

## Conference paper

# A Critical Autoethnography of Researching on Environmental Problems from Face Mask Disposal Problems on Malaysia

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## Abstract.

Sharer (referring to storyteller: Siyi Guan) has utilized autoethnography as a methodology to redact and share her own startup experience on the basis of personal business project. The first section comprises the narration of sharer's personal startup experience, which is followed by the problem statement confronted during the project process, with the introduction of the research design of its methodology at the same time. There have been 5 interviewees participating in this research. Nvivo is utilized to extract the interview data along with its high-frequency words in written form after interviews. Ultimately, the overall project orientation process and future suggestions are elaborated.

**Keywords:** Autoethnography; Startup experience; Environment; Face Masks

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## 1. INTRODUCTION

Siyi Guan is an international student who comes from China and study in Malaysia now. She used to study in an international high school in China and co-founded with a Canadian school, accepting education from both western and eastern sides. This multicultural osmosis gradually shapes her into a person with more adventurous, explorable, challenging, dynamic, attempting, bold and critical personalities. She loves to learn by carrying out practical actions risking myself, socializing and cooperating with others.

As a medical student, Siyi Guan understands how causative factors are derived and evolved from the environment and induce diseases. That knowledge makes her consider: on one hand, masks successfully protect a large group of people from suffering

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the disease; but on the other hand, does it become another problematic maker that positions a new obstacle (Briggs,2003)? The identity of being a medical student has not fettered her mindset and attitude, meanwhile, she never keeps herself only focused on this specific area, but always try to get involved in other academics and professions to get new inspirations and muses.

## 2. PROBLEM STATEMENT

SARS-CoV-2 pandemic officially broke out at the end of 2019. With its incredibly vigorous virulence and overwhelming contagious characteristics, it rapidly disseminated to the whole world. All countries have pulled the alarm to issue new policies and carry out various procedures trying to control this ferocious disease, followed by a list of safety protocols being constituted compulsorily to reduce the transmission. The use of personal protective equipment such as the face mask, has become a strict requirement for all residents to comply with in all countries including Malaysia at the very first beginning. Masks can effectively reduce the chances of infection because the respiratory tract is under protection by reducing the access or amount of viral particles entering into it. Exposed to other transmitting routes still cause potential risks, but generally speaking, this thin and light plastic-made shield does a great job during pandemic period. As a result, it has created a dramatic increase on both demand and consumption of disposable face masks.

The main material used to manufacture disposable masks is a commonly used type 5 plastic, called polypropylene(Selvaranjan & et al, 2021). The practice of mask using has absolutely contributed to environmental issues as plastics is one of the most widespread problems. Improper disposal, landfill and incineration as the standard methods used to manage them as waste, and even the necessary procedures during production by using coals and fuels to generate energy has deposited a huge increased portion of carbon footprint, an elevation on environmental toxins release as well as microplastic pollution (Atgan, 2022). Those masks won't be classified or sorted out from other domestic wastes, but mingled up with all varieties either buried under the land or burnt down to ashes. This is a widely-existing problem, the researcher explains it and its accorded potential future planning in this article.

### 3. AUTOETHNOGRAPHY THEORY

Autoethnography is an academic and theoretical methodology which is on the basis of people's personal experiences as a highlight to connect with diverse contexts that are ethnic, humane, and social based, as a reflection of introspective interpretation and experiential commentation (Ellis & et al, 2011A). The final outcome performs as an instructional, critical, constructive, and hypothetical guidance to influence their next behaviors and decision makings by catalyzing their thinking model. The sharing of pure stories is different from autoethnography with its critical overtones, which can help others to either avoid or apply this experience by sharing the individual's experience with others through an academic model, with critical autoethnography in which the theory is not static, it is ongoing (Holman, 2016).

