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Assessing the Impact of Recycling Practices on Sustainable Performance: An Analytical Study of Opinions of Employees at Al-Mustaqbal University

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Abstract : Recycling constitutes a pivotal pillar in advancing sustainability pathways, contributing effectively to mitigating environmental degradation, conserving natural resources, and optimizing energy consumption. This study examines the multidimensional impacts of recycling on sustainable performance within the education sector, using Future University as a case study.

Through an analysis of specialized literature and case studies, the research highlights the positive effects of recycling across environmental, economic, and social dimensions. It also addresses the challenges and barriers hindering the implementation of recycling initiatives, proposing a set of strategies aimed at enhancing their efficiency and effectiveness.

The study underscores the importance of integrating recycling into core policies and business models, given its critical role in resource rationalization, waste reduction, and the achievement of long-term sustainability goals. Ultimately, the research concludes that recycling should be adopted as a strategic entry point for sustainable development, due to its transformative capacity to enable the construction of a circular economy and to strengthen community resilience in the face of environmental and societal challenges.

Keywords: Recycling, Sustainable Performance, Green Universities.

Research Introduction:

Recycling is a cornerstone of environmental sustainability and a central strategy for addressing the multidimensional challenges posed by rapid economic and consumption growth. Its importance extends beyond waste diversion to represent a proactive approach to resource management based on closing material loops. This process fundamentally reduces the environmental footprint of products across their entire life cycle.

By redirecting major waste streams—such as paper, plastic, glass, and metals—from landfills and incinerators, recycling conserves natural resources, lowers energy consumption, and reduces greenhouse gas emissions.

Within the evolving concept of sustainability, recycling is a fundamental pillar for balancing development with ecosystem preservation. It embodies the principles of the circular economy, which critiques the traditional linear "take-make-dispose" model and replaces it with a system designed to return materials to continuous cycles of production and consumption. This transformation not only maximizes resource efficiency but also stimulates economic growth, generates green jobs, and encourages technological innovation.

Furthermore, recycling has critical social dimensions, protecting public health by reducing pollution sources and fostering environmental citizenship. Accordingly, this research addresses this multifaceted topic through a structure divided into four main sections: the methodological framework, the theoretical foundation of recycling, an applied analysis, and a conclusion presenting key findings and recommendations.

Section One:

Research Scientific Methodology

First: Research Problem

Amid increasing environmental and economic challenges and escalating pressures on institutions to adopt responsible practices, sustainability has become a strategic goal. Although higher education institutions are considered the cornerstone for entrenching this culture, many of their sustainability programs, especially recycling programs, are often implemented without a precise understanding of their actual impact on the institution's overall performance. This research stems from a knowledge gap manifested in the lack of clarity regarding the true and quantitative impact of recycling practices on achieving the integrated dimensions of sustainable performance (economic, environmental, social) in universities, from the perspective of employees who are the fundamental pillar for the success of these programs. Consequently, the problem emerges in the urgent need for evidence-based statistical analysis to determine

the nature and strength of this relationship, enabling management to make informed decisions to maximize the return on their sustainability investments. Therefore, the research problem crystallizes as follows: *The need for a systematic analysis and quantitative measurement of the nature of the relationship between recycling practices and achieving sustainable performance at Al-Mustaqbal University, from the perspective of its employees, to identify strengths and weaknesses and develop an evidence-based strategic vision.*

Second: Research Importance

Studying the impact of recycling on sustainable performance in the educational context is a matter of paramount importance for several fundamental reasons:

1. **Awareness Dimension:** Integrating these concepts into curricula enables building environmental awareness and establishing a culture of environmental responsibility among students.
2. **Behavioral Engineering:** This integration contributes to developing effective strategies for shaping positive environmental behaviors, transforming students into actors in entrenching sustainable practices within the university and society.
3. **Resource Rationalization:** The integration highlights the vital role of recycling in conserving natural resources and rationalizing consumption, enhancing students' perception of the value of limited resources.
4. **Circular Economy:** The integration paves the way for understanding the requirements of transitioning from the traditional linear model to an effective circular economy, based on maximizing resource value through recycling and reuse.
5. **Knowledge Integration:** The study presents a practical model for interdisciplinary learning, linking science, economics, and society, enriching knowledge and preparing students to address complex environmental challenges. By combining these dimensions, the strategic goal becomes empowering students through this integration to become positive and effective change agents in building a more sustainable future.

