Analysis on Young People's E-Waste Recovery Tendencies among Countries

Juri Das[1], RC Sharmra[2], Parvathi Jayasankar[3]*

[1]School of Agriculture Sciences, Jaipur National University, Jaipur, India.

[2]Department of Chemistry, Dev Bhoomi Uttarakhand University, Dehradun, Uttarakhand, India.

[3]Department of Chemistry and Biochemistry, School of Sciences, Jain University, Bangalore, India.

Abstract

The Enhanced Theory of Premeditated Action model (ETPBM) design is being used in this research to examine young people's cultural e-waste recoverybehavior. The findings from a poll with participants found that opinions differed between the two culturally dissimilar emerging economies, Perceived management, cultural standard, and personal liberty were the main predictors of e-waste recoverybehavior of young people, while comfort and effects were less important. Concepts related to awareness have little effect. Stronger connections were seen between the Perceived management and Cultural standard constructs and the desire to recover the e-waste of European young people's, further demonstrating cultural disparities. It was discovered that the opposite holds for the constructs of attitude and personal accountability, where greater connections were seen in the Indian group. As it sits at the nexus of reverse supply chain management, sustainability, and cultural studies, this research offers a significant theoretical contribution. This research has applications at two different stages: at the level of the individual performer and the stages of the supply chain. This is because consumer intents to recover, which are supported by environmental responsibility, have a direct impact on the effectiveness of reverse supply chains.

Keywords:E-waste, recovery, Enhanced Theory of Premeditated Action model (ETPBM),Young

1. Introduction

An electrical or electronic item that has arrived at the end of its useful life is referred to as electronic waste (E-Waste).E-waste is mostly brought about by the increase in demand for electronic items. Waste-to-energy and waste-to-material techniques are the two basic categories under which rescue techniques may be defined. During the past several years, E-Waste has grown to be a serious global worldwide issue that has garnered the focus of many countries. According to a recent United Nations (UN) estimate, the production of e-waste has increased to more than 44 mm tonnes annually, which is almost 4500 Eiffel towers, and this amount is expected to rise to more than 52 million metric tonnes by 2021.The study makes several changes from earlier e-waste recovery [1].Investigations into consumer knowledge of e-waste, ingestion, capacity, reduction, and recovery behavior have recently attracted the interest of researchers all around the world. A complex occurrence that defines and connects the fundamental concepts of recovery and recovery with a sustainable e-waste administration framework is created by an e-waste-related strategy, administration framework architecture,

country-specific market cultures, and the industry's accessibility to a broad range of goods categories [2].Electronic and electrical waste is defined as any end-of-life "equipment which is dependent on electrical currents or electromagnetic fields to perform effectively." Electronic and electrical trash is also known as waste electrical and electronic equipment. Batteries, circuit boards, plastic, cathode ray tubes, activated glass, and lead capacitors are only a few examples of the pieces of electrical and electronic equipment that are included in e-waste. Although e-waste is handled illegally in many places, it has been among the countries where informal recovery occurs in considerable volumes [3].

Relationships between the chemical elements of e-waste, however, require a more in-depth comprehension. There is limited knowledge on awareness levels impact of e-waste removal practices and ecological sustainability in countries.The analysis of the present state and projected developments in e-waste research was lacking. An excellent option for determining trends in research activity is bibliometric evaluation, which is described as a device for the statistical and survey data of research publications [4]. It may measure the development of the literature in certain fields and

the influence of particular research findings.Consumption of electrical and electronic equipment has reached previously unheard-of heights as a result of the accelerating speed of the technological revolution and rising consumer demand for high-tech products. Over 900 distinct varieties of EEE may currently be available on the global market. Due to the various precious and rare earth elements it contains, the management of e-waste streams offers a rich potential in addition to reducing negative effects [5].

