participants naturally began to imagine possibilities. The sharing of spatial and personal experiences shifted away towards co-producing ideas. The workshop produced three idea-prototypes and the group decided to focus on one.

Semi-structured interviews

The interviews foregrounded how co-design situations were providing new conditions for them to learn more about their team. Participant 2 said: "...in these two workshops I think I found the learning at watching us as a group, how the interactions happened, what formed the group dynamic and perspective". The process was helping them to redefine their interpersonal relationships, an adjustment of behaviour. Participant 1 said: "...because we are in a different environment, I am learning how they (staff) approach a problem, how they react when they have something new to build...".

Prototype-test

In-between co-design workshops, participant 5 facilitated a walk with a group of Erasmus students and collected the observations written on the prototype. He brought his insights into the experience to initiate the following co-design workshop.

Co-design workshop 2

Participant 5 outlined the use of walking as the method to offer the students an inclusive and comfortable atmosphere to spark informal conversations and so imagine through stimulating all the channels of learning. Participant 5 said:

"For me, it was a strong sense of engagement with the people. This was a tool (prototype) that helped me engage in more dialogue as we moved around with the people. The tool gave me a sort of structure to build the narrative."

Researchers noticed no hierarchical relationships between the participants. Next, participants were split into small groups of two or three people and spent the rest of the workshop co-designing new iterations of the tool (prototype) to enhance it. After collective selection focusing on a new prototype of the tool, the group decided to test it again, in a series of facilitated walks during the Harvest Festival.

Participant-Observation

The Harvest Festival was the biggest community event Newbold organised and included sharing activities with other local communities. Two facilitated walks were planned on the agenda of the community event. On average, both walks had around twelve participants, most of the visitors/eco-tourists. Like the catalysis workshop, the walk sparked small groups who walked together, having conversations between themselves, asking questions and sharing their ideas about the spatial assets. They engaged with the narratives of the walk in an informal atmosphere (Figure 5). In the end, the participants spent some time writing their reflections about their experience and gave the prototypes back. The research-community team reflected on the activity and concluded that the prototype worked well, although some adjustments needed to be addressed. The design team developed a third version, more flexible and adaptable, according to the needs and purposes of the walk.



Figure 5. Facilitated walk at the Harvest Festival.

Tool Delivery Event

The workshop began with a collective and reflective session. An insight emerged: the qualities of physical space and their rotation contributed to the emanation of interpersonal learning. Participant 7 said:

“When you go out of the house (Newbold House) and you have conversations like these with the same people but out of your usual environment, you understand maybe better or from a different way. This becomes a tool to know each other better, differently.”

They all agreed that the project helped them to know each other better and hence start working as a team. Then they tested the final prototype and reported minor touches. By the end, all the participants had built their tools for renewal, which they took away with them. Finally, the research team thanked them for their commitment during the project. This would not have been possible without all of their hospitality, kindness and open-minded approach, and the project drew to an end.

Follow-up

The follow-up phase consisted of revisiting some of the participants once the case study was complete, using (i) participant-observation and conducting (ii) reflective interviews, observing the course and consequences of the co-design situations in perspective; perceiving a potential change in the agency. Participant 1 said: “...you have to solve problems every day and sometimes you do not have time to stop and think about how to do things. On this, we learnt that we needed to stop and think and talk and create these conversations.” According to him, the co-design workshops foregrounded the beginning of a unique moment that impacted the way he perceived the other participants, unfolding hidden personal competencies and skills. It activated his learning and this led to reshaping the group dynamic. For

participant 3, the co-design project provided a learning outcome: the need to collaborate towards a common goal. He stated: "...going through that process and learning how it is not about roles, it is about the different perspectives that helped us solve problems, create new tools". He understood the relevance of merging different perspectives as a synergy that renegotiated the relational patterns of working together and their feelings about this way of working.

The organisation had embedded the walks, held and facilitated regularly with wider communities. Yet the tool needed more preparation and planning. They were in an evolving and transformative process. Participant 6 expressed surprise about the process, however, he said: "...my only reservation is that it was too quick and I think we needed more time to expand on what we were doing...". He commented that they had embedded the *hang-it-up* activity in their meetings. He reflected, comparing both experiences and concluded: "...I might consider moving more, getting up and moving as a really important part of decision-making."

Findings

This section presents the findings of the analysis phase (systematising learning) where affinity diagramming was adopted, an ethnographic method consisting of arranging pieces of paper-based data on a physical space like a wall and follows a three-phase process (each one illuminating a higher level of abstraction): item, pattern and structural analysis (LeCompte & Schensul, 1999). The process went through three phases of affinity diagramming, re-arranging the items by affinity, bottom-up, and consolidating theoretical structures. Out of this process, three findings were identified:

Walking enabled changes: from hierarchical to horizontal organisational relationships

The use of facilitated walks (Ehrström, 2016; Kanstrup, Bertelsen, & Madsen, 2014) animated an engagement process amongst participants. Walking proved to be a useful method to read and imagine those physical spaces - revealing opportunities and dilemmas - through a process that reduced interpersonal conflict and foregrounded the third space (Gutiérrez, 2008; Muller & Druin, 2012; Muller 2009). In this, the disruptive aesthetic of design was a key dimension that opened a space between emotions and human agency, leading to consciousness-raising (Markussen, 2013; Fuad-Luke, 2017, 2009; DiSalvo, 2012; Rancière, 2010). The walk aimed to create the space for collective reflection about issues where social and physical dimensions converged. By discussing in small groups and letting the surroundings to embrace the conversations, the walk helped participants to see things differently. Participant 11 shared:

"The walk was a really good idea and the reasons I am giving are because we saw and spoke to each other about different perspectives. It also was fun to be with you and to understand your ideas both verbally and visually, and critically navigate throughout the space. It sparked loads of ideas. I liked it because it made me slow down, observe, and feel the spaces."

The activity generated an embracing atmosphere for the participants to reflect in situ and contribute to the focus of the project. The walk activated visual and kinaesthetic learning processes. It also broke down the hierarchies that sometimes can be found in traditional environmental conditions, such as round tables indoors. Careri (2002) states that walking is an art form which discloses an interpretation of ourselves within the environment, and aesthetic recognition through the experience of understanding (Rasmussen & Wright, 2001) - a production of collective meaning.

Sprouts of behavioural and organisational change

During the follow-up, participant 6 reflected on adopting "...moving as an important part of decision-making...", denoting potential social change. About this, participant 2 said: "...I realised it is so important to have all that design planning before doing. I have just finished a permaculture design certificate. I think this project will help to inform that as well". Other evidence of change was to see that participants adopted walking and the hang-it-up activity in their community meetings. Participant 1 shared:

"...the process helped to open ourselves up and our relationship is a little different now. We are more comfortable. For instance, we used to have a non-flexible system. Every week we had like a business meeting, and we decided, during the process, we would have meetings when we needed them."

The climate created during the workshops stimulated participants to behave differently and feel free to be themselves, acknowledging a change in their attitudes. Participant 6 said:

"...by the fact of us being a group, I felt like all the stuff of me having to perform or do something, just about me personally and my need to perform well, that just fell apart. That just did not happen, so I was comfortable and enjoyed it."

Inter-personal learning

This finding draws on 'people skills', comprising skills and competencies such as learning to listen to people, building trust and respect for different perspectives, changing perceptions and expanding mutual understanding towards working together. For example, participant 5 said: "...it taught me a little bit to just be open to other ideas, be able to contribute but be open to other ideas because it is a group". They learnt how to collaborate better by making their attitude more open to listening to others. Participant 5 added: "...having the input of many people I realised is much more powerful, because everybody is involved, we can develop something which everybody is comfortable with...", raising awareness of collective ownership. Participant 4 shared: "...I am interested in seeing how we are coming together as a team, working together and not just running the place...". Participant 2: "...It helped me see that what I think is not always the most appropriate design, whereas with co-design most things are thought of and everyone feels ownership...". Participant 6: "...what I have learnt is the deeper level of trusting of the group process". On changing perceptions, he added: "...I have learnt about other people, a couple of people who were able to see clearly and that helped me to have a different view of them".

Discussions and conclusions

This study has investigated the arguments pointing to co-design as a suitable methodology to confront socio-cultural challenges (Meroni et al., 2018; Fuad-Luke, 2017, 2009; Ehn, 2017; Smith et al., 2016) that threaten and constrain our present and future qualities of life. Today we live in turbulent times. The ripples of the recent recession are still spreading, globally re-moulding the socio-cultural and political-economic spheres. Economic experts envision another significant recession, as a consequence of the pandemic, which will lead to the post-oil era (Ahmed, 2017). The IPCC (2018) reports the socio-cultural need to urgently reshape our lifestyles and consumerist modes. Internationally, we are witnessing movements arguing for egalitarian power-relationships (e.g. #blacklivesmatter) and social change that embrace sustainable ways of working and living together (e.g. #extinctionrebellion). The challenges at stake require networked communities and interdisciplinary expertise (Meroni et al., 2018) to produce synergies and social innovations capable of adjusting and re-equilibrating the relationship between nature and the built environment, seeking for sustainable ways of inhabiting this world (Manzini & Meroni, 2014). Our literature review has identified how design research approaches are increasingly present in the public sphere (Fuad-

Luke, 2009; Mulgan, 2014), and geared towards addressing complex social issues (Fuad-Luke, 2017; 2009). Some approaches (see Nygaard & Bergo, 1975; Gillinson et al., 2010) recommend governments to set up centralised strategies that empower and support local community-led initiatives, associating local knowledge-production, empathy, and horizontal relationships as key factors in the emergence of social innovations (Ostrom & Ahn, 2009). We argue that 'centralised strategies and local actions' require a greater understanding on how design can be a catalyst for supporting social change processes, and also the need for policies that create the legal framework of interaction, between local actions and centralised strategies.

The challenges society faces are amorphous in their structure and characterised by emergence, nonlinearity, uncertainty, adaptation and constant change (Silverman & Patterson, 2015). We argue that design features in all these challenges. What we have suggested in this study is that co-design, as a socialisation act, has the means to configure boundary spaces (Calvo, 2019a; Edwards, 2011; Gutiérrez et al., 1995; Gutiérrez 2008; Lally & Sclater, 2013). These spaces have the potential to merge the nascent demands of participation (Smith et al., 2017; DiSalvo, 2012; Jenkins, 2006) and the divergence of expertise required to co-articulate the issues, a driving-force that can confront societal challenges. The notion of boundary space is not new in co-design. Muller and Druin (2012) mention it under the term 'third space', a concept built upon Bhabha's (1994) argument that when two or more boundaries (two or more spaces) interact, a boundary space of overlap (a hybrid space) emerges. Bhabha (1994), describes this boundary space as a combination of features coming from all the boundaries interacting. Muller and Druin (2012, p1129) explain that, within this space, "enhanced knowledge exchange is possible". Lee (2008) names it the 'realm of collaboration' which describes a power-balanced space of convergence. Björgvinsson et al. (2012) refer to 'infrastructuring' as the means to create a space for assembling the multiplicity of expertise and divergence (also in Meroni et al., 2018; Smith et al., 2016) regarding the need for co-developing a common design language (Ehn, 2017). In this study, the notion of boundary space finds inspiration from Gutiérrez's (2008) theorisations of the third space, which emerges from differences in the engagement and participation, as well as from the multiple social scenarios that informal situations provide, which are based on egalitarian structures of power-relations. Therefore, the conversation flows under inclusive and comfortable social conventions. Gutiérrez (2008) aligns with Suchman's (2002) association of boundary crossing and mutual learning. The concept of boundary-crossing, developed in the 1990s, reflected the transition of individuals interacting between various practices (Suchman, 1994). Also considered in situated theories of learning (Lave & Wenger, 1991) and in Communities of Practice (Wenger, 1998), it was particularly advanced in educational sciences and psychology.