Third: Research Objectives

This research seeks to uncover the role played by recycling practices in enhancing sustainable performance within educational institutions. Rather than merely monitoring practices, the research delves deeper to explore the nature of the relationship between these two elements at "Al-Mustaqbal University," to understand the extent to which recycling efforts align with the institution's comprehensive sustainability vision.

The research aims to assess the tangible contributions of recycling to achieving broader environmental objectives, such as reducing waste quantities, lowering the carbon footprint, and promoting environmental preservation responsibility. By addressing these objectives, the study will provide an in-depth insight into the complex link connecting recycling to achieving sustainability in the educational context, serving as a practical guide for educational institutions in formulating their effective strategies for optimal environmental stewardship.

Fourth: Research Hypotheses and Proposed Model

Research Hypotheses

A. Main Hypotheses

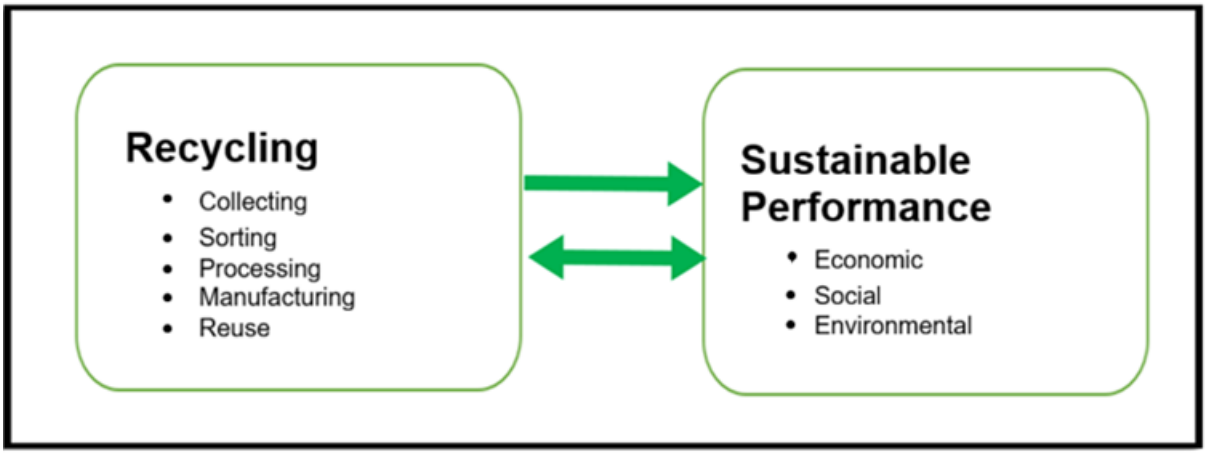
Main Hypothesis 1 (Correlation Hypotheses):

There is a statistically significant positive correlation between the application of recycling practices (with its dimensions: Collection, Sorting, Processing, Manufacturing, Reuse) and achieving sustainable performance at Al-Mustaqbal University from the perspective of its employees.

The following sub-hypotheses stem from it:

1. There is a statistically significant positive correlation between the Collection dimension and sustainable performance at Al-Mustaqbal University.
2. There is a statistically significant positive correlation between the Sorting dimension and sustainable performance at Al-Mustaqbal University.
3. There is a statistically significant positive correlation between the Processing dimension and sustainable performance at Al-Mustaqbal University.
4. There is a statistically significant positive correlation between the Manufacturing dimension and sustainable performance at Al-Mustaqbal University.
5. There is a statistically significant positive correlation between the Reuse dimension and sustainable performance at Al-Mustaqbal University.

Main Hypothesis 2 (Impact Hypotheses):
There is a statistically significant impact of recycling practices with its dimensions (Collection, Sorting, Processing, Manufacturing, Reuse) on achieving sustainable performance at Al-Mustaqbal University from the perspective of its employees.
The following sub-hypotheses stem from it:
1. There is a statistically significant impact of the Collection dimension on sustainable performance at Al-Mustaqbal University.
2. There is a statistically significant impact of the Sorting dimension on sustainable performance at Al-Mustaqbal University.
3. There is a statistically significant impact of the Processing dimension on sustainable performance at Al-Mustaqbal University.
4. There is a statistically significant impact of the Manufacturing dimension on sustainable performance at Al-Mustaqbal University.
5. There is a statistically significant impact of the Reuse dimension on sustainable performance at Al-Mustaqbal University.