The research [6] aims to examine the current state of affairs, trending issues, and potential developments in the e-waste industry. The Web of Science Core Collection was used to download information on articles. Cite Space V, His cite, and VOSviewer were used to evaluate the literature data. The study [7] used a questionnaire in countries to gauge young people's awareness of, perceptions of, and removal habits for waste electrical and electronic equipment (WEEE). To the understanding knowledge, this is the initial study to focus on educating young people in an urban environment to understand the consumer behavior of e-waste. The study [8] examined to compare how electronic and electrical garbage (often known as "e-waste") is produced in industrialized and developing countries. In reality, informal recovery is a major problem in the majority of developing countries due to the large number of unemployed individuals working at family workshops to collect and recover waste. In [9], the globe has experienced continuous economic and technical advancement in recent decades. To examine household awareness, the use of electronic devices in general and mobile phones in particular, as well as the removal behavior of e-waste.

In [10], they provide a thorough analysis of the benefits and disadvantages of the various e-waste laws in effect across the world. Although the e-waste law in each country is designed to address problems unique to that nation, it is typically not comprehensive, which creates a variety of management concerns. To assess the questionnaires, this study applies the structural equation modelling (SEM) method and uses the partial least squares (PLS) methodology. Paper [11] indicate the integrated model's outstanding capacity for explanation and validates its reliability in predicting young people's desire to recover e-waste. It is shown that habits and perceived utility play a significant influence in predicting young individuals' desire to recover their e-waste.

The article [12] addresses practical responses to present regulations that are necessary for a resource-secured supply chain for e-waste, economic well-being, reduced environmental impact, and overall environmental sustainability. To provide a fresh idea platform for public awareness of electronic trash and its removal in countries, the study [13] begins with a survey of the literature that already exists on certain important elements of e-waste.The present study [14] covers this hole by investigating attitudes and intentions about the recovery of e-waste using the unique consumer behavior framework known as behavioral reasoning theory (BRT). The study used a single framework to explore the relative importance of aims in predicting attitudes and ambitions in the aspect of recovery e-waste. The ETPBM is being used in the research to examine young people's cultural e-waste recovery behavior.Since here that study stands at the confluence of reversed supply chain management, sustainability, and cultural studies, it offers a significant theoretical contribution. The lack of customer participation in the recovery is one of the biggest obstacles to reverse supply chain management's effectiveness. Understanding the variables that affect this behavior is essential since the foundation of any backward supply chain is customer interest and engagement in the recovery. To better recognize the major factors influencing young people's e-waste recovery behavior, our study proposes to use an ETPBM and a cultural approach[15].

The rest of this study is organized as follows: Part 2 introduces the suggested material and method. The research results and discussion are discussed in Part 3. Part 4 contains the conclusion.

2. Materials and methods

2.1Development of hypotheses

H1: Young people's attitudes favorably influence their desire to recover e-waste.

H2: The desire of young individuals to recover e-waste is favorably predicted by their perception of control.

H3: The desire of young people to recover e-waste is favorably predicted by their Cultural standard behavior.

H4: Interpersonal Commitment in young people predicts favorably their will to recover e-waste.

H5: The chance that young people would recover e-waste is favorably predicted by their awareness of the implications.

H6: The Emotion of Responsibility of young peopleexpects their desire to recover e-waste favorably.

H7: Young people's intention to recover e-waste is favorably predicted by recovery efficiency.

2.2 Structural Design

Based on the aforementioned literature, it was decided to perform a cultural study on e-waste recoverybehavior using the ETPBM (Figure 1), which has a variety of components. Constructions denoted by solid lines are those of the traditional ETPBM, while those denoted by dotted lines are those of the ETPBM.

2.3 Methodology

The preceding segment's hypotheses were examined through the use of a designed questionnaire and measurement techniques that have a long history in the research on cultural research.

2.3.1 Design of the questionnaire

The research's self-created questionnaire was split into three parts. The first component of the survey consisted of a variety of questions about the respondents' possession of electronic products, the frequency and companies of their purchases, the removal methods they employed, and the reasoning behind those decisions. The second segment had multiple-choice questions on ETPBM (in Table 2).A Likert-type scale with five possible responses on a range from one to five was used to evaluate the reactions of the young people to the ETPBM. Similar factors were present for the builds of attitude, perceived management, cultural standard, and sense of duty. Numerous factors were present for Attitude,

Perceived management, Cultural Norms, and Sense of accountability among the constructions. Taking a construct into account to measure the participant's level of general favourability, a semantic differential scale was utilized. Due to their higher latent variables, three of the seven assertions were included in the end measurement items. The questionnaire's final section asked for details on characteristics including youth, gender, and educational attainment.