This study also argues that design-researchers and practitioners have the means to directly intervene in the social environment, through orchestrating and choreographing design activities, supported by techniques, engagement tools and design games (Brandt, Binder & Sanders, 2013). This subtle yet complex designerly act should consider the aesthetic and the 'political' (Mouffe, 2013) dimensions of design. It also requires design-researchers and practitioners to gain socio-emotional competencies to understand participants' ways of feeling and doing (Markussen, 2013) - understanding and stimulating group dynamics and reading the group mood to reorient the flow of engagements as required.

As Markussen (2013) points out, the aesthetic dimension of design is disruptive because it opens up a boundary space, a third space, between the social and performative actions of the participants and the production of 'new' emotions. The aesthetics of a design stimulates emotional responses which cause a disruption by raising awareness of people's activities and how they may feel about it. In this regard, the facilitated walks were orchestrated and choreographed design activities. They were prepared, planned, and geared (designerly) social acts that triggered behavioural change among the participants by reducing

interpersonal conflict and foregrounding third spaces. About this, Kierkegaard and Bretall (1947) observe the benefits of walking, an act that frees simultaneously the body and the mind, enabling thinking. Anderson (2004) builds upon Kierkegaard's reflection on walking, and upon Casey's (2001, p. 684) theorisation about the relationship between the self and place as a "constitutive coingredience", to develop a walking method to harness 'the inherently socio-spatial character of human knowledge' (Anderson, 2004, p. 254). He emphasises the relaxing effect that the bodily rhythmic moves have on both body and mind, which encourages the use of imagination and unfolds hidden memories and experiences. Kanstrup et al. (2014) review several walking methods and their suitability for participatory and co-design approaches. They identify four key factors to take into account: (i) the relevance of preparing the socio-materials of the walk to spark designerly interactions; (ii) walking methods are time-efficient regarding the enriched data they unfold; (iii) adaptability of walking methods to absorb spontaneous detours of the planned routes and/or of the conversations; and (iv) the importance of "post-walk activities" (Anderson, 2004, p. 59). Walking is a natural human activity, and in this case study, it was re-purposed as a design method to place the participants in a social environment with which most of them were familiar. Yet the facilitated walks engendered boundary spaces, which disrupted participants' everyday thinking, reconfiguring their relationship with the physical and social attributes of Newbold surroundings. The walks enabled the participants to connect in ways they did not connect before. This notion of relational aesthetics aligns with the notion of aesthetics developed by Rancière (2010), a dialogic form of interacting (and learning) with the social environment, which "reorients perceptual space, thereby disrupting socio-culturally entrenched forms of belonging in and inhabiting the everyday world" (Markussen 2013, p. 44).

Giroux (2020) has recently argued that "Hope is the affective and intellectual precondition for individual and social struggle". Emboldened with hope, educators can use theory to address pressing problems. To meet the challenges of social innovation and organisational change we are advocating the use of theorised co-design, drawing upon key theoretical concepts including, for example, boundary spaces. Giroux also points out that civic courage is required to transform critique into political practice. Co-design, in this sense, is, we think, a form of political practice and can be a catalyst for social change and social innovation. Giroux comments:

"Hope as the desire for a future that offers more than the present becomes most acute when one's life can no longer be taken for granted. Only by holding on to both critique and hope in such contexts will resistance make concrete the possibility for transforming politics into an ethical space and a public act."

We think that collective consciousness can be aroused through co-design activities, as evidenced in the case study presented in this paper. When combined with imagination, we contest that such consciousness has the potential to enable people to co-design new forms of community that, according to Giroux (2020), "affirm the value of the social, economic equality, the social contract, and democratic values and social relations."

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Innovating with social justice: Anti-oppressive social work design framework

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Innovating with social justice: Anti-oppressive social work design framework

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Abstract

The world is experiencing myriad social, economic and political challenges that have exasperated inequities across communities. While there have been significant efforts to respond to the challenges, dwindling funds, hierarchical organizational structures, and an over-reliance on traditional methodologies have impacted the ability to create systemic changes. These limitations have paved the way for social innovation to create novel ideas to address social issues. Innovation has predominantly come from the field of business, engineering, design and public policy. Surprisingly, social work, with a professional mandate of advocating for social change and uplifting the voices of communities has made limited contributions to the field of social innovation. This paper introduces Anti-Oppressive Social Work Design (AOSWD) framework, which integrates the principles of anti-oppressive social work practice and a design method, Human-Centred Design (HCD). It explains how social workers can use AOSWD to develop collaborative power through empathy-building, co-creation and integrated feedback. Through the establishment of collaborative power, it explains how the role of HCD can be expanded from an approach to develop user-friendly programs, to a tool for social workers to create a change in thinking in how they view and tackle complex issues. A case example of its implementation in a non-profit organization in Seattle, WA has been provided. The paper has implications for social service professionals in the areas of training, organizational design, research and evaluation.

Keywords: Social Innovation, Human-Centred Design, Social Justice, Social Work, Anti-Oppressive Practice, Design Thinking

Background

The 21st century has witnessed a myriad social, economic and political challenges that have exasperated the inequities across the world. While governments, corporations, social service organizations, and grassroots movements have been responding to the challenges, dwindling funds, hierarchical organizational structures, and an over-reliance on traditional methodologies have impacted the ability to create systemic changes. These limitations have paved the way for social innovation to create novel ideas and processes that address social issues and improve the quality of human life at the micro and macro levels (Pol & Ville, 2009). Predominantly, the professions of business, engineering, design and public policy have been instrumental in leading the efforts related to social innovation (Brock & Steiner, 2009; Mirabella & Young, 2012). As a result, the innovations to challenge societal issues have been influenced by their professional values, skillsets as well as goals.

Despite a rich history of responding to complex social problems through innovative practices, social work has made limited contributions to the field of social innovation. Over the years, the practice of social work has transformed into a medium to deliver individualized services to ensure the well-being of individuals, families and communities rather than confronting social inequities (Clifford & Burke, 2009). Additionally, social work practice overwhelmingly emphasizes the use of evidence-based practices and authority-based models as primary solution mechanisms within the profession. These models are developed with

assumptions of a linear path from problem definition to an analysis of options and development of solutions for the client. However, this process is contradictory to the realities of the environment in which social workers and their clients operate, which are often ill-structured and complex.

Although the traditional and dominant methods have aimed to support communities that are marginalized, they have often left them disempowered, and unable to break away from the cycle of oppression and inequities. With the increased acknowledgement of the role of systemic inequities as a determinant of sustained positive social change, social workers across the world have been working towards developing and incorporating new ways of approaching existing problems. Anti-Oppressive Practice (AOP) framework has been one of the ways that the social work profession has been actively integrating social justice concepts within the practice, policy and research realms. Dominelli (1994; 1996) has defined AOP as a framework that addresses the role of social and structural inequities in the problems faced by clients and the solutions developed to address them. This shifts the focus from individualizing problems towards addressing the deep-rooted structural factors. AOP embodies a person-centred philosophy; an egalitarian value system concerned with reducing the deleterious effects of structural inequalities upon people's lives; a methodology focusing on both processes and outcomes; and a way of structuring relationships between individuals that aims to empower users by reducing negative effects of structural hierarchies on their interaction and the work that they do together (Dominelli, 1994, p. 3). While many social workers support this approach to incorporate social justice values, there is limited evidence of how it can be tangibly used within their day to day practice.

The framework of AOP closely aligns with the values of Human-Centred Design (HCD) which is a design and management framework that uses analytic and creative processes to engage people in opportunities to experiment, create and prototype models, gather feedback and redesign (Razzouk & Shute, 2012). Design thinking gives prime importance to the inclusion of citizens or end-users to define the problem, and develop solutions. Specifically, it emphasizes the need to work collaboratively and iteratively to ensure that all stakeholders can work together to bridge gaps in each-others learnings and create client-focused solutions (Mintrom & Luetjens, 2016). The origins of HCD can be traced back to the works of innovative architects, and designers in the early 20th century. Herbert A. Simon and Buckminster Fuller were instrumental in introducing the idea of centring the experiences and challenges of service users when developing products and services. Simon (1969) in his pioneering work "The Sciences of Artificial", emphasized the need for all professions to learn how to iterate, test and incrementally improve design to best meet the needs of the clients as well as experience the world more richly. Horst and Webber (1973) in their work "Dilemmas in a General Theory of Planning" for the first time introduced the idea of design thinking as a tool to understand and solve social problems. They suggested that the solutions for social problems lie in the use of HCD framework that emphasizes on developing deep empathy with the clients and their context. This not only helps to better define the problem itself but also opens the possibility of finding solutions that are more effective, sustainable and aligns with the needs of the people being impacted.

In recent decades, HCD has gained significant momentum in developing creative solutions that focus on a diverse set of social issues through various global and national organizations. For example, IDEO, a global design company was one of the first organizations that used HCD to tackle social issues that impacted communities at large. They have created myriad tools and processes that have focused on the importance of client voices in the development of solutions. Till date, they have leveraged this model to create client-centred solutions in areas such as waste, emergency disasters, literacy, and health amongst others (IDEO, 2020). United Nations Children's Fund (UNICEF), has established an Office of Innovation that systematically

integrates HCD principles in all aspects of country-level work that is done by UNICEF staff, and grassroots workers. This includes situational analysis, development of insights that inform country programs, designing of inclusive and scalable models across various sectors, and participatory evaluation of the progress of country-level programs (UNICEF, 2016). This has helped UNICEF to develop country and community-specific child-centred programming to tackle problems such as malnutrition, illiteracy, pregnancy-related complications, amongst others (Malan & Newberry, 2019). While this framework has helped larger organizations, it remains largely untapped by local organizations, and social movements that are accountable for responding to individual and community level needs regularly. This can be attributed to being inundated by large caseloads, and limited financial and human resources, social workers are often unable to have the capacity to think innovatively. By having a structured way to enable social innovation and entrepreneurship within their organizational settings, social workers can build on social capital, knowledge and experience of existing organizations as well as leverage the resources within the community. Additionally, they can also use these frameworks for efforts that take place outside formal organizations, such as grassroots movements, community advocacy etc. This paper introduces social workers to the Anti-Oppressive Social Work Design (AOSWD) framework, which integrates the values of AOP within the three phases of HCD (inspiration, ideation and implementation), and provides an alternative lens that can inform how social workers view and tackle complex social issues.

Anti-Oppressive Social Work Design Framework (AOSWD)

Till date, the HCD framework has predominantly been used to create solutions that are focused on efficacy related to aesthetics, composition, usability and other technicalities (Buchanan, 2001). The term “human-centred” has therefore been defined to centre clients in the design process to ensure that the programs developed can be easily adapted by the target communities. However, upon using an AOP lens, one can interpret “human-centred” to advance human rights and dignity. By doing so, social workers can use HCD to evaluate how the services developed are positively or negatively impacting the civil, political, economic, social and cultural rights of people that they are designed for.

