



Original Article



Presentation of a Green Accounting Model in Integrated Reporting Using a Critical Approach: A Model to Replace Integrated Reporting

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Abstract

Background: One of the most important challenges in the business world is environmental performance and how to disclose it. Companies interested in disclosing environmental information try to present their information to users transparently comprehensibly. One of the most recent reports that can provide environmental information transparently and cover the criticisms of green accounting, which was presented as an independent report, is integrated reporting.

Methods: In the present study, the green accounting model in integrated reporting is prepared with a critical approach. This model was developed qualitatively and the multi-grounded theory method was used.

Results: Accordingly, among the selected texts and interviews with 20 experts in the field of accounting and auditing, the relevant concepts and categories were extracted and by categorizing and linking the categories, the desired model including causal conditions, contextual conditions, intervening conditions, core category or phenomenon, strategies and consequences were extracted.

Conclusion: Based on the results of this study, it is recommended to the Accounting Standards Development Committee to hold meetings to assess the need for integrated reporting in the country and use the experiences of other countries using this report. It is also recommended for the auditing organization to assign a case in the headings of its review in companies under the title of the presence or absence of an integrated report. It can be a stimulus for companies to follow and become familiar with integrated reporting.

Keywords: Environmental information, Financial and non-financial information, Multi-grounded theory method

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Introduction

Green accounting has ambiguities that modern reporting must eliminate them. Owing to the increasing release of pollutants in the environment and the excessive use of limited natural resources, the issue of environmental protection has received special attention. With the introduction of these issues by environmentalists at the community level, many sciences have faced environmental problems. Accounting has also entered this social area to expand its accountability to the level of accountability to public people.¹ In this regard, the term “green accounting” was first used publicly in the 1980s and found a special place in reporting in the next decades. Despite the benefits of green accounting, corporate social and environmental reporting has been criticized for failing to provide a proper representation of the social and environmental impact of

corporate activities.²⁻⁴

As there is no specific standard for green accounting, comparisons between two companies or two different countries are very impossible. Calculating inputs for green accounting is not easy due to cost and benefits it receives in quality units. Large public and commercial organizations do not manage and record waste management with sufficient energy and material costs. Thus, it only considers the cost of such resources for the company and not for the community. Thus, the integrated nature of green accounting with financial accounting, management accounting, cost accounting, tax accounting and national accounting is a major shortcoming.⁵

Nowadays, reporting takes a different path from traditional financial reporting because existing trends have led stakeholders to new social needs. Integrated reporting



is a new form of reporting that combines financial and non-financial reporting with a focus on creating future value.⁶⁻⁸ Organizations are responsible to implement integrated reporting based on strategy, business plan, and implementable capital among financial, productive, intellectual, human, social, and natural capital.⁹

The International Integrated Reporting Council (IIRC) promotes integrated reporting for all organizations, including the public sector and public companies, and integrated reporting is now accepted in both the private and public sectors. Given the goals of integrated reporting, it can be stated that non-financial information, including sustainability information, becomes equally important compared to corporate financial information.¹⁰

Given the importance of the two concepts of green accounting and integrated reporting as a form of modern reporting, special attention to these concepts in accounting seems important. Thus, it should be noted that the conceptual evolution of the relationships between these concepts is presented in a coherent model and with the aim of structuring the executive mechanisms of green accounting with a critical approach and integrated reporting. Accordingly, the present study creates a model to examine green accounting in integrated reporting with a critical approach.

There has been an idea that companies are responsible not only to their shareholders but also to whole society for centuries.¹¹ In this regard, the criticism of financial reporting is that it does not adequately meet the information needs of all stakeholders who want to evaluate the past and future performance of a company. This is due to the reason that it provides only a part of the business and ignores the social and environmental impacts of a company.¹² Thus, the demand for increased corporate social responsibility reporting as well as any additional information that could potentially affect business performance increased. Since then, the number of companies disclosing their actions regarding the environmental and social activities has increased. These disclosures have usually been in an independent report way.¹³ The concern of independent reports on environmental and social activities is that they provide non-financial information that is non-integrated and segregated. Therefore, they are unable to provide the necessary links for stakeholders to effectively evaluate economic performance, strategy, and potential for future value creation.¹⁴

The integrated report is seen as a response to this criticism. The IIRC states that the purpose of integrated reporting is to provide information about an organization's strategy, governance, performance, and vision in a way that reflects the business, social, and environmental context in which the company operates.¹⁵ The IIRC has established a network of companies experimenting integrated reporting. Also, the IIRC hopes that integrated reporting will become a global norm for corporate reporting to investors.¹³ The aim of integrated reporting is to provide

a unified report to integrate financial information and sustainability information reported separately in previous formats.^{9,16,17} The IIRC believes that the integration of financial information and sustainability meets the information needs of investors in a new way by providing a more comprehensive picture of a company and its performance.⁹ Landau et al concluded that the quality of reports is important for market evaluation because the negative effect is reduced by the quality of reports.¹⁸