2.3.2 Collecting data

Young people from India and Europe who were enrolled at centrally placed universities in the UK and India, respectively, received the questionnaire. The first is that young people and students have been called the cutting edge of thought and a source of inspiration for other clients. 2nd, the biggest consumer of electronic goods and is well-informed on the most recent trends and advancements in this industry. Finally, the university student population is seen as useful for conducting comparative research in cultural studies since it is more homogenous than any other group in terms of socioeconomic traits and behavior across countries. They have also been told that the survey was optional and offered no economic rewards and that they may stop doing it at any moment without giving a reason. Because both choice tests were young people enrolled in business courses the undergraduate and graduate degrees at reputed business education in the UK and India, where admission requires an excellent knowledge of English, it was assumed that they would have a good command of the language. For the European sample, the questionnaire generated 105 acceptable replies, and 101 usable responses, for a reaction speed of 34%. Table 1 shows the labels using initial and maintained statements.

2.3.3 Analysis of Data

The components of the survey were validated, and the organizational correlations between the components were confirmed, utilizing partial least square structural equation modeling (PLS-SEM).PLS-SEM was chosen because it is more suitable for idea creation and can only be employed with very few specimens, making it more acceptable for the study's goals. Recently, PLS-SEM has been used to analyze moderating and mediating impact, developmental constructs, and multi-group studies. The information is thought to be separated into groups of samples for multi-group analysis, which then gives rise to the correlation of the route coefficients between two teams simultaneously. The value (t) is more than 1.96 at the p level of 0.05, it is assumed that the relationship (β) co-efficient between the same two elements in the multi-group data would change. It was done to ensure that the assessment approach was consistent among the various separate categories.

3. Results and Discussions

3.1 Analysing preliminary data and ensuring validity and dependability

The average number of electronic products owned by young people from Europe was 4-6, compared to 2-3 for those from India.Europeanyoung people were brand conscientious and made one innovative electronic purchase each year. The young people in India, on the other hand, made a new electronic purchase every two periods and paid attention to both cost and marketability. The amount of variance extracted (AVE) by every construction should be greater than 0.5; indicator factor loading should be arguably important and more than 0.5.; and the reliability coefficient of each build should be greater than 0.6. Table 3 shows that all of the measurement models' construct factor loadings for the Europe and India tests reached .5 and were considerable at p <.05.In addition, AVE varied from .533 to .835 for both the Europe and India survey. The composite reliability values of the built-in range from .617 to .938 for the Europe survey and from .611 to .938 for the India survey. According to the calculation, the Cronbach's alpha (CA) scores for each construct ranged from .767 to .916 for the Indian sample and from .764 to .914 for the European test, as shown in Table 3.A major outlier was the initial construct's CAvalue of .557 for the Europe test and .533 for the India test. Given the statements used to survey this build have been utilized in pertinent earlier studies, it was extremely interesting to see low CA for both samples. In the end, this construction was kept since several research on psychological problems and recovery behavior have shown a reasonable upper limit of an alpha value of 0.5 This criteria examines connections between any 2 concepts' elements and suggests that they should be looser than the average variance's root square. For both Europe and the Indian samples in the study, each diagonal frequency that is emphasized in (Table 4) is greater than the construct between coefficients. As a result, the research tool met all criteria for validity and reliability acceptably.

3.2 Test of measurement invariance

The legitimacy of cultural study depends upon its capacity to generalize diverse measures across various nations, hence a multi-group invariance inquiry was conducted to assess measuring invariance. Specifically, the investigation used two different kinds of internal consistency: configural and metric. The style of the variable loadings (Table 5) was found to be the same in the samples from Europe and India, demonstrating the success of configural parallelism. In both nations, the factor loadings were likewise considerably different from 0. Also, it was determined that there was no statistically significant variation in the outer loadings between the two samples p < .05.This demonstrated that any differences found were the result of attributes rather than measures. The subsequent cultural comparison was made possible with the assistance of configural and partial metric invariance analyses.The β co-efficient varying for each route, however, has been determined to be negligible with values (t) less than 1.96 in the multi-group test, which produced negative findings (Table 6). The PLS survey was then carried out independently per nation, with the results being published.