The AOSWD framework by integrating AOP and HCD approach empowers social workers to explore ways to pave the way for socially-just innovation. Here the focus is not only to create user-friendly programs but also dismantling oppressive systems that disproportionately impact marginalized communities. Additionally, it contributes towards Berzin and Pitt-Catsoupes (2014) efforts to expand the concept of social innovation to focus on the social justice element within outcomes. It also recognizes that social innovation can take place in multiple ways, including entrepreneurial efforts by individuals, organizational change through intrapreneurship as well as a combination of the two through partnerships between organizations and communities (Berzin & Pitts-Catsoupes, 2014; Berzin & Camarena, 2018). Specifically, the AOSWD framework embeds values of critical self-reflection, understanding the socio-cultural political and economic context, and establishing trusting relationships within the three HCD phases of inspiration, ideation and implementation. By doing so, it provides social workers with a way to use their professional values and existent skills to innovate by transforming the way we examine problems, the structure of organizations within which social workers function, and programs that have an objective to uplift the rights and dignity of our clients.

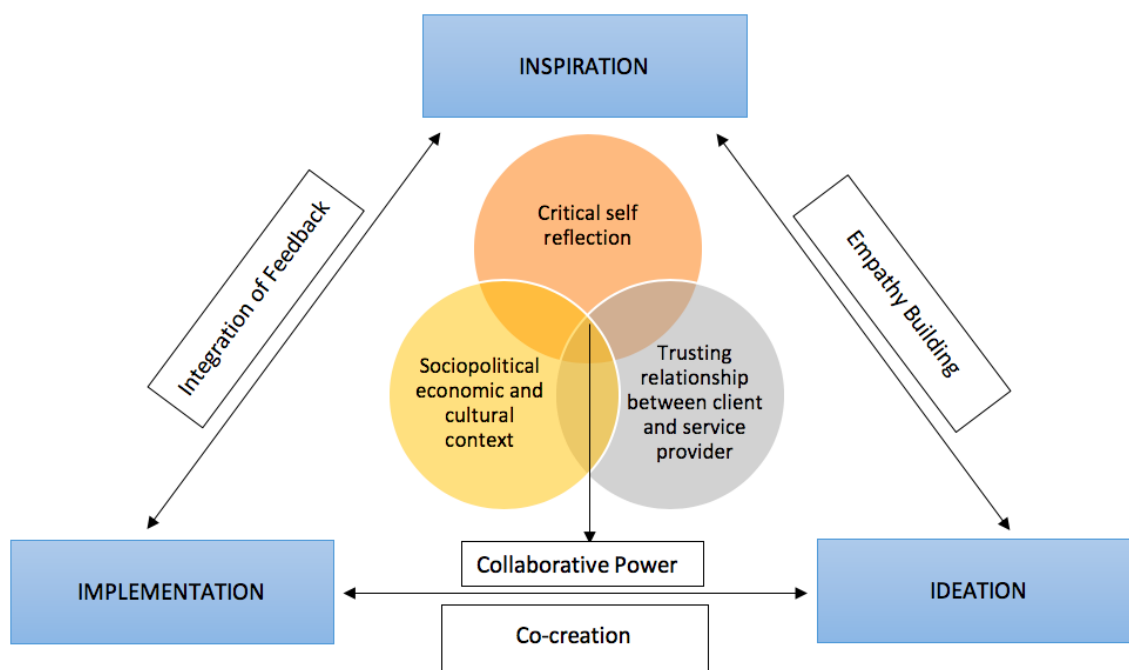


Figure 1: Anti-Oppressive Social Work Design Framework.

Figure 1 displays the AOSWD framework. This framework operates within the larger HCD process, which includes the 3 phases of inspiration (data gathering), ideation (solution development) and implementation (solution execution). The first phase, inspiration, is primarily focused on developing deep empathy with the clients. The second phase, ideation, is aimed to consolidate and analyse the information gathered from clients, and develop a range of potential solutions for the identified challenge. The third phase, implementation, focuses on two aspects, that is, execution of the prototypes and evaluating their effectiveness. In this phase, a few high-fidelity solutions are implemented cost-effectively and rapidly. Also, feedback from all stakeholders is gathered to evaluate the efficacy of the various prototypes. Each of these phases is bi-directional and interconnected, thus indicating the fluidity and dynamic nature of HCD framework. Additionally, both ideation and implementation phases are mediated through inspiration, thus emphasizing the importance of centring the voices of the clients, and the consistent integration of their experiences in the design process.

The AOSWD framework hypothesizes that the HCD process can only be an effective way to innovate within the social work profession if collaborative power between the service providers and clients is established in all three phases. Collaborative power can be defined as a collective action and mutual support that is developed out of a shared understanding of the reality in which we operate (Pinderhughes, 2017). This departs from the predominant way in which power is often understood and used in social service agencies, especially when working with marginalized communities. Pinderhughes (2017) highlights that power is commonly defined as having enough control over forces affecting life to meet individual and group needs, secure necessary resources, and bring desired goals. In the social service arena, this power is often used to exert authority and make decisions on behalf of the clients. Providers often use top-down measures to protect and provide for communities they serve, thus excluding them from actively participating in their change process. Fitzsimons and Fuller (2002), Pinderhughes (2017), Romney (2005), and Tew (2006) have emphasized that building power with clients, allows a shift in entrenched identities of the service provider as the controller of resources and the client as the passive recipient. It, therefore, opens opportunities for all participants to be included in the process of social change. The AOSWD framework indicates that to

build collaborative power between the client and service provider, the process of social change has to include (i) understanding of the socio-political, cultural and economic context of the client, (ii) ability of the social worker to critically self-reflect and (iii) developing trusting relationships between the client and social worker (Figure 1). Within the HCD framework, this collaborative power between social workers and clients can be established through (i) empathy building at the inspiration phase, (ii) co-creation at the ideation phase and (iii) integrating feedback at the implementation phase.

Phase 1 Inspiration: Empathy building

“Empathy-building” in the AOSWD framework is a process imperative to develop deep relationships between the client and service provider, and a way to assess the systematic marginalization of communities that social workers serve (Bennett & Rosner, 2019; Morgaine & Capous-Desyllus, 2015). Typically, empathy can be defined to understand and respond to the emotional state and ideas of another person (Barker, 2003). However, within the context of AOSWD, empathy-building entails a detailed understanding of not only the individual but also the structural inequities faced by them. According to Segal (2011) and Berzin and Pitt-Catsoupes (2014), by understanding the complex social conditions and experiences of others, it promotes innovation that challenges poverty, discrimination and inequity.

Within this phase, empathy can be developed during (i) rapport building process with the clients, (ii) exploration of client challenges, and (iii) assessment of systemic causes of the identified challenges. The empathy-building process will foster deep relationships between the social worker and client, thus paving the way for collaborative innovation to create social change. Cultivating empathy will require social workers to engage in critical self-reflection, and use assessment measures that shift the focus from individual blame to structural inequities. By integrating reflexivity, social workers are less likely to impose their biases and assumptions on the clients. This, in turn, improves their skills to understand client’s experiences and to contextualize it within the socio-political, cultural and economic environment within which the individual, family or community operates.

Phase 2 Ideation: Co-creation

Co-creation within the AOSWD framework refers to the process of developing services and programs by dismantling the hierarchical power dynamics between the service provider and clients. This process embraces the values of social workers as being embedded in the community and dedicated to bringing change through the involvement of various stakeholders rather than in an isolated fashion. Additionally, it recognizes that to create an effective solution that applies to the target community, the process of program design has to be inclusive of their views right from the time of conceptualization of the problem to the implementation of the solution. This is different from the widely used EBP model, which has been lauded as the gold standard for effective programs, but at the same time has been critiqued for its lack of effectiveness in marginalized communities (Sinha et al, 2020). One of the major limitations of the EBP model is that while marginalized communities are included in the feasibility tests, they are often excluded in the conceptualization of the program or intervention, and are therefore not designed to address their unique challenges. Martinez et al. (2010) have suggested that for EBP to be effective in a minority or marginalized communities, the knowledge and experiences of community members should be included when designing interventions.

The co-creation process through systematic integration of voices of the community departs from the focus on social workers as controllers of resources, and decision-makers on behalf of the clients. It provides clients and social workers a platform to collaborate and develop ideas that contribute to a common mission of social change (Sinha, 2020). This not only reduces distrust regarding the social workers and social service

agencies but also leads to an increased buy-in from clients to advocate for change for themselves as well as their community.

Phase 3 Implementation: Integration of feedback

Integration of feedback from clients in the AOSWD framework is imperative to develop programs that target the complex and dynamic realities of marginalized communities. In most social service settings, the feedback from clients is gathered to evaluate the effectiveness of a program after it has been fully implemented. This method of gathering feedback assumes that the social programs operate in a static environment, and cannot be iterated to meet the changing needs of the clients. Additionally, the feedback has been viewed to determine whether a program should be continued or not, rather than assessing how it can be improved to make it more responsive to the needs of the clients (Hasenfeld, et al.,2004).

The integration of feedback within the AOSWD framework, recognizes the dynamic social, political and economic context in which the social workers and their clients operate. It highlights that to create effective programs, there is a need to systematically integrate continuous feedback of clients so that the programs can align with their changing needs and realities. In addition to this, the AOSWD framework within the inspiration phase highlights an essential ethical principle of social work, which is to respect the inherent dignity and value of the clients (NASW, 1996). By acknowledging, and incorporating the feedback of the clients as a method to improve services, the social workers and agencies take a step forward to value them as equal partners in the process of social change. The collaborative power in this phase will therefore enable social workers to test the novel ideas, critically assess their effectiveness and iterate programs to align with the complex nature of client realities.

The next section provides an example of how AOSWD framework was used to develop a Community Social Council, aimed at empowering the voices of residents living in affordable housing units managed by Community Roots Housing (CRH) in Seattle, WA.

AOSWD in practice: A case of Community Roots Housing

Community Roots Housing is a corporation established in 1976 that owns and manages 48 properties throughout the Seattle area (Community Roots Housing, 2020). It currently provides safe and affordable housing to more than 2000 residents from a variety of income levels. The residents include individuals and families who are transitioning from homelessness, single parents and their children, seniors with limited incomes, and recent immigrants. As a Public Development Authority (PDA) and Community Development Corporation (CDC), it is committed to providing programs, services and activities to promote and support community engagement. This service is carried out by the Resident Services Program unit within the organization.


To ensure that the services are better aligned with the needs of the residents, a redesign process to develop a community-informed residential services program was conducted. The objective of this process to develop a framework to integrate client voice throughout the process of program design, development and implementation. Thus, improving Community Roots Housing's ability to clearly define the needs clients, and create nuanced solutions that integrate the values of dignity, autonomy, equality and solidarity (Mintrom & Luietjens, 2016; Sarmiento-Pelayo, 2015).

Methods

The redesign process utilized the AOSDW framework to create deep empathy between the Community Roots Housing staff and the residents, with an ultimate objective of creating a community-informed

resident services program. To inform this process, a mixed-methods needs assessment was conducted to gather information regarding their living conditions, challenges and strengths. To gather quantitative data, a survey was sent to residents in all 46 buildings managed by Community Roots Housing. The survey was completed by 373 residents and provided information on (i) demographics, (ii) assessment of the current housing, (iii) assessment of basic needs, (iv) and community residential engagement needs. In addition to this, in-depth interviews were conducted with 15 residents to gather information about residents' beliefs regarding their wellbeing, living situation, and community engagement. The information gathered increased the understanding of the lived experiences of the residents, which was an imperative step in the empathy-building stage. The research yielded significant insights about the prioritization of needs, barriers in the utilization of resources offered, the importance of community trust and gaps in understanding between service providers and clients.