(Figure 1) Proposed Research Model (Prepared by the Researchers)

Fifth: Research Sample and Population
The study included a field aspect to measure the attitudes of the research sample members towards the study topic. The research population consisted of employees at Al-Mustaqbal University, including both faculty members and administrative staff.
For data collection, the research relied on a questionnaire tool. (60) forms were distributed randomly, and (52) valid forms for analysis were retrieved, indicating a response rate of (86.6%), a rate considered sufficient to instill confidence in the results and their statistical analysis.

Section Two:
Theoretical Framework of the Research

First Axis: Theoretical Framework for the Independent Variable (Recycling)
First: Concept of Recycling
Recycling is a fundamental pillar in reducing modern waste, occupying the third rank in the waste management hierarchy "reduce, reuse, recycle." It is not merely a process of converting waste into new products; it is a fundamental concept that contributes to achieving environmental sustainability, economic stability, and societal well-being.
Recycling benefits yield multiple gains; it provides job opportunities and encourages responsible practices in waste management and resource conservation. It also gives companies an opportunity to enhance their competitive position and benefit from the opportunities this field offers for their growth and success (Basheet & Jawad, 2022:15; Al-Shawabkeh et al., 2009:11).

Second: Importance of Recycling

The literature agrees that the importance of recycling is manifested in three main dimensions (Ibrahim & Karamah, 2012:18):

1. **Environmental Dimension:** Recycling contributes to environmental protection through:

- **Resource Conservation:** Rationalizing the consumption of natural resources such as timber, water, and minerals.
- **Emission Reduction:** Lowering greenhouse gas emissions by saving energy consumed in extracting and processing raw materials.
- **Pollution Combating:** Reducing air, water, and soil pollution caused by landfills and incinerators.
- **Biodiversity Protection:** Preserving ecosystems by reducing reliance on extracting resources from their natural habitats.

2. **Economic Dimension:** Recycling contributes to stimulating the economy through:

- **Job Creation:** Employing labor in collection, sorting, processing, and manufacturing fields.
- **Cost Reduction:** Saving waste disposal expenses and raw material costs.
- **Competitive Advantage Enhancement:** Enabling companies to keep pace with market demands towards sustainability.

3. **Social Dimension:** Recycling works to strengthen community cohesion through:

- **Public Health Improvement:** Creating cleaner and healthier environments for communities.
- **Community Participation Enhancement:** Involving individuals in environmental initiatives and building a sense of collective responsibility.
- **Awareness Spreading:** Educating the community about sustainable practices and encouraging the adoption of responsible behaviors.

Third: Components of Recycling

The concept of recycling refers to the process of converting waste into reusable materials or products, a core element in achieving environmental sustainability and preserving natural resources. The basic components of this process, as mentioned in (Saber, 2021:44), are the following steps:

1. **Collection:** The recycling process begins with collecting reusable materials such as paper, plastic, glass, and metals from multiple sources including homes, institutions, and public places.
2. **Sorting:** After collection, materials are sorted into different categories to ensure recycling efficiency. This includes classifying them by type (such as plastic or metals), or according to color and quality.
3. **Processing:** The sorted materials undergo processing operations aimed at preparing them for reuse, such as cleaning, shredding, melting, or breaking down into primary forms suitable for manufacturing new products.
4. **Manufacturing:** Processed materials are used to produce new goods, reducing reliance on virgin raw materials. For example, plastic is reused to make new bottles, paper for paper or cardboard products, and metals in various industrial applications.
5. **Reuse:** Recycling contributes to extending material lifespans and reducing the need for new resources, helping rationalize energy consumption, preserve the environment, and limit pollution resulting from extracting and processing raw materials.

Recycling is considered a fundamental pillar in building a circular economy, where resources are conserved, reused, and recycled continuously to reduce waste and environmental impact. Hence, adopting recycling as a lifestyle and business practice is a necessary step towards a more sustainable future.