3.3 Analysing structural models

The path coefficients, t-statistics, and factors that influenced were independently analyzed for the India and Europe models, then culturally, throughout to evaluate the framework. Pathway significance was determined using a bootstrap resampling procedure, and hypothesis tests were run to evaluate the efficacy of the suggested model. Tables 7 illustrate the research findings.

Table 1: Using initial and maintained statements with labels

Constructs	Questions or claims with labelling	Retained Prospective
Attitude	Recovery e-waste is exciting (A1) Recovery e-waste is to blame (A2) Recovery e-waste is a brilliant idea (A3) Recovery e-waste provides benefits (A4) Recovery e-waste is simple (A5) Recovery e-waste makes sense (A6) Recovery e-waste pays off (A7)	A1 A2 A6
Cultural standard	Most of my close friends and family members believe I should recover e-waste (SN1). Peers and friends anticipate that I recover (SN2) Most of the significant individuals in my life would support my decision to recover e-waste (SN3) Analysts anticipate that I will recover (SN4)	SN1 SN2 SN3
Sense of Control	I am aware of which electronics can be recovered (PC1) I am capable of recovering my electronic equipment (PC2) It would not be difficult for me to successfully recover e-waste if I wanted to (PC3) I am completely in charge of the recovery of my laptop, smartphone, and tablet (PC4)	PC1 PC2 PC3
Sense of Duty	I feel responsible to take action to reduce the amount of garbage produced by today's society (SOD1) I feel that I share responsibility for lowering the amount of garbage produced by society (SOD2). I feel responsible to take action to reduce the amount of garbage produced by today's society (SOD1) My behavior must promote a sustainable world (SOD4) It's crucial to take action that benefits society (SOD5)	SOD1 SOD2 SOD3 SOD4
Intention to Recover	I'm going to plan to recover. E-waste frequently I aim to recover E-waste (INTR2) I'm going to work harder at recovering e-waste (INTR3)	INTR1 INTR2 INTR3
Consequences Awareness	Recovery tablets, smartphones, and other electronic devices make the environment better (CAW1) Recovery tablets, cellular phones, and other electronic devices benefits society (CAW2) Tablets, smartphones, and other electronic devices can be recovered for cash (CAW3) Recovery laptops, cellular phones, and other electronics benefit the environment (CAW4) Recovery of mobile devices, tablets, and tablets results in high-quality goods that are sold at reasonable costs (CAW5)	CAW1 CAW2 CAW4 CAW5
Personal Accountability	I would be wrong if I didn't pick up rubbish (IR1). I take recovery very seriously on a personal level (IR2) If I did not recover, I would feel bad (IR3)	IR1 IR2 IR3
Convenience	I may easily visit an e-waste recovery facility (CONV1) Information on recovery e-waste is simple to obtain, for me (CONV2) Finding time to recover e-waste is not a problem for me (CONV3). I have sufficient space for the recyclable stuff (CONV4)	CONV1 CONV2 CONV3