To ensure that the information was systematically integrated into the co-creation process, the research results were used to develop "Personas" (Figure 2). Three personas of residents were developed to highlight the key opportunities and challenges that emerged from the results. In addition to this, a word cloud was also developed to communicate the prioritized needs and challenges of the residents. Both tools were used to ensure that the participants in the co-creating process had a holistic understanding of the context of the challenges and strengths of the clients.



MEET DASHA

Age: 34 years
Gender: Female
Race & ethnicity: African American
Profession: Mom & Student
Languages spoken: English, Arabic, Amharic
Household Income: <\$20,000
Length of stay in CRH: 0-2 years

What Dasha needs for her wellbeing.

Some of the things that Dasha believed were crucial to her wellbeing particularly related to her living situation included:

1. Feeling of safety
2. Better cleanliness of laundry and common areas
3. Sense of belonging/ community
4. Safe play area for her child

How does she feel CRH can support her.

Dasha has a lot going on in her life and feels like she cannot commit to building a community, unless her basic needs are taken care of. She is not particularly interested in events, because she usually has long days and then is taking care of her child. She is thankful for her housing situation, but would like to have a cleaner and safer environment for herself and her child. As a new resident she believes it would be great to know what is going on in the building, and how residents can use their own skills/ strengths to support each other.

Dasha's experience living in a CRH managed building

Dasha moved to a CRH managed building a year ago. She was happy to move to a place that was more spacious and was conveniently located. She says *"its not fancy but at least its close to where I work, where I study and its easier to get places with my kid"*.

Dasha indicates that her overall experience has been very positive, however is never able to meet any one in person because she works or has to be in school during the day. If there was a way to get more "face to face" time it would be helpful, than to send emails and have no personal connection.

Dasha would love to have more supports available to her and her child. She did not think that was the role of the management property, and was pleasantly surprised to hear about the Resident Services- *"I had no idea that a service like this was available. If this is true I would like to meet them and figure out how I can get help for legal concerns and child care"*.

Residential services according to Dasha can play a pivotal role as a "connector" and a "builder of community". She wishes there was readily available information about the residential services and how it connects to the larger CHH management - *"I didn't know the management people are different from the residential services people"*.




Figure 2: Community Roots Housing Resident Persona.

Co-creation Process

The design team consisted of 14 participants: 5 Resident Services Program staff, 1 research assistant, 1 facilitator, and 7 resident representatives from 5 distinct buildings. They engaged in two 5-hour design sessions to review the needs assessment results and, personas which were direct reflections of the challenges and successes of many residents. The empathy-building phase was therefore focused on discovering concerns and the underlying systemic issues within the research results. This helped all participants gain a mutual understanding of the social, political, economic and cultural context in which the residents and Community Roots Housing function. It also prompted the staff to critically reflect on their biases regarding

the residents, thus assessing the appropriateness of services offered. This phase led to the development of three main criteria that drove the development of potential solutions for the overarching objective of “How might we reimagine the residential services program to empower residents to feel more valued and heard in their living community?”. The three criteria included: 1) programs or services should be directed towards making residents feel included and valued in the community, 2) clear communication between the staff and residents to increase accountability, and 3) resident leadership to integrate community strengths and interests within programs offered.

The participants engaged in the co-creation phase by creating a minimum of three actionable ideas that would incorporate all three criteria. To ensure collaboration between staff and residents, the participants were divided into three groups, such that, each included at least 1 staff member and 2 residents. A total of 9 actionable ideas were created. All 9 ideas were presented to the full design team. Along with the description of the idea, the residents and staff from each team discussed the feasibility and, impact from an organization and client perspective. Each participant was asked to vote for 1-2 ideas that they believed would be the most effective. All participants unanimously chose one idea, that they believed would empower the residents and, bridge the gap between the management and clients. This idea focused on developing a resident council that would integrate resident voices in all decisions regarding types of services needed, effective implementation of programs, and creating community identity. The residents, staff and facilitators collaborated to improvise and finalize the concept.

The final prototype “Resident Leadership Council”, was assessed against the three design criteria and the overall objective of the design process, that is, empowering residents to feel more valued and heard in their living community. Upon this assessment, three changes were made that integrated the complex realities of the residents and Community Roots Housing. Firstly, the name of the council was changed to “Resident Social Council” to ensure that a hierarchical power dynamic does not arise between resident leaders and the larger resident community. Second, all council members and staff would be required to attend anti-bullying, conflict resolution training, to ensure that they can develop skills to successfully navigate challenging conversations with residents and staff. Lastly, a list of feasibility criteria was established to ensure that the council had buy-in and financial support from Community Roots Housing.

Outcomes for Community Roots Housing

The use of the AOSWD framework ensured that the residents’ voices were centred throughout the process of the needs assessment, analysis of results, and development of the final product, that is, The Resident Social Council. By building empathy with the clients keeping in mind, their social, political, economic and cultural context, staff were able to critically reflect on the efficacy of current programs. Additionally, staff recognized their bias as service providers in assuming the needs and wants of residents. On the other hand, clients had an opportunity to learn about the complex realities of organizations and barriers in developing client-centred programs. By developing a sense of trust, both, clients and staff were able to collaborate to develop a program that would not only integrate the opinions of clients but would also be cost-effective and sustainable for the organization itself.

Implications for the social services profession

The AOSWD framework, embodying the true essence of the social work profession which is rooted in social justice; attempts to provide social workers with a tangible way in which they can integrate their professional principles with that of innovation. It also attempts to expand the scope of social workers to be innovators, intrapreneurs and entrepreneurs that partner with their clients to develop ideas that meet immediate needs effectively as well as works towards structural reform. This can further strengthen the

overall field of innovation, by prioritizing the core values of service to others, advocating for social justice, recognizing the dignity and worth of a person, importance of human relationships, integrity and trustworthiness, and professional competence. It can therefore redefine social innovation to be focused on uplifting human rights and dignity rather than solely developing solutions to meet the immediate needs of their clients. This framework can be integrated by social workers and other social service professionals in three specific areas (i) professional training of professionals, (ii) service delivery and evaluation by small to medium non-profits, and (iii) assessment of needs and assets.

To tackle the grand challenges that are being experienced by our society, social workers should be trained in skills that build their capacity to think and act innovatively. Currently, social innovation curriculum is mostly housed in management and design schools. Recently, some social work programs across the globe have introduced courses to train students in social innovation (E.g. social work programs in Boston College, Boston University, San Diego State University, University of Denver, and the University of Toronto amongst others). However, they seldom integrate social justice principles within the curriculum and do not apply to the social service settings in which most of the social workers will be placed. The AOSWD framework provides an opportunity for educators to expand the training in innovation principles to all social service professionals while prioritizing values of social justice. Faculty teaching social work courses can integrate the AOSWD framework as a theoretical lens for assessing case studies, conducting needs assessments, and analysing the effectiveness of solutions. Additionally, the framework can also be used as a way to develop specific skills, such as (i) assessing client problems within their context, (ii) collaborating to create solutions that are feasible, sustainable and account for the multidimensional nature of human problems, and (iii) critically reflecting on their positionality as service providers and its influence on the programs created.

AOSWD framework is a beneficial tool for small to medium size non-profits that are often limited in their resource capacity. The AOSWD framework can be used as a cost-effective organization tool to help service providers (i) assess the alignment of their programs with values of equity and anti-oppression, (ii) redesign services, programs and policies to ensure that they are reflective of the needs of the clients, and (iii) prioritize services to leverage community strengths thus making it more cost-effective and sustainable. The framework can also be used by social scientists to integrate social justice values in the development and analysis of empirical knowledge. This is particularly useful for community-based researchers and evaluators that are often assessing the needs and assets of communities, as well as the effectiveness of services provided. By using AOSWD lens the research process can systematically integrate the recognition of the power of communities, focus on emancipation and can be action-oriented (Lather, 1986; Parada & Wehbi, 2017; Strega & Brown, 2015); thus, integrating and centring the client's problems and context.

Conclusion and way forward

Social workers and other helping professionals, similar to designers have the power to impact people's lives in a very significant manner. An oppressive service, policy or product can have a long-lasting negative effect on the lives of the people that use it, as well as the larger community. In the same way, a program or policy that systematically incorporates social justice values can empower communities and improve their overall quality of life. This paper provides one of the first frameworks of how the professional values and skillsets of designers and social workers can be leveraged to create socially just, cost-effective and sustainable solutions for marginalized and vulnerable communities. To ensure that the efficacy of this framework can be measured, it should be implemented in diverse settings, including skill training, organization development, program design and evaluation. By doing so, social workers and other social service professionals can develop flexible ways to use the framework to benefit the communities they work with.

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South African fashion design entrepreneurs' awareness and practices of sustainable fashion supply chain operations

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South African fashion design entrepreneurs' awareness and practices of sustainable fashion supply chain operations

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Abstract

The textile and clothing industry intensifies pollution through the production of fast fashion clothes. The increase in fast fashion clothes imports in South Africa has led to the closure of textile factories and consequent loss of jobs. Sustainable development is a pathway to reducing socio-environmental, cultural and economic harm. Sustainable processes and products create new employment. Fashion design entrepreneurs are often involved and have influence in every supply chain of their business and are thus in one of the best positions to implement sustainable fashion supply chain operations. This qualitative study aimed to investigate South African fashion design entrepreneurs' awareness and practices of sustainable fashion supply chain operations. Participants were selected purposively, and data was collected through semi-structured interviews. The results indicated that most of the participants were aware of sustainable fabrics through personal research. Half of them source and produce sustainable garments on a small scale due to the high price of sustainable fabrics. All the participants had limited knowledge of sustainable design methods. All the participants save their fabric offcuts, and only half of them are motivated by environmental concerns. Furthermore, the results indicated a lack of systems to manage the recycling of fabric offcuts. Given that there are few sustainable fashion design entrepreneurs in South Africa, the study recommends that textile and clothing industry leaders, especially sustainability practitioners, disseminate knowledge and training across the board on sustainable supply chain operations.

Keywords: Fashion design entrepreneurs, Sustainable supply chain operations, Sustainable fabric sourcing, Sustainable garment design, Sustainable garment manufacturing

Introduction

Entrepreneurship is linked to sustainable development because entrepreneurship contributes to innovation, generates employment, influences economic development, betters social issues and assists in dealing with environmental issues (UN, 2015). Sustainable operations in businesses entail those businesses integrating sustainable values into the creation of new merchandise (Zu, 2014) and reconsider their core processes and productions (Fisk, 2010). Given the fact that the textile and clothing industry (TCI) has contributed to the current socio-environmental challenges, fashion design entrepreneurs cannot afford to have sustainable operations as a separate element in their business. Sustainable operations ought to be at the core of their business. The inability to address socio-environmental challenges endangers businesses' capacity to build wealth and to be viable in the future (Zu, 2014,). Businesses that incorporate sustainable practices have a competitive advantage (Bomgardner, 2018). For the South African textile and clothing industry (SATCI) to be sustainable and improve its sustainability efforts, sustainable supply chain operations need to be integrated into business practices and processes to ensure and increase the production of sustainable clothes. South African Fashion Week (SAFW) is a platform for South African fashion designers

to showcase their work. May (2019) reports that SAFW has a record of 580 fashion designers. However, only a small number of fashion designers are socio-environmentally sustainable.

Within this research context, this study aimed to investigate South African fashion design entrepreneurs' awareness and practices of sustainable fashion supply chain operations. Table 1 presents the objectives of this study.

Table 1: Sub-aims of the study.