As Gannon (2006) mentions, autoethnography is seemingly a vocal, experiential representation that can never be on the same starting line as an actual action, and post-structural theory undermines this by placing emphasis on the (own) unlikely position of the protagonist of the story as it happens, with autoethnography constantly attempting to escape the social scientific turn dilemma towards a partial, pluralistic, imperfect, contingent understandings, rather than merely engaging in analyses of distance and separation. Ethnographers often approach the world of others differently by making themselves as insiders, to see with their own eyes what is not real and not entirely absolute, but rather as altered recipients through some phenomenon or means of perception and belief (Adams & Holman, 2011). Self-ethnography can be an intervention through personal experience to teach future generations how to avoid the recurrence of problems and how to avoid creating problems when they encounter the same events (McIlveen, 2008).

Autoethnography is the initiation of contributions to society and academia through the stories and experiences of the self by academic means, sharing one's experience to future generations, as a post-modern study in academia, which can use diverse cases to share successful or failed lives or failures with others, giving or warning future generations how they should avoid or reinforce behavioural goals in this area.

### 4. METHODOLOGY

Siyi Guan has entered into a journey in understanding the environmental issues related to face masks in Malaysia by setting up a business model with a new design to manage waste. In this article, she shares key moments in my activities for the past few months.

She has embarked on an autoethnography study is a qualitative approach to research and writing that describes and systematically analyzes (graphy) the personal experience (auto) in order to understand cultural aspects of the experience in Malaysia (ethno) (Ellis & et al, 2011B). In this article, she utilizes the tenets of critical autoethnography to reflect upon the key milestones in her interest in environmentalism, and extract themes of people, places, and processes that mark her development as a researcher. The research questions that guide this analysis are:

1)What experiences, influences, decisions, opportunities, and conditions led to her interest in face mask disposal problems in Malaysia?

2)What barriers and challenges based on oppression have I encountered in her journey and how did I deal with them?

3)What were the processes and the roles of people who provided support and guidance in pursuing this journey towards becoming a concerned environmentalist?

#### 4.1. Interest

The seriousness in environmental pollution brought by improper littering and the subsequent biochemical hazards released from the standard waste management procedures locally, to her knowledge, there is no serious player or any emergent pioneer in this field discovering new methods to improve such situation in Malaysia till now. A sound solution is indeed requisite. Through a direct call to the Department of Environment, she gets to know that all the daily used mask wastes collected from the general public are handled along with other domestic wastes and managed only through landfill or incineration, as they are considered as “general wastes”. While those high-contagious masks from the medical associations are under special treatment only sent to waste management companies with the license of SW 404 as they are considered as “medical wastes”(see reference 14). She was quite wondering if there were any alternative treatments in other countries, surprisingly found out that researchers have figured out using shredded face masks as one of the compartments to construct pavement (Saberian & et al, 2021) and even bricks(see reference 15). Not only found in a database online, but also it was eventually carried out in America, that she even got to contact one of them through an online virtual meeting (Wang & et al, 2022). Their pioneer actions have motivated me.

## 4.2. Barriers

As a medical student who never get involved in the business field, it took around 2 months for her and her teammates to establish a standard business proposal under the guidance from the tutor.

## 4.3. Support and guidance

Her tutor, an entrepreneur, became the most significant rhythm throughout her whole journey, by constantly encouraging her, giving her valuable and instructional lessons towards building up a business model and strategies for approaching others calling for collaboration in order to initiate the project as a start-up.

## 4.4. Plannings

In Siyi Guan's initiative, the main idea is to convert face masks into engineering products with value-added and enhanced physical characteristics with the participation of PP material, by setting up a social enterprise, following the technique developed by researchers in other countries. The procedures are as following: 1) collection starts from placing bins made from carton with a label of "only for disposable masks" in accommodation areas (because people mostly discard their used masks after they have finished the whole day of work when they return home). 2) used masks are sent to collaborators (waste management companies) for undergoing quarantine and sterilization first to make sure their safety. 3) The disinfected masks are sent to collaborators in charge of converting plastics into products. 4) Once the products are made, they will be handled by cooperative transportation centers for further plans in order to put them into use. Ideally, the funds received from cooperative partners will be spent on manufacturing collection bins and all other logistic cost. All their company names will be printed on the sides of the bins in order to show to the public proving us taking real steps to improve this environment regarding to this masks issue and calling for participation. Even after the pandemic, this project would not come to its end. There will be more projects with more techniques integrating and dealing with other plastic waste issues.