Table 2: Develop reliability and validity indicators

| Factors	Europe			India		
	Cronbach'4es α	Composite Reliability	(AVE)	Cronbach's α	Composite Reliability	(AVE)
Attitude	0.557	0.617	0.593	0.533	0.611	0.535
Consequences Awareness	0.795	0.866	0.618	0.836	0.891	0.671
Convenience	0.787	0.870	0.692	0.767	0.654	0.674
Personal Responsibility	0.901	0.938	0.834	0.916	0.947	0.855
The goal of Recovery of E-Waste	0.854	0.911	0.774	0.729	0.846	0.648
Perceived Behavior Control	0.764	0.863	0.679	0.811	0.887	0.723
Sense of Duty	0.914	0.938	0.793	0.847	0.897	0.687
Cultural standard	0.831	0.898	0.747	0.091	0.938	0.835
Note: (p < 0.05)						
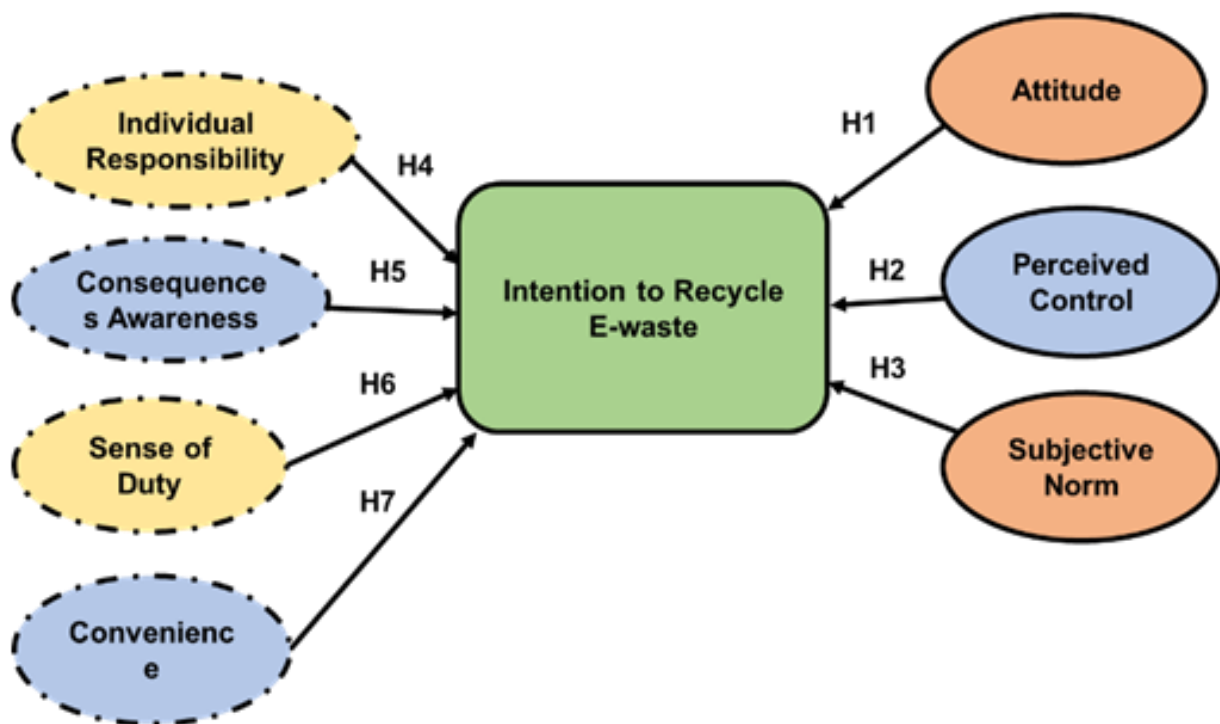
Figure 1: Based on the ETPBM, a structural hypothesis was developed

Table 3: Fornell-Larcker Criteria Discriminate Validity Test

Structures	Attitude	Consequence Awareness	Convenience	Individual Responsibility	Intention to Recover E-waste	Perceived Behaviour Control	Duty sense	Cultural standard
Europe Attitude	0.813							
Awareness of the Effects	0.381	0.897						
Convenience	−0.153	0.188	0.943					

Personal Accountability	0.357	0.531	0.281	0.924			
Recovering E-waste as a Goal	0.488	0.698	0.221	0.712	0.991		
Control of Perceived Behaviour	0.282	0.731	0.133	0.515	0.689	0.935	
Sense of Duty	0.315	0.582	0.293	0.937	0.728	0.588	0.981
Cultural standard India	0.161	0.489	0.327	0.456	0.555	0.482	0.433	0.975
Attitude	0.843						
Awareness of the Effects	0.475	0.928					
Convenience	0.296	0.435	0.723				
Personal Accountability	0.478	0.618	0.473	0.936			
Recovering E-waste as a Goal	0.395	0.638	0.439	0.819	0.916		
Control of Perceived Behaviour	0.352	0.811	0.372	0.511	0.666	0.961	
Sense of Duty	0.722	0.769	0.428	0.746	0.622	0.562	0.938
Cultural standard	0.312	0.578	0.486	0.762	0.783	0.716	0.535	0.925