Second Axis: Theoretical Framework for the Dependent Variable (Sustainable Performance)

First: Concept of Sustainable Organizational Performance

Sustainable Performance: Balanced Integration of Economic, Social, and Environmental Dimensions

Performance represents a dynamic balance between efficiency and effectiveness, a competitive state achieved by the institution to ensure its survival in the market, through the relationship between costs and realized value (Dobrin et al., 2012:313). As for sustainability, which emerged as a reaction to global environmental crises since the Stockholm Conference in 1972, it is defined as the wise balance between economic development, environmental stewardship, and social justice (Korkmaz & Balaban, 2019:2; Wicher et al., 2019:2). Organizational sustainability is embodied in a business strategy that balances the needs of current and future stakeholders and protects human and natural resources (Rani, 2019:100).

To achieve sustainable organizational performance, defined as adopting strategies that meet the institution's needs while protecting and enhancing natural and human resources (Ukko et al., 2019:2), three levels must be developed continuously:

1. **Strategic Level:** By integrating sustainability principles into the organization's vision and mission.
2. **Operational Level:** By implementing environmental management systems and performance reporting.
3. **Methodological Level:** By assuming responsibility for long-term impacts on society, economy, and environment (Labuschagne & Brent, 2005:160).

This performance aims to achieve integration between financial and social performance, balancing economic, social, and environmental objectives (Kazemian et al., 2016:356). Organizations rely on achieving it through sustainability competencies represented in dynamic practical knowledge, values, and precise skills that enable them to address sustainability issues (Ofei-Manu & Didham, 2018:1175).

In brief, sustainable organizational performance can be defined as the ability of companies to find a balance between profitability goals and social and environmental goals in managing their operations.

Second: Importance of Sustainable Organizational Performance

Amid increasing global focus on environmental crises such as global warming and resource depletion, the concept of sustainability has emerged as a link between economic and social development and environmental preservation to meet the needs of current and future generations (Ding, 2005:4). The importance of sustainable organizational performance lies in it being a strategic driver that achieves multi-dimensional benefits, which can be summarized as follows:

1. **Enhancing Competitive Advantage and Financial Sustainability:**
   - Increases the company's ability to achieve long-term profits and meet stakeholder expectations (Lintkangas et al., 2019:2).
   - Improves operational efficiency by reducing waste, lowering costs, and boosting revenues (Eikelenboom & de Jong, 2019:1361; Stanciu et al., 2014:340).
2. **Risk Management and Regulatory Compliance:**
   - Enables organizations to comply with increasingly stringent international environmental and social regulations (Székely & Knirsch, 2005:628).
   - Helps build a strong corporate reputation and reduces unnecessary risks (Castellani & Sala, 2010:871).
3. **Innovation and Social Development:**
   - Stimulates innovation in delivering environmentally friendly products and services that meet societal needs (Castellani & Sala, 2010:871).
   - Contributes to creating decent job opportunities, raising living standards, and enhancing social capital (Stanciu et al., 2014:340; Castellani & Sala, 2010:871).

Sustainable organizational performance is thus a comprehensive approach that not only achieves profit but also builds organizational resilience in the face of future challenges.

Third: Motivations for Sustainable Organizational Performance

There are two types of motivations, external and internal, that drive an organization to achieve sustainable organizational performance. Regarding external motivations and according to the analysis of (Crutzen, 2011:10), there are three main external motivations for organizations to adopt sustainable performance. First, it helps them gain public legitimacy by showing a positive impact on society and the environment, facilitating the acceptance of their decisions. Second, sustainability reports have become a tool for competition, through which they highlight their standing compared to competitors. Finally, this approach is a proactive response to increasing legislation, ensuring business continuity under mandatory disclosure requirements.

However, (Rezaee, 2018:7) views external motivations through enhancing corporate governance by establishing independent and diverse boards of directors and linking executive compensation to performance, promoting transparency and accountability. It also enables companies to manage risks proactively by setting effective compliance measures with regulations and laws, reducing costs associated with non-compliance. Most importantly, sustainable performance directly contributes to building brand reputation and increasing market value by adopting environmental and social initiatives that translate into customer satisfaction and loyalty.

As for internal motivations, (Crutzen, 2011:10) identifies them, stating that adopting sustainable performance stimulates a strategic transformation within the organization. It builds a foundation of internal legitimacy and

accountability, enhancing transparency and establishing a culture of trust. It also plays a pivotal role in motivating the workforce and boosting morale by supporting incentive systems and strengthening internal controls.

