Tech Reborn: Unveiling the Fascination of Young Consumers with Refurbished Electronic Devices in New Zealand and the Influential Factors

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Abstract

This study aims to investigate the purchase intentions of young consumers regarding refurbished electronic devices (REDs) like laptops, tablets, and mobile phones. Three factors *social awareness*, *attitude*, and *social acceptance* were identified through a literature review as influential in shaping purchase intentions. Subsequently, these factors were employed as independent variables in a questionnaire study. Following an analysis of the correlation of these factors with purchase intention, implications for engaging young consumers were derived that could support the marketing of REDs.

Keywords

E-waste, refurbished electronic devices, young consumer, purchase intention, marketing.

Refurbished electronic devices (REDs), such as laptop, tablet, mobile phone and game console, have a fundamental significance in advancing the principles of the circular economy, which prioritizes sustainability and the responsible utilization of resources. A study of consumers' perceptions of REDs conducted by Ho and Haaker (2023) reviewed that today's consumers are more willing to purchase REDs simply "because consumers are becoming increasingly concerned about the impact of e-waste on the environment" (p.4). They further elaborated that by opting for REDs, consumers can contribute towards

creating a more sustainable future, while also enjoying cost savings and reducing their overall consumption (Ho & Haaker, 2023).

With the recognition of how purchasing REDs can contribute significantly to promoting a circular economy, researchers have begun investigating numerous factors that could impact consumers' intentions to purchase and accept REDs. However, many of these studies have predominantly concentrated on a specific category of refurbished electronic devices, specifically smartphones (refer to Sharifi & Shokouhyar 2021a; Sharifi & Shokouhyar 2021b; van Weelden et al, 2016).

Studies have indicated that consumer apprehension regarding the quality of refurbished products is a primary factor contributing to their hesitation in purchasing REDs (Mugge et al, 2018; Onurlubas & Gumus, 2023). However, there is emerging evidence indicating a consistent rise in the purchase of environmentally friendly and refurbished items in recent years (Soomro, 2020). As there is currently no significant consumer rejection towards refurbished products, further research in this field is imperative to establish efficient practices and provide guidance to stakeholders in the refurbished sector.

This study aims to offer a comprehensive understanding of consumers' acceptance and intention to purchase REDs, as well as effective marketing techniques for promoting REDs to consumers. Specifically, this research focuses on young consumers in New Zealand, commonly referred to as Generation Z. The rationale for this focus is that Generation Z plays a significant role in New Zealand's society and strongly influences technological trends. According to Squires and Ho (2023), “this young generation of consumers generation grew up with computers, iPhones, streaming music and videos, social media platforms and other technological advancements” (p. 135).

Theoretical Framework and Hypotheses Development

The objective of this study was to examine the factors influencing the attitude of young New Zealand consumers (YNZCs) towards their intention to purchase REDs. Our investigation was aided by previous research conducted by Ho and Haaker (2023), which identified three key factors that influence individuals in their acceptance of buying refurbished electronics. To represent these factors, we have developed a research model (refer to Figure 1).

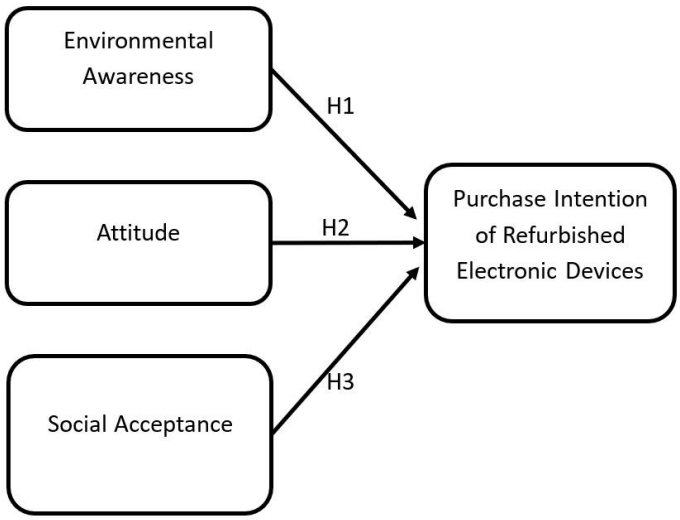

Figure 1: Conceptual model (Research Model)

Based on the research model depicted above (see Figure 1), the hypotheses of the study have been formulated as below:

- Hypothesis 1 (H1): There is a positive relationship between YNZCs' perception of likeliness to purchase REDs in the near future and their perception of the overall environmental awareness.
- Hypothesis 2 (H2): There is a positive relationship between YNZCs' perception of likeliness to purchase REDs in the near future and their attitude towards REDs.
- Hypothesis 3 (H3): There is a positive relationship between YNZCs' perception of likeliness to purchase REDs in the near future and their perception of the social acceptance of buying REDs.