Table 4: Validity metrics for Europe and India

		Europe		India	
Structures	Labels	Loading Factor	T*	Loading Factor	T*
Attitude	A1	0.725	2.318	0.769	4.588
	A2	0.883	(1.928)	0.789	3.661
	A6	0.822	2.147	0.939	4.963
Cultural standard	SN1	0.935	13.885	0.986	31.888
	SN2	0.983	33.834	0.918	38.351
	SN3	0.986	23.918	0.949	67.752
Sense of Duty	SOD1	0.988	16.67	0.984	38.842
	SOD2	0.931	16.75	0.917	12.535
	SOD3	0.936	16.85	0.874	12.886
	SOD4	0.924	16.49	0.958	25.288
Perceived management	PC1	0.888	23.218	0.982	35.731
	PC2	0.972	25.218	0.929	13.281
	PC3	0.923	14.653	0.973	22.128
Convenience	CONV1	0.988	3.291	0.737	2.325
	CONV2	0.993	3.678	0.581	2.234
	CONV3	0.834	2.386	0.964	2.173
Intention to Recover E-waste	INTR1	0.912	38.847	0.815	8.576
	INTR2	0.993	33.886	0.982	20.778
	INTR3	0.968	27.352	0.941	27.827
Individual Responsibility	IR1	0.986	24.564	0.947	66.542
	IR2	0.926	45.379	0.954	71.257

	IR3	0.942	62.194	0.986	30.237
	CAW1	0.872	12.881	0.957	27.544
Consequences Awareness	CAW2	0.925	16.829	0.998	31.943
	CAW4	0.884	12.868	0.864	9.551
	CAW5	0.885	11.427	0.893	14.925
Notice any numbers with (*p < 0.05)					

Table 5: Partial metric invariance measurement

	Path Coefficients-diff(|Europe-India|)	T*(Europe vs India)	P*(Europe vs India)
The goal to recycle electrical waste was motivated by attitude.	0.296	1.498	0.277
The desire to recover electronic waste is influenced by knowledge of the repercussions.	0.245	0.986	0.494
Convenience -> Intention to Recover Electronic Waste	0.001	0.123	0.982
Personal Responsibility > the Goal of Recycling Electronic Waste	0.118	0.877	0.555
After sensing control over behaviour, the intention to recover electronic waste	0.037	0.266	0.790
Sense of Duty->Attitude	0.518	1.782	0.187
Making the recovery of electronic waste a cultural norm	0.073	0.468	0.641

Table 6: Analysis of the Suggested Model

Structural Relationship Effect	β (Cross Culture)	SD	T values (|O/STDEV|)	R^2	Hypotheses test
Intention to Recover E-waste < Attitude	0.107	0.054	1.964	0.572	H1 Accepted
Intention to Recover Electronic Waste < Perceived Control of One's Behavior	0.223	0.074	3.006		H2 Accepted
The cultural norm of > the intention to recover electronic waste	0.193	0.074	2.607		H3 Accepted
Personal Accountability - > The Desire to Recycle Electronic Waste	0.368	.072	5.112		H4 Accepted
Knowledge of the Implications > Desire to Recover Electronic Waste	0.137	0.081	1.686		H5 Accepted
Responsibility One Owes as a Mediator > One's Attitude	0.379	0.114	3.325	0.144	H6 Accepted

Intention to Recover Electronic Waste trumps Convenience	0.040	0.049	0.805		H7 Accepted
Note p <0 .05.					