On a strategic level, the sustainable performance system acts as a vital performance compass, allowing the company to assess the efficiency of its operations, measure the achievement of strategic objectives, and accurately diagnose the roots of success and failure. Most importantly, it highlights the tangible economic value of investing in sustainable activities, such as cost reduction or opening new revenue streams, transforming sustainability from a mere ethical commitment into a convincing business case that drives management to adopt it with greater transparency.

Fourth: Practices of Sustainable Performance

The following practices are fundamental pillars for achieving sustainable organizational performance, where economic, environmental, and social dimensions are integrated into the core of the organization's work:

1. **Sustainable Strategy:** Represents a comprehensive framework integrating environmental, economic, and social dimensions into the heart of the organization's vision and goals, aiming to meet present needs while preserving natural and human resources for future generations (Crutzen, 2011; Ukko et al., 2019).
2. **Green Human Resource Management:** Aims to make employees active partners in achieving environmental goals through integrated practices (Yong et al., 2019; Amrutha & Geetha, 2019), including green recruitment, green training, green performance management and compensation, and employee empowerment and green engagement.
3. **Organizational Innovation:** A fundamental driver for sustainable development, contributing to developing new products and processes that enhance resource use efficiency and achieve balance between economic, environmental, and social needs (Rajnoha et al., 2017; Pislaru et al., 2019).

These three practices represent an integrated system that contributes to building resilient organizations capable of achieving sustainable success in a changing business environment.

Fifth: Dimensions of Sustainable Organizational Performance

The dimensions of sustainable organizational performance form an integrated framework for achieving balance between the requirements of economy, society, and environment (Tasleem et al., 2019:17), represented in:

1. **Economic Dimension:** Related to productive and financial organizational performance (Abbade et al., 2014:3), measured through cost improvement, revenue enhancement, and financial indicators.
2. **Social Dimension:** Can be seen through studying variables like education, health, well-being, and quality of life (Abbade et al., 2014:3), achieved by improving working conditions, promoting diversity and inclusion, and community contribution.
3. **Environmental Dimension:** Refers to the environmental impact of organizational practices (Abbade et al., 2014:3), achieved by pollution reduction, sustainable waste management, and resource conservation.

These dimensions together represent a balanced system ensuring the organization achieves sustainable success combining profitability with social and environmental responsibility.

Relationship Between Variables

Recycling is a fundamental pillar in achieving sustainable performance, as it contributes in an integrated manner to achieving its environmental, economic, and social dimensions. The following details these contributions based on the study of (Sahbi & Husseini, 2022:103):

1. **Environmental Contributions:** Preserving natural resources, saving energy, and limiting pollution.
2. **Economic Contributions:** Stimulating economic growth, reducing costs, and generating additional revenue.
3. **Strategic Contributions:** Promoting the circular economy and protecting biodiversity.

Thus, the importance of recycling is evident as an integrated strategy supporting the achievement of sustainable performance by balancing environmental, economic, and social requirements, making it an indispensable element in any sustainable development model.

Section Three: Statistical Analysis and Hypothesis Testing

First Topic: Descriptive Analysis of Research Variables

First: Independent Variable (Recycling)

Table (1) shows the arithmetic means and standard deviations of the sample individuals' responses to the items of the recycling variable.

Table (1): Arithmetic Means and Standard Deviations for Recycling Items

Item	Mean	Standard Deviation
1	3.52	1.04
2	3.60	1.16
3	3.76	0.93
4	3.63	1.03
5	3.52	1.04
6	3.67	1.12
7	3.52	1.22
8	3.63	1.05
9	3.65	1.04
10	3.63	1.03
Overall	**3.6475**	**1.0583**

Source: Prepared by the researchers according to SPSS V.26 outputs

It is clear from Table (1) that the total arithmetic mean of the sample individuals' responses to the items of the recycling variable was (3.6475), which falls within a (medium) approval level, with a standard deviation of (1.0583), indicating homogeneity and no significant dispersion in the respondents' answers. This in turn reflects relative agreement among the sample members on the importance of recycling practices in the organization.

Second: Dependent Variable (Sustainable Performance) Table (2) shows the arithmetic means and standard deviations of the sample individuals' responses to the items of the sustainable performance variable.

Table (2) Arithmetic means and standard deviations of sustainability performance items.