Methodology

For this study, a descriptive research design was chosen as it commonly employs data collection techniques like conducting questionnaire surveys to gather information on individuals' thoughts, emotions, and actions (Hair et al, 2021). Primary data was collected through a carefully structured questionnaire survey. To collect the data, a nonprobability sampling method called convenience sampling was utilized (Hair et al, 2021). The researchers verbally or through email invited respondents who were full-time students at Otago Polytechnic in Auckland, New Zealand to participate in the online survey. In brief, this study builds upon the scale developed by Ho and Haaker (2023) by making modifications to their questionnaire, which was originally used for a similar project conducted in the Netherlands.

Results and Analysis

Over the four-month data collection period (from August 2023 until December 2023), a total of 156 valid responses were gathered. These responses were exclusively provided by individuals falling within the age range of 18 to 24 years, making them appropriately identified as young consumers.

Demographics of the Sample

The general demographic information, such as age, gender, highest degree or level of education, and income, was collected during the data collection process. The gender distribution was irregular, with males accounting for 64.1% and females 35.3% (0.6% stated “prefer not to answer”). Most participants (52.6%) had completed their bachelor's degrees, while 17.9% had a master's degree or above. The remaining respondents had completed secondary education (21.8%) or primary and intermediate education (0.6%). Only 0.6% stated "prefer not to say". When asked about their monthly net income, 7.1% responded with "more than NZ$1250", and 35.9% said "prefer not to say". The remaining 57% earned less than NZ$1250 per month. Regarding their self-identification, 93% of participants identified themselves as students. In response to the question "Have you ever purchased any refurbished electronic devices (REDs)?", the majority (55.8%) responded "No", indicating a lack of experience in buying such devices. Common REGs purchased by respondents who answered "Yes" include phones, computers, laptops, headphones, and tablets.

An online questionnaire on QuestionPro platform was used to collect data on the intention of young New Zealand consumers (YNZCs) to buy REDs. The collected data is summarized and presented in Table 1. Respondents' agreement to each statement was recorded using a five-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree).

Table 1: Young New Zealand consumer’s intention of buying refurbished electronic devices

#	Statement	Mean	SD
Purchase Intention			
1	I am likely to purchase REDs in the near future.	3.58	1.028
Environmental Awareness			
2	Recycling of electronic devices improves the quality of the environment.	4.14	.876
3	Recycling of electronic devices is useful to create a better living environment.	4.17	.735
4	I am willing to change my lifestyle to reduce the damage I cause to the environment.	4.06	.855
5	Everyone must be willing to change our lifestyle to reduce the damage we cause to the environment.	4.04	.946
6	Giving old electronic devices a second life is a great way to respect the environment.	4.13	.863
Attitude			
7	Acquiring REDs is everyone's responsibility to reduce the volume of e-waste generated.	3.79	.948
8	I have a favourable attitude towards purchasing REDs.	3.67	1.031
9	I will encourage my relatives and friends to purchase REDs.	3.65	.942
10	Acquiring REDs is a good idea since it helps to reduce: electronic waste (a.k.a. e-waste or discarded electrical or electronic devices).	3.97	.853
11	Acquiring REDs is a good idea since it helps to reduce: the mining of valuable natural resources such as copper, silver, gold, and nickel.	3.78	.939
12	Acquiring REDs is a good idea since it helps to reduce: air pollution by reducing the demand for manufacturing.	3.96	.872
13	Acquiring REDs is a good idea since it helps to reduce: carbon emissions resulting from transport.	3.93	.902
14	Acquiring REDs is a good idea since it helps to reduce: waste by keeping retired assets out of landfills.	3.94	.910
Social Acceptance			
15	If my family and friends were buying REDs, I will also engage in it.	3.71	.909
16	Those who have important influences on me (such as my boss and teachers) think that I should buy refurbished elect	3.29	.971
17	Those who are important to me (such as families and friends) support me to buy REDs.	3.37	.978
18	The community where I live could influence me in buying REDs.	3.33	1.055
19	The media influences me in buying REDs.	3.02	1.116
20	The government policies influence me in buying REDs.	3.03	1.147

Note: SD = Standard Deviation

The collected data show that the YNZCs are generally "Agree" towards purchasing REDs in the near future, with a mean value of 3.58. A similar response was received for the statement, "I have a favourable attitude towards purchasing REDs" (mean = 3.67). These results show that YNZCs are neither very positive nor very negative towards the idea of purchasing REDs. The mean values for statements #2 to #6, which tested YNZCs' awareness of the environment and purchasing REDs, are all above 4 (ranging from 4.04 to 4.17). This suggests that YNZCs agree with the idea that buying REDs may support to protect the environment. The questionnaire also included statements to understand NZYCs' "Attitude" (#7 to #14) and "Social Acceptance" (#15 to #20). The mean values for "Attitude" range from 3.65 to 3.96, representing "Agree". However, most of the mean values are closer to 4, inferring that YNZCs have a positive attitude towards purchasing REDs. The statements used to identify "Social Acceptance" (#15 to #20) resulted in mean values ranging from 3.02 to 3.71, indicating YNZCs' "Agree" perception among YNZCs.