Secondly, the cultural structural model's fit index revealed a significant match for the intention to recover e-waste. The high R^2 value showed that attitudes, normative beliefs, perceptions of control, and personal accountability may be considered independent, cultural variables in explaining the degree of variation in young people's behavioral intentions toward recovery of e-waste. All channels were statistically significant at p < .05 except the path co-efficient for Convenience (β=-.040, p >.05) and Knowledge of effects (β=-.37, p >.05). It's indicated in Table 7, all routes were statistically significant at 0:05, the route to make things easier, coefficients (β=-.040, p >.05) and knowledge of implications (β=-.37, p >.05) are the only exceptions. It was discovered that Feeling of Responsibility indirectly influenced attitude by acting as a moderator. Even though the route's R^2=-01.44 (p<.05) was just not strong, its p-value was significant. The design showed a 10% deviation in attitude, 22% deviation in perceived management behavior, and 19% deviation in cultural standard, according to the explanatory strength of the exogenous components. The outcome is, H4, H3, and H2 were approved but H7 and H5 were rejected. The following statement was added to H1 and H6, which were then approved.H1 and H6. The intention of young people to recover e-waste is favorably predicted by their attitude. Several parallels and contrasts between the two nations were found while comparing the results.

3.4 Discussion

The study used an ETPBM as its conceptual framework to investigate the cultural elements that affect young people's intentions to recover e-waste. While several research in the past has examined consumer engagement in different recovery initiatives, very few researchers have investigated the usefulness of an ETPBM across cultural boundaries in the background of e-waste recovery.This research represents one of the first trying to verify and publish an ETPBM that may accurately predict students' intentions to recover e-waste internationally.

3.4.1 Practical implications

The research has looked into the cultural recovery behaviors of India and Europe, despite their large market share and contribution to the generation of e-waste. The latest conclusions also highlight the parallels in the e-waste recovery behaviors of young people in the two nations, but they also take into profile the unique cultural variations that make it challenging to follow a "universal sizing" solution. This study offers numerous "takeaways" for governments

and electronic OEMs doing business in these nations while keeping in mind this constraint.

In the beginning, both countries had a hybrid approach with an irregular channel for recovery goods and an official route under government oversight, with the informal channel having a larger edge over rivals in terms of service quality and efficiency. Administrations should acknowledge

the efforts made by the casual channel and enhance its functional capabilities to generate an ethical and sustainable means of managing e-waste. Second, a disturbing tendency that was seen in both exchanges was the increasing integration of electronic items into young people's daily lives and the outward ambition to possess the trendiest, most advanced technology. While producers are in some ways responsible for encouraging consumption by providing reasonable rates or fresh product iterations to draw consumers, it is essential that businesses also offer programs that motivate people to return their e-waste for secure removal and recovery. Second, a disturbing tendency that was seen in both exchanges was the increasing integration of electronic items into young people's daily lives and the outward ambition to possess the trendiest, most advanced technology. While producers are in some ways responsible for encouraging consumption by providing reasonable rates or innovative product concepts to attract customers, it is essential that businesses also offer programs that motivate people to restore both e-waste for safe removaland recovery. This is going to guarantee the young people's active engagement in the recovery, but it would also ease the load of e-waste build-up in households. The data privacy problem is one that electronic Manufacturers must solve because one major deterrent to the recovery of a mobile or laptop was the unwillingness to part with the private and sensitive financial and private data that was kept on them. Lastly, both nations found that young individuals lacked knowledge of the effects of not recovering e-waste or failing to associate e-waste with detrimental health and environmental implications.

Note: The expanded constructions from the academic literature on recovery e-waste are represented by the dotted lines, while the solid lines reflect the traditional ETPBM.

4. Conclusions

This study investigated and recommended an ETPBM to pinpoint the major factors influencing young people's e-waste recovery behavior in Europeand India.The outcomes revealed that the main factors affecting the motives to recycle e-waste were orientation cultural standards, perceived management, and personal accountability, whereas there was no correlation between the constructs of consequences awareness and convenience .This study offers practical conclusions for electronic Manufacturers in the creation and management of take-back programs in developing countries.Additional research can overcome a certain study's weaknesses. Finding the first link in the larger reverse e-waste supply chain is the formal goal of this project. For a complete understanding of the structural and functional dynamics of e-waste backward supply chains, it is crucial to understand how money and knowledge are transferred across cultural boundaries. Although culturalresearch is challenging to organize and carry out concerning necessary assets and analyzing methods, the conclusions of this study are contingent on a small study population in each nation. A larger number of participants improved the characterization

of the variables, and social desirability response bias is an advantage for prospective research.