Siyi Guan took the initiative to communicate with a total of 102 corporations, comprising of 3 institutions, 31 non-government organizations, and 68 private companies in Malaysia, to gain their attention to participate in a face mask related green campaign.

Her targets were environment related organizations, transportation centers, pavements construction companies, bricks construction companies, and waste management companies. For the first round, she has received 86 rejections. There were 16 organizations showing interest to know more. In order to carry out efficient and effective conversations, she chose to arrange online and face-to-face meetings with them. As she went deeper into the topic by directly asking for funding and collaboration opportunities in the second round, she received 12 rejections and only 4 agreed to keep in touch. Generally speaking, the feedback is disappointing. Most of them think the idea is not realistic and requires a huge budget that they are unable to support. A manager from a waste management company told her that they have developed methods to use recycling plastic to produce bricks, however, it was not carried out in reality due to force majeure factors, mostly related to safety factors. The majority have expressed their concerns towards the health-related issues, worrying the possibility of mistreatment happening in any of those procedures can lead to the spread of virus. Several organizations replied that they were unable to help with supporting funds or any form of cooperating relations but they were glad to help with publicity. No company could help with transportation.

#### 4.5. Interview question design

The researcher divided the questions into different topics for hierarchical interviewing of respondents, but due to the different work environments and personal experiences of the respondents (Moore & Moyer, 2002), the researcher will differentiate between the different social experiences in the in-depth interviews for the purpose of data extraction for the final interview. As data extraction for the interview interviews is diverse, the researcher will collate and extract the data at the end of the interview and finally send the data from the interview back to the interviewee (Forbat & Henderson, 2005).

##### **Information of the participants being investigated:**

As Hiller & DiLuzio (2004) mentioned, during the interview for interviews are a very important process of qualitative research where the researcher can obtain relevant information data from different horizons(see, Table1.1), but due to the development of diversity in the category of research, the exact content and extent of the interview depends entirely on the researcher's research purpose. Each person has a different opinion on each issue and due to the time constraints of this study, the researcher needs to screen the interviewees to achieve the extraction of interview data for the purpose of the study (Fletcher, 1992).

##### **Nvivo**

TABLE 1: description of question factors.

Factor	Questions
Usage	What's your frequency of mask using?
Opinion	Which factor do you consider as the cause/reason leading to the failure of this project?
	What are the potential benefits to society if such project is implemented in Malaysia?
	What are the risk factors, or negative influences might be brought out due to the implementation of such a project?
	How strong do you think the impact of this issue is?
	Do you think this problem can be ignored temporarily?
	Do you think this project is indeed beneficial to the society / environment as it connect some newly discovered technologies/strategy towards the waste management? Or do you think it is a superfluity?
	Before introducing this topic to you, in your own perspective, do you think these disposable masks are causing a problem?
	Do you think it can be ignored temporarily?
	What specific areas are the risk factors expressed to?
	Arrange the following options from the most effected one to the least: Water resources / wild animals / microplastic pollution / soil
Comment	According to the environmental issue brought by the masks, do you have any constructive suggestions?

TABLE 2: information of interviewees.

Name	Age	Occupation	Location	Educational level
S1	28	Entrepreneur	Bangladesh-Malaysia	BEE+MBA
C1	38	Doctor	Malaysia	MBBS
Y1	30	Doctor	Malaysia	MBBS
J1	36	Lecturer	Malaysia	PhD
ISG	25	Student	Japan-Malaysia	MBA

Nvivo data analysis is usually used in qualitative research. Since the data collected from the face-to-face interviews as one significant components in the article is relatively disordered, Nvivo is applied here for data extraction(Hilal & Alabri, 2013).