Sub-aim 1
Explore and describe fashion design entrepreneurs' awareness of sustainable fabrics and garment design methods
Sub-aim 2
Explore and describe how fashion design entrepreneurs balance economical sustainability and socio-environmental sustainability while sourcing fashion materials, designing garments and manufacturing garment
Sub-aim 3
Explore and describe fashion design entrepreneurs' current practices while sourcing fashion fabrics and manufacturing garments
Sub-aim 4
Explore and describe fashion design entrepreneurs' current practices towards economic sustainability in sourcing fashion materials, designing garments and manufacturing garments

Literature review

The emergence of sustainability has led numerous fashion businesses into altering their organisational approaches in their supply chain (Choi & Li, 2015; Shen, 2014). It is worth bearing in mind that altering supply chain operations is a gradual process. This requires fashion design entrepreneurs to evaluate their supply chain operations and identify gaps and opportunities where sustainable supply chain practices and processes can be integrated. This study focused on three stages of fashion supply chain: sourcing, design and manufacturing.

Sustainable fabric sourcing

Sustainable sourcing firstly involves sourcing sustainable fabrics and secondly sourcing locally manufactured fabrics. It is important to note that every fabric has its individual socio-environmental threats (Fletcher, 2014). Sustainable fabrics include organic cotton, recycled polyethylene terephthalate (rPET), wool, linen, hemp, Tencel or Lyocell and bamboo. Some of the sustainable fabrics that can be sourced in South Africa (SA) are cotton produced by the Sustainable Cotton Cluster (Cotton SA, 2016), rPET, linen hemp (Del Monte, 2021), wool, cashmere and mohair (Twyg, 2020). It is important to note that some of these fabrics are sometimes sourced in SA and processed outside the country and vice versa (Del Monte, 2021).

Sourcing locally is reasonably costed and sustainable because it benefits the country's economy through job creation, reduces shipping costs and reduces carbon emissions (Cadigan, 2014; Fontes, 2016; Ho & Choi, 2012; Sprague, 2015). Over previous years, leading retailers sourced fabrics and clothes from China, and this has negatively affected South African textile manufacturers' capacity (Daniel, 2022). Chinese imports

have weakened the South African textile, clothing, leather and footwear industries (SATCLF) (Mahlati, 2017). In 1996, the SATCI had about 1,600 clothing factories. In 2015, the industry had approximately 900 functional clothing factories (Reuters, 2015). The drop in the number of factories indicates the urgent need for South African retailers and fashion design entrepreneurs to source and manufacture locally to improve the economic well-being of the industry and society.

To date, leading retailers have committed to sourcing locally produced fabrics (Daniel, 2022). When large businesses boost the demand of sustainable fabrics, it will help boost production demand from smaller manufacturers and will make sustainable products more reasonably priced and enable customers to purchase more products (Lee, 2014). Sustainable fashion design entrepreneurs often struggle to find reasonably priced sustainable fabrics (Kawana, 2017; May, 2019). Given that the SATCI struggles with adequate mainstream fabric production for its market, it is logical that there would also be a shortage of sustainable fabric production. Thus, where sustainable fabrics are not readily available and are beyond the fashion design entrepreneur's financial capacity, purchasing sturdy polyester should be an alternative. Polyester is a controversial fabric because it is harmful to the environment, yet it is one of the two most used fabrics in the world (DeHaan, 2016; Fletcher, 2014). It is made from non-renewable resources and pollutes the environment (Niinimäki, 2013; Olajire, 2014). However, polyester manufacturing uses less water than cotton manufacturing (Fletcher, 2014), it is durable and has stronger fibres than cotton (Norway Geographical, 2019). The popularity of polyester, due to its affordability and other characteristics, makes it difficult to stop using this fabric completely. In the fashion supply chain, the sourcing stage is followed by the garment design stage.

Sustainable garment design

Sustainable garment design involves careful consideration of the type of fabric and its effects, the manufacturing, the customer-use phase and disposal of garments to reduce harmful global socio-environmental impacts (Zoltkowski, 2022). Sustainable garment design must consider, among others, "economic, social, and environmental values" (Niinimäki, 2013) and cultural values. Fashion design entrepreneurs determine the look of sustainable garments (Sherburne, 2009), as well as the processes and practices that the garment will experience. Fashion design entrepreneurs can use various methods to design sustainable garments, including, among others, zero-waste design methods, design for multifunctional garment design and design for emotional durability.

Zero-waste design methods do not separate the design stage from the manufacturing stage. Zero-waste design is a method of reducing fabric waste at the design stage by considering the cost of the fabric, balancing garment aesthetics, fit and cost and pattern cutting (Rissanen, 2013). Zero-waste design methods consist of and are not limited to draping, zero-waste pattern layout or jigsaw puzzle methods and subtraction pattern cutting (The Cutting Class, 2013; Ecochic Design Award, 2017). The jigsaw puzzle method refers to laying pattern pieces like a jigsaw puzzle to avoid fabric wastage (The Cutting Class, 2013). The subtraction pattern-cutting method is like the draping method in that both subtraction and draping require the fashion designer to "twist, displace, and feed the fabric back to itself" (The Cutting Class, 2013).

Multifunctional garment design – also known as transformable design and convertible design – involves designing a garment that can be reversible, consisting of various elements that can be added or removed by the wearer depending on the occasion or season (Li et al., 2018). Multifunctional garments provide customers with one garment that can be worn in multiple ways, with each look consisting of a different

aesthetic identity and function. It is possible to reduce customers' purchases of new fashion (Lang & Wei, 2019), extend the life cycle of a garment and thereby reduce the number of garments in landfills (Koo et al., 2014).

Emotional durability is a design concept that intends to create a long-lasting emotional connection between the garments and the users (Chapman, 2015). Involving customers at the garment design stage can contribute to creating an emotional bond with the garment (Durrani et al., 2016) and tackling consumption behaviour (Durrani et al., 2016). The sustainable garment design methods discussed above all focus on reducing fabric waste at either the pre-consumer or post-consumer phase. The garment design stage in the fashion supply chain is followed by the manufacturing stage.

Sustainable manufacturing

In this study, sustainable manufacturing refers to the treatment of fabrics at the pre-consumer phase and of garments at the post-consumer use phase. Fashion design entrepreneurs can employ various methods in the treatment of both fabrics and garments at the pre-consumer and post-consumer phases that can contribute to the sustainability of the TCI in SA. This study focuses on a closed loop approach consisting of reuse and recycling practices. According to Cuc and Vidovic (2011) and Holm (2013), reuse and recycling have environmental, social and economic benefits. The closed-loop approach, also known as the "circular economy", refers to the treatment within the clothing factory of fabric offcuts, waste fabrics and merchandise once the garment is no longer useful to the client (Niinimäki, 2013; Pervez, 2017). Given that the closed-loop approach seeks to reduce landfill and extend the life cycle of fabrics (Norwich University, 2020), it is important to note that this approach can be applied both to fabrics that are considered sustainable and those that are not considered sustainable.

Reusing and recycling are approaches conceived to reduce waste and require fashion design entrepreneurs to re-think their entire manufacturing processes and practices. Reuse approaches also involve reselling, renting and swapping (Hendriksz, 2016). In some cases, before garments can be reused, they need to be repaired, which means providing a repair service to customers. Renting clothes enables companies to increase their profit (Hendriksz, 2016). Recycling means modifying the original attributes of fabrics to make new items (Ho & Choi, 2012). One of the ways fashion design entrepreneurs can implement a closed-loop system is by encouraging customers to bring back their used and unwanted clothes. In addition, South African fashion design entrepreneurs can also practise product-centric recycling. Product-centric recycling means that clothing manufacturers recycle their own textile waste (Sherburne, 2009); this approach is intended to generate profit. In SA, the rising cost and limited access to landfill sites indicate the need for the SATCI to strengthen its reusing and recycling systems (Enviroserv, n.d). According to Hendriksz (2016), many overseas businesses and manufacturers join forces with their local governments to reduce carbon emissions, energy and water consumption, waste and their general environmental impacts. It is crucial that the South African government aids the SATCI in obtaining technologically advanced equipment to improve the industry's recycling capacity.

A few fashion design entrepreneurs identify themselves as sustainable. Furthermore, the current climate challenges facing the world and the state of the SATCI denote the need for more fashion design entrepreneurs to adopt sustainable supply chain operations.

Methodology

In this study, qualitative methods were used to explore and describe fashion design entrepreneurs' awareness and their current sustainable fashion supply chain practices. The six participants for this study were selected purposively based on the following four criteria:

1. Must produce clothes for men or women.
2. Must have been in business for at least three years.
3. Must have an online and a physical store
4. Must not be primarily producing sustainable clothes.

The data collection consisted of semi-structured interviews and analysis of documentation found on the participants' websites or social media pages and was conducted in 2020. Due to financial constraints, telephone interviews were conducted. The participants were informed ahead of time that the interview would be recorded. The interviews were recorded using the Another Call Recorder application. The semi-structured interviews were transcribed, coded, categorised and arranged for analysis (Babbie, 2016).

Credibility, dependability and confirmability were the categories used to maintain the trustworthiness of this study. Credibility was maintained by transcribing the recorded interviews, submitting the transcribed interviews to another researcher and by data triangulation. Evaluation of the data collection, data analysis, and interpretation was maintained through continual consultation and discussion with supervisors. This ensured that the dependability and confirmability of the data were maintained. The results and discussion are provided below.

Results and discussion

The findings of this study are discussed based on the sub-aims as shown in Table 1.

Fashion design entrepreneurs' awareness of sustainable fabrics and garment design methods

Regarding awareness of sustainable practices at the fabric sourcing stage, Participant C was the only participant who indicated that she is not aware of sustainable fabrics, stating, "I'm not clued up about sustainable fabrics, and I'll need to be educated more on their benefits. Smal (2016) pointed out that the local TCI is in the early stages of addressing sustainable practices, so there is not widespread awareness in the local TCI. This may explain why Participant C is not knowledgeable about sustainable fabrics. Participants A, B, D, E and F indicated that their knowledge on sustainable fabrics and their benefits was based on personal research. These participants revealed that they found sustainable fabrics to be more expensive than other fabrics. May (2019) and Kawana (2017) report that sustainable fabrics are indeed expensive. To make sustainable fabrics affordable to micro and small businesses, large retailers must continue to source these fabrics.

Regarding awareness of sustainable operations at the design stage, all the participants showed minimal awareness of various sustainable design methods. Participants B, D and F indicated they are conscious that reducing fabric offcuts is environmentally sustainable. Although Participants A, C and E save fabric offcuts, they were not aware that this is a sustainable design method, and their motivation for saving fabric offcuts was economic. Participant B indicated that he experiments with draping, and this is motivated by the plethora of style options that this method offers. Participant is the only participant who uses the design for emotional durability method. However, this participant is unaware of this terminology and that this

is a sustainable design method. This participant's motive for using this method is to increase sales. All the participants were unaware of the other three remaining sustainable design methods: zero-waste pattern layout, subtraction pattern cutting and multifunctional garment design.

Fashion design entrepreneurs balance economic sustainability and socio-environmental sustainability in sourcing, design and manufacturing

Regarding balancing environmental sustainability and profitability, Participants A, B, D, E and F indicated that environmental sustainability and economic sustainability are connected. Participant A indicated that making a profit while disregarding environmental sustainability is counterproductive. According to Brubaker (2015), entrepreneurs can fix catastrophes by innovating sustainable business models that can influence customers and increase profit. Participant D indicated that a designer must be able to solve problems and produce garments that bring in profit. Some of the participants concurred that balancing environmental sustainability and economic sustainability is a process that requires intentional development and time. Some of the methods that participants use to balance environmental sustainability and economic sustainability are reducing fabric waste, using waste for sellable products and producing garments based on orders only. Participant B stated that profit and environmental sustainability is a process that involves both research and collaboration with other professionals who are knowledgeable about environmental sustainability.