Item	Mean	Standard Deviation
1	3.64	1.06
2	3.53	1.02
3	3.73	0.96
4	3.63	1.06
5	3.60	1.03
6	3.51	1.11
7	3.76	1.17
8	3.76	0.93
9	3.63	1.03
10	3.52	1.04
Overall	**3.62583**	**1.05**

Source: Prepared by the researchers according to SPSS V.26 outputs

It is evident from Table (2) that the total arithmetic mean of the sample individuals' responses to the items of the sustainable performance variable was (3.62583), also falling within a (medium) approval level, with a standard deviation of (1.05), confirming the homogeneity of the respondents' opinions and their agreement on the existence of a medium level of sustainable performance in the organization.

Second Topic: Testing Correlation Hypotheses (First Main Hypothesis)

To test the first main hypothesis, which states "There is a statistically significant correlation between recycling (as an independent factor) and sustainable performance (as a dependent factor) in the organization under research," Pearson correlation coefficient was used, and the results are as shown in Table (3).

Table (3): Statistical Results of the Correlation between Recycling and Sustainable Performance

Dimension	Correlation Coefficient	Significance Level
Collection	0.784**	0.01
Sorting	0.711**	0.01
Processing	0.817**	0.01
Manufacturing	0.742**	0.01
Reuse	0.702**	0.01

Total Recycling	0.843**	0.01

Source: Authors' computation from SPSS V.26 outputs

The following results can be deduced from Table (3):

1. **Collection:** There is a strong positive and statistically significant correlation (0.784) at a significance level (0.01) with sustainable performance. Accordingly, the first sub-hypothesis is accepted.
2. **Sorting:** There is a strong positive and statistically significant correlation (0.711) at a significance level (0.01) with sustainable performance. Accordingly, the second sub-hypothesis is accepted.
3. **Processing:** There is a strong positive and statistically significant correlation (0.817) at a significance level (0.01) with sustainable performance. Accordingly, the third sub-hypothesis is accepted.
4. **Manufacturing:** There is a strong positive and statistically significant correlation (0.742) at a significance level (0.01) with sustainable performance. Accordingly, the fourth sub-hypothesis is accepted.
5. **Reuse:** There is a strong positive and statistically significant correlation (0.702) at a significance level (0.01) with sustainable performance. Accordingly, the fifth sub-hypothesis is accepted.

Conclusion on the First Main Hypothesis:

Given the acceptance of all sub-hypotheses, and the total correlation coefficient between the two variables reaching a very strong and direct value of (0.843) at a significance level (0.01), the first main hypothesis is fully accepted.

Third Topic: Testing Impact Hypotheses (Second Main Hypothesis)

To test the second main hypothesis, which states "There is a statistically significant impact of recycling on sustainable performance in the organization under research," simple linear regression analysis was used, and the results are as shown in Table (4).

Table (4): Linear Regression Coefficients for the Impact of Recycling Dimensions on Sustainable Performance

Dimension	R^2	F Value	Sig. Level	Constant	B Value	t value	Sig. Level
Collection	**0.614**	**149.513**	**0.01**	**Regression Constant**	**0.687**	**2.783**	**0.01**
				Regression Constant	**0.803**	**12.228**	**0.01**
Sorting	**0.509**	**96.173**	**0.01**	**Regression Constant**	**0.792**	**2.641**	**0.01**
				Regression Constant	**0.782**	**9.807**	**0.01**
Processing	**0.667**	**188.210**	**0.01**	**Regression Constant**	**0.646**	**2.990**	**0.14**
				Regression Constant	**0.890**	**13.719**	**0.01**
Manufacturing	**0.587**	**96.173**	**0.01**	**Regression Constant**	**0.776**	**2.841**	**0.01**
				Regression Constant	**0.759**	**9.777**	**0.01**
Reuse	**0.653**	**116.173**	**0.01**	**Regression Constant**	**0.704**	**2.841**	**0.01**
				Regression Constant	**0.732**	**9.777**	**0.01**
Total Recycling	**0.710**	**230.300**	**0.01**	**Regression Constant**	**0.882**	**3.010**	**0.01**
				Regression Constant	**0.825**	**15.176**	**0.01**

Source: Prepared by the researchers according to SPSS V.26 outputs

The following results can be deduced from Table (4):

1. **Collection:** Explains (61.4%) of the variance in sustainable performance ($R^2 = 0.614$), and its impact is positive and statistically significant (B = 0.687). Accordingly, the first sub-hypothesis stemming from the second main hypothesis is accepted.
2. **Sorting:** Explains (50.9%) of the variance in sustainable performance ($R^2 = 0.509$), and its impact is positive and statistically significant (B = 0.792). Accordingly, the second sub-hypothesis is accepted.