References

[1] R. Nivedha, and D.A.I.. Sutha, 2020. The challenges of electronic waste (e-waste) management in India. *European Journal of Molecular & Clinical Medicine*, 7(3), pp.4583-4588.

[2] M.T.N Islam,A. Huda,A. Baumber, R. Shumon, A. Zaman, F. Ali, R. Hossain and V. Sahajwalla, (2021). A global review of consumer behavior towards e-waste and implications for the circular economy. *Journal of Cleaner Production*, Vo1 no.*316*:p.128297.

[3] A. Dhir, S. Malodia, U. Awan, M. Sakashita, and P. Kaur, (2021). Extended valence theory perspective on consumers'e-waste recycling intentions in Japan. *Journal of Cleaner Production*, *312*:p.127443.

[4] A. Andooz, M. Eqbalpour, E. Kowsari, s. Ramakrishna. and Z.A Cheshmeh, 2022. A comprehensive review on pyrolysis of E-waste and its sustainability. Journal of Cleaner Production, 333, p.130191.

[5] O.S. Shittu, I.D. Williams. and P.J. Shaw, (2021). Global E-waste management: Can WEEE make a difference? A review of e-waste trends, legislation, contemporary issues and future challenges. *Waste Management*, *120*:pp.549-563.

[6] Y. Gao, L. Ge,S. Shi, Y. Sun, M. Liu, Wang, B., Shang, Y., Wu, J. and Tian, J., (2019). Global trends and future prospects of e-waste research: a bibliometric analysis. *Environmental Science and Pollution Research*, *26*:pp.17809-17820.

[7] M.T Islam, P. Dias, and N. Huda, (2021). Young consumers'e-waste awareness, consumption, disposal, and recycling behavior: A case study of university students in Sydney, Australia. *Journal of Cleaner Production*, *282*:p.124490.

[8] A. Borthakur, and Govind, M., (2017). Emerging trends in consumers' E-waste disposal behaviour and awareness: A worldwide overview with special focus on India. *Resources, Conservation and Recycling*, *117*:pp.102-113.

[9] Y. Attia, P.K. Soori, and F. Ghaith, (2021). Analysis of Households' E-Waste Awareness, Disposal Behavior, and Estimation of Potential Waste Mobile Phones towards an Effective E-Waste Management System in Dubai. *Toxics*, *9*(10):p.236.

[10] R.A. Patil, and S., Ramakrishna, (2020). A comprehensive analysis of e-waste legislation worldwide. *Environmental Science and Pollution Research*, *27*:pp.14412-14431.

[11] D. Minashkina, and A. Happonen (2022). Analysis of the Past Seven Years of Waste-Related Doctoral Dissertations: A Digitalization and Consumer e-Waste Studies Mystery. *Energies*, *15*(18):p.6526.

[12] S. Arya, and S. Kumar, (2020). E-waste in India at a glance: Current trends, regulations, challenges and management strategies. *Journal of Cleaner Production*, *271*:p.122707.

[13] A. Borthakur, and M. Govind(2018). Public understandings of E-waste and its disposal in urban India: from a review towards a conceptual framework. *Journal of Cleaner Production*, *172*:pp.1053-1066.

[14] A. Dhir, N. Koshta, R.K. Goyal, M. Sakashita, and M. Almotairi, (2021). Behavioral reasoning theory (BRT) perspectives on E-waste recycling and management. *Journal of Cleaner Production*, *280*:p.124269.

[15] B. Wang, C. Ren, Dong, X., B. Zhang, and Z. Wang, (2019). Determinants shaping willingness towards on-line recycling behaviour: An empirical study of household e-waste recycling in China. *Resources, Conservation and Recycling*, *143*:pp.218-225.