## 5. RESULTS AND DISCUSSIONS

### 5.1. Related data extraction frequency

Depending on the organizing and extraction of the data collected from the interviewees(see, Appendix 1), there are five high-frequent words interpreted here. Due to the insufficient “awareness” among the general public, as some people do not realize this is a problem or do not know that masks can cause environmental hazards to environment based on their knowledge. The “collection” process and other logistics require a huge “cost” monetarily which lowers the potential financial returns, and at the same time the technique in the project appears to be too “new”, both factors leading to low acceptance generally. Lastly, due to the lack of professions and machinery supports from the field of “industry”, this has further created a technical obstacle because ideally the establishment of this project plan highly relies on the technologies developed in this area.

Word	Length	Count	Weighted Percentage
masks	5	7	1.80%
might	5	7	1.80%
awareness	9	6	1.54%
idea	4	6	1.54%
problem	7	6	1.54%
environmental	13	5	1.29%
bricks	6	4	1.03%
people	6	4	1.03%
plastic	7	4	1.03%
public	6	4	1.03%
thinks	6	4	1.03%
better	6	3	0.77%
cost	4	3	0.77%
economy	7	3	0.77%
even	4	3	0.77%
ignored	7	3	0.77%
industry	8	3	0.77%
lack	4	3	0.77%
make	4	3	0.77%
malaysia	8	3	0.77%
mask	4	3	0.77%
new	3	3	0.77%
towards	7	3	0.77%
wear	4	3	0.77%
beneficial	10	2	0.51%
case	4	2	0.51%
cause	5	2	0.51%
collect	7	2	0.51%

Figure 1: Nvivo word frequency.

#### Interpretation of responses from interviewees

Based on their diverse identities and backgrounds, all the interviewees have expressed their concerns reflected from the project in their own perspectives. There are 4/5 interviewees (S1/C1/Y1/J1) who consider that the project itself is lack of multiple elements related to monetary, professional, methodological, constructional, and machinery supports. There are also 4/5 (C1/Y1/J1/ISG) interviewees considering the general environment as a huge factor resulting the final outcome, with insufficient force from policies, institutions, and regulations calling for more improvements in treating methods on wastes management aspects, as well as enhanced cooperation among





Figure 2: Nvivo word cloud.

multiple departments. C1 has mentioned the irreplaceable participation of collaborative partners or colleagues sharing the same goal in completing a task.

Apart from that, the international student group (ISG) holds a unique point of view, highlighting on the significance of awareness which has the capacity of influencing on individual's attitudes, mindsets and behaviours, as the key compartment in confronting environmental issues (see, Table1.2 ).

## 5.2. Project orientation process

In this section, the main purpose is to explain each part of this project (see, Figure 2.0)

1. **Realization.** Observation gives rise to the idea produced in the pandemic, which is linked up with the researcher's personal medical background.
2. **Exploration.** Through knowledge extension, the negative impacts brought by disposable masks are identified and innovative ideas initiated by researchers in other countries are also discovered.
3. **Problem Recognition.** Acknowledge the issue and collection of its accorded information.
4. **Planning and Design.** Create a business model by filling up all the necessary elements.

TABLE 3: Interpretation of responses from interviewees.