3. **Processing:** Explains (66.7%) of the variance in sustainable performance ($R^2 = 0.667$), and its impact is positive and statistically significant (B = 0.646). Accordingly, the third sub-hypothesis is accepted.
4. **Manufacturing:** Explains (58.7%) of the variance in sustainable performance ($R^2 = 0.587$), and its impact is positive and statistically significant (B = 0.776). Accordingly, the fourth sub-hypothesis is accepted.
5. **Reuse:** Explains (65.3%) of the variance in sustainable performance ($R^2 = 0.653$), and its impact is positive and statistically significant (B = 0.704). Accordingly, the fifth sub-hypothesis is accepted.

Conclusion on the Second Main Hypothesis:

The recycling variable as a whole possesses high explanatory power, explaining (71%) of the changes in sustainable performance ($R^2 = 0.710$), and its total impact is positive and statistically significant (B = 0.882). Accordingly, and given the acceptance of all its derived sub-hypotheses, the second main hypothesis is fully accepted.

Section Four

Conclusions and Recommendations

First: Conclusions

Based on the results of the statistical analysis of the field study data, the following main conclusions can be drawn:

1. **Confirmation of Positive Relationship and Impact:** Statistical analyses proved the existence of a strong direct correlation (total correlation coefficient 0.843) and a statistically significant impact (coefficient of determination 71%) of recycling practices in enhancing sustainable performance at Al-Mustaqbal University, confirming the validity of the study's two main hypotheses.
2. **Variation in Dimension Impact:** Despite the positive impact of all recycling dimensions, their strength varied. The "Processing" stage was the most impactful (correlation coefficient 0.817, coefficient of determination 66.7%), followed by the "Collection" stage, indicating that core recycling operations are the main driver of sustainability.
3. **Achieving Economic and Environmental Benefits:** Effective recycling programs contribute to achieving tangible financial savings for the university by reducing waste disposal costs, alongside clear environmental benefits represented in preserving natural resources, lowering the carbon footprint, and limiting pollution.
4. **Enhancing Social Dimension and Institutional Reputation:** Recycling programs are an effective tool for enhancing sustainable organizational culture and entrenching social responsibility values among university personnel (students and employees), positively reflecting on the university's reputation as an environmentally responsible institution.
5. **Integrated Approach:** The success of recycling in driving sustainable performance is highlighted when applied within an integrated approach encompassing awareness, appropriate infrastructure, administrative support, and linking it to broader sustainability policies within the university.

Second: Recommendations

Based on the above conclusions, and affirming the pivotal role of recycling, the study presents a set of practical recommendations for Al-Mustaqbal University to maximize the impact of these practices:

1. **Strategic Program Development:** Recommend developing a comprehensive strategic plan for the recycling program, focusing on enhancing the "Processing" and "Collection" stages due to their higher impact, with clear Key Performance Indicators (KPIs) to measure progress and achieve desired goals.
2. **Enhancing Infrastructure and Technology:** Invest in developing infrastructure by providing easily accessible smart containers, establishing a specialized sorting and processing center within the campus, and leveraging technology to improve the efficiency of collection and separation operations.
3. **Deepening Awareness and Academic Integration:** Strengthen continuous awareness programs through various university media outlets, and integrate circular economy and waste management concepts into academic curricula and continuous learning programs, to ensure instilling a sustainability culture as part of the university's identity.
4. **Activating an Incentive and Participation System:** Design and implement a competitive incentive system among colleges, departments, and university housing, based on objective performance metrics for recycled waste quantities, with public recognition of distinguished achievements to encourage positive competitive spirit.
5. **Documentation, Transparency, and Conducting Further Research:** Establish a unified system for documenting and measuring the financial and environmental benefits achieved from the recycling program, publishing them in an annual sustainability report to enhance transparency. The study also recommends conducting future research to analyze the economic feasibility of establishing a manufacturing unit based on recycled materials within the university.

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