With regards to balancing social sustainability and economic sustainability, all the participants indicated that it is possible to balance these. Some of the methods that the participants use to balance social sustainability and economic sustainability are as follows:

- Intentionally producing garments that are affordable to the target market;
- Developing employees' skills through training workshops;
- Providing rent-free space in the retail store for emerging designers' products; and
- Providing factory space for employees' private clients on weekends.

Regarding balancing employees' salaries and social sustainability, three participants indicated that they pay their employees based on existing systems such as the Basic Employment Act, the Bargaining Council, the Companies Intellectual Property Commission (CIPC) and union regulations. One participant indicated that his employees are paid above the existing minimum wage standard. Two participants indicated that they use their standard based on the current cost of living in SA, the daily operational cost of the business, the level of employee work experience and overtime. Overall, the various avenues that the participants use to empower their employees demonstrate a value for human life and the services rendered by their employees.

Fashion design entrepreneurs' current socio-environmentally sustainable practices at the sourcing and manufacturing stages

Participants B, D and F source sustainable fabrics such as linen, sustainable cotton and wool on a small scale. These participants manufacture sustainable clothes on a small scale for their upper-class customers because most of their customers cannot afford the clothes. All the participants revealed that they manufacture their garments in-house. As mentioned, all participants in this study save their fabric offcuts. Participants A and C reuse their fabric offcuts to make accessories. The remaining four participants indicated that they donate their fabric offcuts to their employees, charity organisations and local

communities. Participants D and F indicated that there should be better systems to manage fabric offcuts. The participants are not always able to donate their fabric offcuts, which results in unused fabric offcuts filling up their studios, and these may end up in landfills. Participant F pointed out that as a small business, it is difficult to prepare fabric offcuts and garments for recycling due to a lack of recycling services in the area they operate in. This may suggest that there is a need for more accessible recycling services to streamline recycling for fashion design entrepreneurs.

This study found that garment reuse and renting are not common practice among the participants. Participant A reports redesigning and reusing garments that do not sell. Participant D reported that they occasionally rented runway garments and found that there is no market for renting clothes. This may suggest that fashion design entrepreneurs can initiate and build a renting culture among customers.

Fashion design entrepreneurs' current economically sustainable practices at the sourcing, design and manufacturing stages

Exploring participants' various economically sustainable practices in fashion supply-chain operations was the fourth sub-aim of this study. Economically sustainable practices in this study were threefold, namely sourcing locally manufactured fabrics, businesses making profit consecutively and overall economic contribution to the TCI. Several international authors Cadigan (2014), Ho and Choi (2012), Sprague (n.d.) and Fontes (2016) acknowledge that sourcing fabrics in the country where your business is situated is one way of improving the local economy. Participant A indicated that they source locally manufactured conventional cotton. Participant B indicated that the socio-environmentally friendly cotton and hemp they source are manufactured locally. Based on participant C's website, some of their African print fabrics are produced by South African fabric manufacturers. Participant F sources linen and conventional cotton in SA. Participants D and F pointed out that the industry needs more textile mills to increase local production. In addition, Participant D indicated that they source wool fibres locally, and the fibres are then sent overseas to be woven and finally imported back to SA. Thus, more wool and leather mills are needed in SA to increase the local TCI production capacity, reduce pollution incurred in shipping and alleviate poverty by providing jobs.

Participants B, C, D, E and F source their synthetic fabrics from South African wholesalers who stock imported fabrics. These findings suggest that imported fabrics are readily available in SA and that there are not enough fabric factories to cater to local demand. Importation of fabrics is not economically friendly because it does not benefit the local TCI and the country and impedes the growth of textile and clothing factories. Given that the SATCI has few textile factories, it is understandable that the fabrics that participants source are often imported. Although South African fabric wholesalers may employ a few people, the countries that produce these fabrics have greater economic benefits (in terms of fabric production), good production capacity for their TCI and employment opportunities for their local communities.

With regards to consistently making a profit, participants A, B, C and F revealed that they have been consistently making a profit, and this has allowed them to remain in business. Participant F indicated that having multiple businesses in one location is one of the ways he manages financially. This may suggest that for some small and medium enterprises, it may be necessary for them to expand their services to deal with tougher business seasons. Participants D and E indicated that they were only able to make a profit after three years, and this was due to assistance from a business rescue specialist. Both participants highlighted

the importance of business skills in managing a business. This suggests that without the right sets of business skills, it is difficult to remain sustainable and make a positive contribution to the local TCI and the country. Regarding economic contributions to the TCI, all the participants in this study indicated they are making an economic contribution to the TCI because they manufacture their garments locally.

Conclusion and recommendations

This study has revealed that fashion design entrepreneurs incorporate minimal sustainable practices in one to two stages of their supply chain operations. The minimal sustainable practices are not solely motivated by the desire to contribute to a sustainable TCI and reduce socio-environmental harm. Regarding sourcing, the study revealed that there is a need to educate fashion design entrepreneurs on sustainable fabrics and where to source them. Sustainable fabric manufacturers and stockists need to be visible in the marketplace, as this will further increase awareness and purchases of the fabrics. The data uncovered the knowledge and skills gap at the garment design stage. It is crucial to empower fashion design entrepreneurs with sustainable garment design knowledge and skills training in the advancement of a sustainable SATCI. Sustainable design methods may increase the quantity and variety of sustainable clothes in the South African retail environment and provide customers with more options. The participants in this study have shown that saving fabric offcuts for reuse and donation is a widespread practice while renting and redesigning garments is rare. Garment renting, repair and redesigning are sustainable manufacturing methods that can decrease clothing consumption and the production of new fabric and reduce landfills. The findings of this study reveal that there is a need to promote garment renting and repair among fashion design entrepreneurs and customers. Additionally, fashion design entrepreneurs can practise sustainable manufacturing by redesigning garments that do not sell or by donating them to charitable organisations. Incorporating minimal sustainable practices and processes in one or two stages of the supply chain operations is a starting point towards building a sustainable TCI. For fashion design entrepreneurs to increase their sustainable contribution to the industry, moderate to maximum sustainable practices and processes need to be implemented at every stage of supply chain operations.

This study had a limited criterion. First, we suggest that future research should include clear target market criteria (upper class, middle class and lower class). Second, future studies should have an equal number of participants who have been operating for the same number of years. Participant B stated that sustainability is a journey that takes years to implement. It can be deduced that as a business progresses, there are unique supply-chain operations that must be modified, adapted and preserved accordingly. Third, a longitudinal study will provide in-depth insight into methods that fashion design entrepreneurs can use to transform their businesses in a sustainable manner. In conclusion, this study is not representative of the entire South African TCI. This study offers valuable insight into the current practice of micro- to-small businesses of mainstream fashion design entrepreneurs' sourcing, designing and manufacturing operations.

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The pedagogy of discomfort: Transformational experiential learning

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The pedagogy of discomfort: Transformational experiential learning

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Abstract

Education is intended to be a transformative experience for the student. In the practice of transformative pedagogy, instructors provide students with the time and space to explore their own sets of beliefs, values and standards and how they incorporate those beliefs into their work, subconsciously and consciously. At times, transformative pedagogy can be uncomfortable. However, the value of discomfort in the pedagogical process of a design course is the ability to acknowledge a knowledge gap between one's social experiences and the experiences of other social identities. This paper focuses on the value of transformative pedagogy in working through discomfort when learning about limit situations, developing a foundation for transformative pedagogy in a course setting, the importance of critical thinking in transformative pedagogy and how transformative pedagogy is presented with a focus on ethics, disability and responsible design. By embedding ethics, critical consciousness and strategic thinking, the process translates into a transformative practice of design and innovation. Students learn new emerging ways of affecting change with a multiplicity of ideas when educators engage in transformative pedagogy. It is also to ascertain what kind of learning enables people to create solutions for communities involved in a continuously ongoing process of defining sustainable development.

Keywords: Design pedagogy, Empathy, Experience design, Transformational pedagogy, Transformational practice, Social impact

Introduction

It is human nature to resist and avoid pain, while we reluctantly accept that growth comes from discomfort (e.g. social, economical and political). Empathic understanding can develop through this growth and can lead to more impactful problem-solving, more relevant design outcomes, more intuitive forms of communication and the co-creation of knowledge that has transformative power. To develop thought leaders for our tomorrow, we need to reimagine how we teach them today. Education is intended to be transformative for students and provide them with the space to develop critical thinking and produce innovative work and research. Transformative pedagogy is a term that describes an educational experience or set of experiences that allow the student to gain a deeper understanding of social experiences and be transformed in their thinking to further understand the complexities of their social experiences. In the practice of transformative pedagogy, instructors provide students with the time and space to explore their own sets of beliefs, values and standards and how they incorporate those beliefs into their work, subconsciously and consciously.

When design educators create an intentional space, either physical or conceptual, for students to discuss social experiences, students are more equipped to objectively begin to analyse and create an understanding of their own lived social experiences. This ability allows them to identify a knowledge gap between their own lived social experiences and other individuals' experiences. While this process might be uncomfortable, it teaches them the epistemic practice of identifying their lived experiences and learning about another person's lived experience. In addition, it supplies them with the necessary tools, insights and awareness to create a transformative practice of developing innovative designs (Fricker, 2010).

The challenge is not only to identify transformative learning that assists people to respond and adapt to modern conundrums. It is also to ascertain what kind of learning enables people to create solutions for communities involved in a continuously ongoing process of defining sustainable development. The relevant question is not only what makes up transformative learning but also what stimulates individuals and communities to take part actively in collective growth processes leading to an as yet barely discernible sustainable future (Thoresen, 2017).

This paper focuses on the value of transformative pedagogy in working through discomfort when learning about limit situations (Freire, 1972), developing a foundation for transformative pedagogy in a course setting, the importance of critical thinking in transformative pedagogy and how transformative pedagogy is presented when the focus is on ethics, disability and responsible design. By embedding ethics, critical consciousness and strategic thinking, the process translates into a transformative practice of design and innovation. Students learn new ways of affecting change with a multiplicity of ideas when educators engage in transformative pedagogy.

Developing the roots for transformative pedagogy in design

The value of developing roots for transformative pedagogy in design is the development of space for students to focus on a specific social experience, also described as a limit situation. A limit situation is a social experience that prevents someone from living freely (Freire, 1972). An individual who gains a critical consciousness of their own lived experiences can understand how their social identities intersect with their culture and how those identities can determine their lived experiences (Freire, 1972; Pinto, 1960). Transformative pedagogy is intended to prevent the over-generalization of social experience through discussion and requires participants to develop a genuine and critical understanding of a social experience. One way of developing such an understanding is through the acknowledgement of social identities that are social constructs in our culture, i.e. race, gender and ability (Crenshaw, 1989) and the way these social constructs turn into prejudices and biases that become ingrained in our everyday lives (Ben-Ari & Strier, 2010; Nadan & Stark, 2017).

Designers can apply the iterative design research process to develop a design for a specific social experience and provide a transformative pedagogical experience. The steps include the following: 1) the development of the context of the social experience or limit experience being focused on, 2) the application of research—qualitative or quantitative, 3) the development of ideas based on learned factors, 4) the prototyping of those ideas and 5) the testing of those ideas. When implementing this process in a course where transformative pedagogy centres a social experience as the primary determinant of learning, students are prompted to engage in activities in which they must think through the perpetuation of limitations or oppression prevalent in design. Gale and Molla (2016) emphasize “[...] the importance of invoking pedagogic actions directed at creating an environment for learners to share cherished beliefs and assumptions without fear of ridicule or condemnation” (p. 253).