Hypotheses Testing

H1: There is a positive relationship between YNZCs' perception of likeliness to purchase REDs in the near future and their perception of the overall environmental awareness.

The statements from #1 to #6 were analysed using Pearsons' correlation coefficients (r), and the results are presented in Table 2. All variables tested for this hypothesis produced low to medium positive correlations (0.427 ≥ r ≥ 0.202). Additionally, all correlations were found to be significant at the 0.05 level (2-tailed). Based on these findings, it can be inferred that there is a positive relationship between YNZCs' perception of likeliness to purchase REDs in the near future and their perception of the overall environmental awareness.

Table 2: Pearson Correlation Coefficients used to test H1 variables

#	Statement	r
2	Recycling of electronic devices improves the quality of the environment.	0.202*
3	Recycling of electronic devices is useful to create a better living environment.	0.221**
4	I am willing to change my lifestyle to reduce the damage I cause to the environment.	0.427**
5	Everyone must be willing to change our lifestyle to reduce the damage we cause to the environment.	0.305**
6	Giving old electronic devices a second life is a great way to respect the environment.	0.373**

Note: *Correlation is significant at the 0.05 level (2-tailed) and ** Correlation is significant at the 0.01 level (2-tailed).

H2: There is a positive relationship between YNZCs' perception of likeliness to purchase REDs in the near future and their attitude towards purchasing REDs.

The Pearson's correlation coefficients were calculated to test statements from #7 to #14, and the results are given in Table 3. All eight variables under H2 produced low to high positive correlations (0.684 ≥ r ≥ 0.119). Additionally, all correlations are significant at the 0.05 level (2-tailed) except statement #11. Based on these results it can be inferred that there is a positive relationship between YNZCs' perception of likeliness to purchase REDs in the near future and their attitude towards purchasing REDs.

Table 3: Pearson Correlation Coefficients used to test H2 variables

#	Statement	r
7	Acquiring REDs is everyone's responsibility to reduce the volume of e-waste generated.	0.580**
8	I have a favourable attitude towards purchasing REDs.	0.684**
9	I will encourage my relatives and friends to purchase REDs.	0.646**
10	Acquiring REDs is a good idea since it helps to reduce: electronic waste (a.k.a. e-waste or discarded electrical or electronic devices).	0.477**
11	Acquiring REDs is a good idea since it helps to reduce: the mining of valuable natural resources such as copper, silver, gold, and nickel.	0.119
12	Acquiring REDs is a good idea since it helps to reduce: air pollution by reducing the demand for manufacturing.	0.248**
13	Acquiring REDs is a good idea since it helps to reduce: carbon emissions resulting from transport.	0.170*
14	Acquiring REDs is a good idea since it helps to reduce: waste by keeping retired assets out of landfills.	0.167*

Note: *Correlation is significant at the 0.05 level (2-tailed) and ** Correlation is significant at the 0.01 level (2-tailed).

H3: There is a positive relationship between YNZCs' perception of likeliness to purchase REDs in the near future and their perception of the social acceptance of buying REDs.

The same process used to test statements from #15 to #20 and the results are given in Table 4. All variables tested for this hypothesis produced medium to high positive correlations ($0.630 \geq r \geq 0.299$). The variable 19 showed 0.299 and it was rounded to the nearest first decimal point receiving r = 3 (medium correlation with medium positive relationship). Additionally, all correlations are significant at the 0.01 level (2-tailed). Based on these results it can be inferred that there is a positive relationship between YNZCs' perception of likeliness to purchase REDs in the near future and their perception of the social acceptance buying REDs.

Table 4: Pearson Correlation Coefficients used to test H3 variables

#	Statement	r
15	If my family and friends were buying REDs, I will also engage in it.	0.630**
16	Those who have important influences on me (such as my boss and teachers) think that I should buy refurbished elect	0.483**
17	Those who are important to me (such as families and friends) support me to buy REDs.	0.492**
18	The community where I live could influence me in buying REDs.	0.384**
19	The media influences me in buying REDs.	0.299**
20	The government policies influence me in buying REDs.	0.392**

Note: ** Correlation is significant at the 0.01 level (2-tailed).

Conclusion, Recommendations and Future Research

The results confirm the findings of previous studies that young consumers' purchase intention of REDs correlates positively with their overall environmental awareness, attitude towards REDs and social acceptance of REDs (Ho & Haaker, 2023; Sharifi & Shokouhyar 2021b). For the marketing of REDs this has some interesting implications. Firstly, sellers or other stakeholders could engage customers in the transition to the circular economy by highlighting the environmental benefits of buying Refurbished Electronic Devices. Secondly, sellers or other stakeholders may look for ways to leverage the social acceptance of REDs, for example by using online influencers. Creating market pull for REDs through engaging customers would stimulate the development of more effective and cost-efficient value chains for reusing electronic devices and thereby reducing electronic waste. Future research could shed light on how customer engagement can make other parts of the chain more effective as well, for example at the frond-end where consumers can be stimulated to properly dispose of their old electronic devices.

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