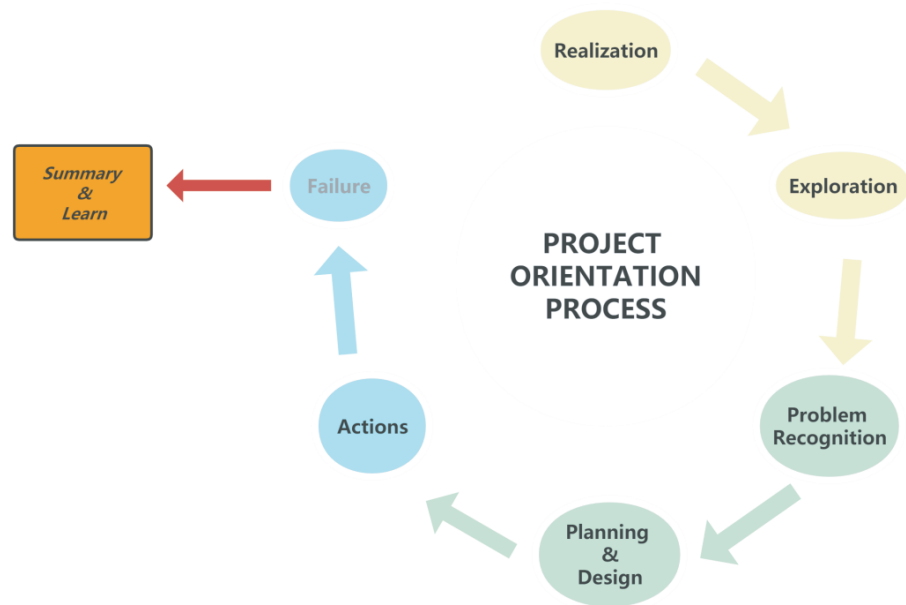
interviewee	S1	C1	Y1	J1	ISG
Summary from each interviewee's answers	1) )Difficulty in generating profits )The price is less competitive as the recycling materials will be high than virgin materials 3) )The collection process requires large amount of cash injection and time-consuming	1) )Lack of funding and machinery supports 2) )Lack of realization pathways 3) )Malaysia is lack of well-established garbage sorting system that deposits difficulty in collection	1) )Insufficient support from policies to arouse enough aware-ness/monetary support Require more technical methods.	1) )Lack of partici-pation of people who are special-ized in industry and their cooperation	1) )The treat-ment methods on garbage are different based in different countries

5. ☒ **Actions.** Reach out to potential collaborators to seek for any possible synergies or cooperative relations.
6. ☒ **Failure.** Fail to implement the project.
7. ☒ **Summary and Learn.** Understand the reasons causing the failure and study from it.

## 6. CONCLUSION AND RECOMMENDATION

### 6.1. Conclusions

As the key components in an “autoethnography”, the summary is the reflection of personal experiential outcomes coming from both interviewees’ and the author’s experiences, which is presenting as a guidance on the future plannings(Dutari, 2011). Insufficient supports from various aspects such as professional knowledge especially from industry area, methodologies, collaborating relationships with other departments and most importantly, monetary fundings are the key factors causing the final failure of the project, along with another essential element which is awareness, able to directly impact on individual’s attitude, behaviour and mindset on dealing with the opinions of environmental related issues.



**Figure 3:** Project orientation process.

As discussed, ideally the implementation of this project into society can be beneficial to both environment and society. To the environment, firstly, it can reduce carbon footprint to elevate the air quality by reducing incineration and reduce the negative impact to soil quality by reducing landfill (Atıgan, 2022). Secondly, it can reduce the threats to wild animals both below water or on land. Thirdly, it can beautify the environment from an aesthetic aspect. On the other hand to economy, firstly it can promote economy by creating more occupation opportunities. Secondly, it can contribute to the plastic industry and its sustainability by reducing the amount of non-recyclable wastes and elevating the reusing ratio of the recyclable materials in order to reduce the exploiting ratio of virgin materials (see reference 7). Lastly, it can encourage the product-diversification existing in the market.

## 6.2. Recommendation for future research

Due to the lack of monetary support, some necessary details in the business plan are unable to be implemented. Failure in finding people who are willing to work together aiming the same goal, as one's energy and time is limited, that the best way to accomplish one task is to evenly distribute the different works to different individuals who have dissimilar capabilities. The lack of promoting ability. One needs to be aware of the influential capacity of the whole environment, which can greatly affect their choices even according to the same condition.

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## 7. Appendix

Appendix I Interview question data:

<https://1drv.ms/b/s!Atecl-nwYOoFgkgmGo2L-LLgSYqV?e=Oqqu2E>