When engaging in pedagogical activities, students can critically assess their values, beliefs and assumptions in a way that does not simply lead them to the ‘correct’ answer. Instead, this form of learning highlights the diversity of design deliverables and innovation resulting from learning about social experiences different from our own and interacting with material that provides a safe learning environment. In addition, deeper understanding and empathy of others tends to reveal that many questions do not necessarily have ‘right’ or ‘wrong’ answers. Theorists focused on transformative pedagogy see immense value in developing activities that provide students with the opportunity to understand another individual’s lived experience.

The experiences should not exist in isolation, but the process should involve prompts or interventions that generate critical thought in the student that requires an assessment of who they are, their values and their beliefs (Nolan & Molla, 2018).

Through the focus of transformative pedagogy, we provide emerging designers (design students) with the time and space to be innovative when designing for complex social issues. Learning about the person we are designing for is not a unique or new concept in design but is a foundation for many designers. As Koppen and Meinel (2012) wrote, “Understanding the perspective and social context of the user is one of the most important parts of design and design education” (p. 35). Transformative pedagogy can encourage a designer to consider human experiences we might not otherwise think of or even have the words to discuss. Our collective forms of understanding are rendered structurally prejudicial in respect of content and/or style: the social experiences of members of hermeneutically marginalized groups are left inadequately conceptualized and so ill-understood, perhaps even by the subjects themselves; and/or attempts at communication made by such groups, where they do have an adequate grip on the content of what they aim to convey, are not heard as rational owing to their expressive style being inadequately understood (Fricker, 2010, p. 6). By removing the ‘distance’ between ourselves and the experiences of others, we begin to understand knowledge from a more intimate and personal perspective. For the student, this educational experience tends to be memorable in comparison to more abstract constructs. For design students, the notion of designing for your future self (e.g. ageing and disability) or your wider community (e.g. gender and ethnicity) is critical to meaningful and impactful design solutions.

When we try to understand and contextualize a social experience outside of our own experience, we require tools that provide us with the means to be critically conscious of what is outside our known ways of understanding. McDonagh-Philp and Denton (2000, p. 111) used the term “empathic horizon” to describe “the boundaries to a designer’s knowledge and understanding” (McDonagh & Thomas, 2010, p. 180). They added that understanding is itself progress toward the development of relevant outcomes. This way of understanding could occur through words that offer a person agency by supplying a term that matches a social experience or tools that physically and mentally contextualize a limit situation. While these terms or tools might lead to some discomfort for students, educators must create meaningful space for ethics and criticality to be discussed within a course—space allowing exploration or a period of discovery. Transformative pedagogy takes a critical approach to pedagogy from the perspective of both the educator and the student, and it requires both to leave their comfort zone and engage in “critical investigation of the self” (Zembylas & McGlynn, 2012, p. 1). The feelings of discomfort in these situations are important to acknowledge and are what ultimately allow a student to identify their knowledge gap and then encourage them to determine their individualized positions of accountability regarding different forms of ‘-isms’, i.e. racism, ableism and sexism (Nadan & Stark, 2017).

Discomfort in the pedagogical process

At times, transformative pedagogy can be uncomfortable; however, when one or more social experiences are the primary learning objective in a classroom, educators can centre the activities to prompt critical reflection and self-actualization. This provides students with the opportunity to learn how their social identities differ from those around them. This type of pedagogical experience in a design course allows students to approach a design challenge from a more empathic and contextualized space of understanding.

“This critical analysis provides a space to create a context of understanding, a different way of knowing, to become change agents. This is evident in classes where students are presented with transformative pedagogy and transformative practices that prompt

critical thought and interventions for disrupting the status quo [...] to transform students' experiences of discomfort into generative learning tools, a process which requires time, energy and emotional investment.” (do Mar Pereira, 2012, p. 133)

Yale professor and social activist, bell hooks, shared a student's experience walking into her classroom: “We take your class. We learn to look at the world from a critical standpoint, one that considers race, sex, and class. And we can't enjoy life anymore” (hooks, 1998, p. 42). After she heard this, her students continued to talk with her about the pain or discomfort a person can have when learning their way of knowing. Other instructors have written of a similar experience of an “uncomfortable classroom” (do Mar Pereira, 2012), which describes didactic discomfort, i.e. intellectual and/or emotional discomfort felt by students, which is triggered directly or indirectly by the material covered and/or methods deployed in a course and is perceived by teachers (and often also by the students themselves) as an experience that can enable or generate learning.

This discomfort is an acknowledgement by an individual who is starting to develop a critical lens for the social experiences of people who have different social identities. It is the act of knowing that there is a limit to one's knowledge when it comes to other people's social experiences. The acknowledgement of not knowing is a form of epistemic injustice and can be unforgettable for people who have come to this realization. As educators, we need to help students question how they tell their own stories, how they engage with a community with those around them and whether they are willing to acknowledge what they do not know. Nadan and Stark (2017) added, “The development of critical reflectivity among students is also related to their exploration of their own identities and (largely privileged) social positions and how these shape their assumptions, attitudes and images about the ‘other’” (p. 686).

The impact of criticality on transformative pedagogy

A person's ability to critically understand their own social identities allows them to reflect on their own social experiences more critically. Transformative pedagogy teaches students critical thinking and critical consciousness and provides them with a lens for seeing the diversity of opportunities and ways of doing rather than focusing on a social monoculture. Nadan and Stark (2017) emphasize the importance of this process by highlighting Schön's (1983) conceptualization of a 'reflective practitioner' as one who creates new meanings through observing and analysing case experiences, either during the experience (reflection in action) or in retrospect (reflection on action)” (Schön, as cited in Nadan and Stark, 2017, p. 686). Through the conceptualization of an experience, emerging designers can develop a process in which they begin to develop an understanding of a specific social experience through listening, critical thinking, analysing and intentionally breaking down barriers in their assumptions.

“Having the ability to reflect critically on one's practice brings to light contradictions and inconsistencies relating to beliefs, understandings, and practices, and enables teachers to be adaptive professionals.” (Nolan & Molla, 2018, p. 722)

Transformative pedagogy allows students to develop a critical consciousness and an individualized design practice with a foundation of ethics that become embedded into their work. This style of teaching and learning ultimately translates into a transformative practice in which innovation can flourish. Siegel and Dray (2019) wrote, “When companies allow a deep emotional understanding of people's needs to inspire them—and transform their work, their teams, and even their organization at large—they unlock the creative capacity for innovation.” In the following sections, we present two courses focused on how students learn new ways of affecting change about ethics and a responsible process for developing design

solutions and how their designs can affect change for people who have experiences outside of their own. The first course highlights ethics and responsible design, utilizing the framework of Racism Untaught (Racism Untaught, n.d.). The second course highlights disability and the role design can play in enhancing quality of life through more relevant products, environments and experiences, by employing empathic design research methodology.

Ethics and responsibility + design

The Racism Untaught course is a 16-week course focused on critically analysing artefacts, systems and experiences that perpetuate racism and the oppression of historically underinvested communities (Racism Untaught, n.d.). Since the development of the framework in 2018, this course has been taught four times at the University of Illinois. The students are guided through the design research process and prompted with design-led interventions that provide them with a way to analyse and reimagine racialized design challenges and critically assess anti-racist design approaches (Mercer & Moses, 2019). Students learn how “ever-escalating pressures toward simplification and speed have generated innovation in the types of deliverables that researchers produce in their effort to condense information and make it digestible to others” (Siegel & Dray, 2019, p. 82). This course aims to guide students through identifying forms of racialized design, a design that perpetuates elements of racism. The learning outcomes in this course include critically analysing artefacts, systems and experiences that perpetuate racism and the oppression of historically underinvested communities, prompting students to select qualitative and/or quantitative methods to assess individual and shared experiences of racism. The instructor works with the students to examine systemic forms of institutional racism that are essentially invisible and how we and our culture perpetuate them. This course uses the iterative design research process to cultivate learning environments for students to further explore issues of race and racism. Students utilize design research methods and processes to solve systemic problems and inspire further work in the public sector or a passion for public service.

Before the students start using the Racism Untaught toolkit, they go through an onboarding process in the first two weeks in which they unpack the concept of racism and the role racism plays in their lives. They begin the process by navigating their own story, background, cultural identity and upbringing to help shed light on their cultural biases and how they came to acquire them. The students then participate in the following activities: writing a poem critically assessing where cultural bias is present in their upbringing; creating a social identity profile in which they share five social groups they belong to and the roles they hold in each group; carrying out personality assessments; and developing a community agreement for the semester to use during more difficult conversations.

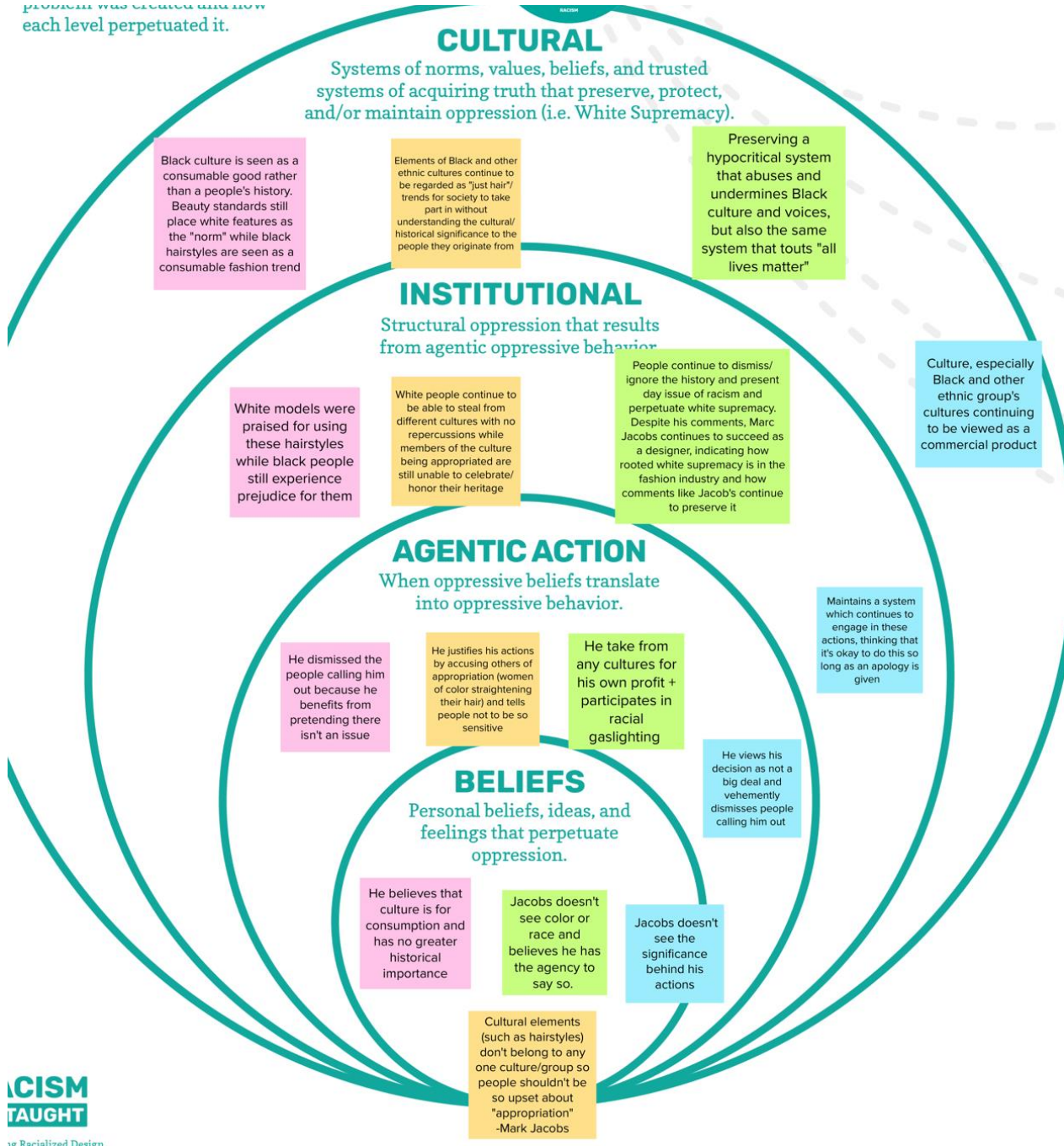
At the beginning of the course, it is verbally acknowledged that everyone is learning new concepts and language, and students are asked to be open to change and flexible when new knowledge is gained. Marta Elena Esquilin from Bryant University and Mike Funk from New York University wrote on the importance of community building and the value of engagement agreements. They provided over 20 guidelines for a meeting or classroom environment (Esquilin & Funk, 2019) to create an intentional space for conversations focused on diversity, equity and inclusion. Through a course, they work together on the development of a community agreement that includes prompts such as the following: 1) listen actively, 2) speak from your own lived experience using “I” statements, 3) seek to repair harm when you mess up and 4) step in, step back; that is, if one person is often speaking within a space, they should step back to allow others who are quieter to speak up.

Students are divided into groups based on what the instructor has learned from the onboarding activities in weeks two and three. The students are prompted with a racialized design and begin using the Racism Untaught framework, starting with the first step, context. This step has over 60 cards, which include definitions and terms that focus on elements of racism, sexism and ableism. Students use the terms in this deck to create the context for the racialized design they have been prompted with (Figure 1). The conversations often teach students unfamiliar words and prompt discussion on how forms of oppression are perpetuated and supported in the world around us. The terms also provide a specific understanding of the prompt, which prevents oversimplification and overgeneralization in conversations on race and racism. Participants often speak of the ownership of agency they earn when learning a new element of racism that applies to a racialized design they have interacted with themselves or have witnessed the interaction (Siegel & Dray, 2019). The students are asked to identify why each element of oppression (racism, sexism or ableism) are relevant to the identifier and which elements are not. This first step allows participants to understand how to break down one instance of racism into the various ways it is present. To exemplify different elements of racism in design, the course focuses on three identifiers: artefacts, systems and experiences. These three areas include comprehensive examples of racialized design, which designers can positively affect in our society.



Figure 1: The first phase in step one of the Racism Untaught framework.

problem was created and how each level perpetuated it.



ACISM TAUGHT
18 Racialized Design

Figure 2: The second phase in step one of the Racism Untaught framework.

The first step also includes a diagram outlining what are called the levels of oppression. This allows further contextualization of the instance of oppression on four distinct levels: 1) beliefs—personal beliefs, ideas and feelings that perpetuate oppression, 2) agentic action—when oppressive beliefs translate into oppressive behaviour, 3) institutional—structural oppression that results from agentic oppressive behaviour and 4) cultural—norms, values, beliefs and trusted systems of acquiring truth that preserve, protect and maintain oppression (Figure 2).

“A vague, general sense of knowing the user is not empathy. As Gregory Bateson said, information is a difference that makes a difference. Because designers are trying to

make a difference in users' experiences, we need to be able to explain nuances of difference across those experiences.” (Siegel & Dray, 2019, p. 83)

The next five weeks are focused on the second step, define. This step has about 50 cards, including qualitative and quantitative methods and theories to define how the participant might approach the design challenge. In this step, students must create a thesis question to help focus on their design challenge. The instructor provides students with this guiding question: “How might design be used to [action] in order to [create change] with [stakeholders]?” Students garner factors from their research to move forward to the next step, ideation.

The next step is called ideate and is completed in one week. This step includes over 100 cards. During this step, students begin to determine what they will create—an artefact(s), a system(s) and an experience(s)—and which will help dismantle the form of racialized design. Students determine how they can affect change and how they can be part of the solution. This step includes a quadrant map to help evaluate the value of each idea. On the x-axis, students consider the intent of the idea in comparison to the impact, and on the y-axis, students consider how far the idea might shift stakeholders from systemically oppressive thought(s) to anti-oppressive action(s). Students plot their most robust ideas and discuss whether their idea only has good intentions or if it will have an impact and focus on anti-oppressive actions against oppressive thought. This quadrant map is often revisited in the prototype stage to help students ensure they continue to work toward impact and an anti-oppressive final deliverable.

The fourth step, prototype, is worked on for five weeks. This step has approximately 30 cards and walks students through a low-, mid- and high-fidelity prototyping process. The low-fidelity prototype is non-functioning and is initially presented to communicate an idea. A mid-fidelity prototype is limited in functionality, and a high-fidelity prototype requires minimal modifications for the final deliverable. In this step, students work iteratively through the framework to further contextualize or apply research methods to help them understand how the idea they are creating impacts communities. The last step is called impact and is focused on for one week. This step has approximately 20 cards. This step helps students understand their impact on their work because of the iterative framework and design interventions. This process is iterative and the time frames are meant to support the students moving to different steps to ensure they are conducting research and learning from the people who would engage with their designs.

Disability + design

“If a designer chooses a scientific approach, the whole design process will have strong similarities to a research process. This will limit or eliminate not only what is considered to be the preconditions of the design, but also what is possible, what is needed, what is desired, and what the eventual outcome will be. It will no longer be a design process.” (Nelson & Stolterman, 2012, p. 33)

Traditional scientific research tends not to impact the researcher on such a personal level. Research outcomes are specifically based on unbiased researchers. When focusing your efforts on creating a bridge between lived experience and theory, researchers need to be more empathic and lean into the experiences of others. Seeking *whole* knowledge is a balance of what is *true* (scientifically provable) and what is *real* (a person's experience) and directs the designer to develop a deeper felt sense for and understanding of others (McDonagh, 2015, p. 422).

The Disability + Design course (established 2008) is based on empathic design research and aims to bring together design students, non-design students and students (from any discipline) with disabilities. It brings

the students together as equals by elevating the value of the diverse range of lived experiences beyond the typical person. The students are encouraged to embrace the development of the new norm, those living with a different lived experience. By expanding the students' empathic horizons through experiencing discomfort, vulnerability and frustration with activities of daily living (e.g. eating, walking and grooming) (Woodcock et al., 2017), they develop a deeper understanding of other people through their own experience. This bridges the gap between themselves and others. Challenges become more relatable (Hansen & Philo, 2007). Another person's experience becomes relevant to them. Two student activities are shared that highlight 1) the levelling of the classroom and 2) the physical and almost immediate impact of analogue empathic tools in simulating physical challenges.

Levelling of the classroom

For many courses, the student cohort's profile and ability level tend to be similar. For this course, a diverse range of abilities and design awareness constitute the student group. Therefore, a need arises beyond the typical ice-breaking activities. One of the initial activities that resonates with students regardless of their abilities is the self-portrait. Students are required to draw themselves (maximum 5 minutes per task) using (i) their feet, (ii) their less dominant hand and finally (iii) their dominant hand. For those students with limited physical mobility, they can also hold the mark maker (e.g. pen, pencil) in alternative ways (e.g. in their mouth). After overcoming the initial shock of the task, which takes away all the perceived drawing ability of the design students and leaves all the students reimagining how they utilize their bodies for this task, students begin to 'let go' of realistic two-dimensional outcomes. The outcomes are truly remarkable. Non-design students who were told that they did not have drawing skills can draw. Design students who have progressed their academic careers based on their drawing skills have to reassess their notion of the portrait, particularly with the non-perfect portraits they have created. Overall, the activity brings the cohort together more as equals struggling individually with this task. Ultimately, students tend to delight in their unexpected 'foot' and 'less dominant hand' portraits, which often capture the essence of the person more organically than their more typical 'dominant hand' portrait (Figure 3).



Figure 3: Range of foot portraits (from design and non-design students).

Empathic tools

We acknowledge that the only way to experience it is to experience it. However, empathic tools and approaches offer the able-bodied, young and healthy student the opportunity to physically experience challenges with activities of daily living. These tools range from low technology (e.g. tape up an elbow or knee joint with tape to restrict mobility) that is low cost and utilizes commonly found materials within the home and/or classroom to high technology (e.g. Oculus End-of-Life experience software). Low-technology

tools can be made by individual students at home and do not require significant cost beyond materials and time to construct them. Higher technology, such as the Gerontology (GERT) suit, provides a holistic system that can be applied to an individual so that they are experiencing several physical augmentations simultaneously but represents a greater expense (US\$4500). The body can accommodate and efficiently adjust to one augmentation (e.g. reduced hearing or reduced vision), but when multiple ones are combined a more immersive experience is achieved (Figure 4). Experiencing the familiar material landscape through the perspective of limited vision, hearing, mobility and strength can result in an almost instant emotional response within the student.

Activities such as the foot portrait and tools such as the GERT suit challenge the student’s mindset as they relate to others. Reducing this psychological gap between themselves and the ‘other’ (e.g. elders or people with disabilities) supports more empathic design outcomes. Through personal challenges (discomfort), understanding and humility develop within and beyond the classroom. Introducing this way of knowing the range of experiences develops a more empathic mindset. Designing for others becomes more aligned with designing for our future selves. It becomes personal and more relevant.



Figure 4: Empathic tools (GERT gerontology suit) simulating range of physical impairments. COPD: chronic obstructive pulmonary disease.

The value of such experiential learning activities is in the opportunities for learners to go beyond assumptions (felt sense) to more tangible ways of understanding (felt experience). Care needs to be taken, as many students have not experienced physical vulnerability (diminished vision, hearing or mobility), and conducting these activities within a safe environment (e.g. a classroom) and avoiding potentially harmful (activities of daily living) activities (e.g. making hot beverages) needs to be thought out. These activities are time-consuming and require planning and resources. However, overall, the benefits are significant to the individual, especially if they reflect upon their experience. When communicating through speaking out loud to others, they will generate and acknowledge the meaning they create and why it is of value to them personally and ultimately professionally as designers going forward.

Conclusion

The development of activities for students that prompt critical thought and potential discomfort capture a person's understanding of a limit situation. Other ways of doing this are through a visual map, such as an empathy map or journey map, that students use to gauge what they have learned through the learning process. It enables them to reflect on the points of discomfort and acknowledge what they have learned. These activities allow students to reflect on the work they conducted over the semester, reflection being "the process of critically assessing the content, process or premise(s) of our efforts to interpret and give meaning to an experience" (Mezirow, 1991, p. 104). Reflection is vital because, as Siegel and Dray observe, "The pressure to develop design sprints for students to work through does not allow them to develop thoughtful final deliverables where they can conduct secondary and primary research to developing innovative solutions" (p. 82). Learning is a social interaction that takes place through a combination of different processes in the body (genetic, physical and biological) and mind (knowledge, skills, attitudes, values, emotions, beliefs and senses). An experience is therefore interpreted cognitively, emotively, or practices and integrated into a person's biography, resulting in greater self-awareness (Jarvis, 2009).

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