The research conducted by Abhayawansa et al that integrated reporting provides many opportunities to strengthen the field of intellectual capital accounting. The insights presented in this regard may be relevant to understanding and evaluating subsequent iterations of intellectual capital accounting.¹⁹

The results of a study conducted by Montecalvo et al indicated a continuous increase in the quantity and quality of sustainability disclosure. In 2012, this organization decided to adopt an integrated reporting framework to strengthen sustainability reporting for all stakeholders. The integrated reporting process led to a more balanced disclosure of the material aspects of sustainability. Although integrated reporting has the potential to enhance public sector sustainability reporting, intergenerational rights issues have been overlooked.²⁰

Bernardi and Stark theorized that the higher the level of disclosure of environmental, social, and corporate governance performance, the greater the impact of integrated reporting. They found that their results were consistent with those who advocate for integrated reporting and their own theory that the level of environmental, social, and corporate governance disclosure is a mediating variable in determining the effectiveness of integrated reporting.¹³

The results of a study conducted by Turturea showed that companies cannot provide a complete picture of their social and environmental performance and implicitly fail to achieve the goal of the IIRC in promoting accounting for sustainability. The general result suggests that German companies disclose the least social and environmental aspects in integrated reports compared to British and French companies.²¹

Given the importance of the critical approach in explaining new disciplinary and interdisciplinary phenomena and criticisms of green accounting, as well as the possibility of covering the shortcomings of green accounting in integrated reporting, the main research question is what is the appropriate model of green accounting in integrated reporting with a critical approach?

Materials and Methods

Given the subject of the research, which is to provide a model for green accounting in integrated reporting with a critical approach, the present study is based on an interpretive paradigm in terms of philosophically. Also, this research is qualitative and exploratory in terms of aim and the multi-grounded theory is used to analyze the data.

The statistical population includes faculty members of universities, partners of auditing companies, members of the Society of Certified Public Accountants and financial managers of companies in Iran. Theoretical sampling method was used for sampling. This sampling method is based on the concepts extracted from the data. Sampling continues until the next sample does not add complementary information on the components of the theory and saturation level is obtained in all categories. It should be noted that in the grounded method, data collection, analysis and extraction of data are done simultaneously. Most interviews lasted an average of about an hour. After theoretical saturation, a total of 20 people were selected from the statistical population as a sample.

In the present study, due to the qualitative nature of the study and use of multi-grounded theory, theoretical foundations for determining the subject and basic concepts are collected first through library study and a valid database. Then, interviews will be used to develop the theoretical foundations, identify the components and finally formulate a conceptual model of the research.

Data collection tools in this study are unstructured and semi-structured interviews.

Reminder tools in this research are the cards on which the phrase of "I intend to ..." written on them. MAXQDA10 qualitative data analysis software has also been used to extract the concepts.

To make the research findings credible after analyzing the data obtained from the interviews, the following methods are used:

A. Data Consensus or Triangulation

Data consensus means using multiple data sources such as collecting data from different groups, environments and times.

B. Member Checking

To check the members, the variables extracted from the interviews and the results are presented to 5 professional experts (2 interviewees and 3 other experts who did not participate in the interview) and are refined.

C. Reproducibility

To measure the reproductively of the data, the method of reliability or agreement of the coders was used.

In the data analysis, it should be noted that nowadays, one of the most important strategies in qualitative methodology is grounded theorizing. Grounded theorizing is the basis of a systematic and qualitative procedure that is used to generate theory. The generated theory describes a process, an action, or an interaction on a real subject on a general conceptual level.²² The latest approach in the grounded theory is the multi-grounded theory that is used in this research. The main basis of data collection in this approach is literature and resources as well as interviews.

The steps in the process of developing a multi-grounded

theory according to Goldkuhl and Cronholm²³ are summarized as follows:

A. Reflecting the Areas of Interest in Research and Revision

The relevant and desired areas in the research are expanded and the areas, which are less relevant, are revised.

B. Inductive Coding - Equivalent to Open Coding

It is an analytical process through which concepts are identified and their features and dimensions are discovered in data.

C. Pattern Coding

It is equivalent to axial coding that determines the main category and the relationships between the discovered components. In this section, categories including causal conditions, core category or phenomenon, contextual conditions, intervening conditions, strategies and consequences are used.

Causal conditions: They are categories or conditions that affect the core category or *phenomenon and lead to the occurrence or spread of the phenomenon.*

Core category or phenomenon: Core category or phenomenon is a phenomenon that is the basis and axis of the process. The category that is selected as the main or axial category should be abstract enough to relate other main categories to it.

Contextual conditions: They are specific conditions in which processes and interactions to manage, control and respond to the phenomenon take place and affect strategies.

Intervening conditions: They are general conditions that affect how processes and strategies *work. In other words, they are conditions that exacerbate or weaken phenomena.*

Strategies: They are specific actions or interactions that result from a central phenomenon.

Consequences: They are the outputs that result from the employment of strategies.

D. Theory Condensation

It is equivalent to selective coding and the formation of one or more core (designing a green accounting model in integrated reporting with the expression of the discovered relationships).²³

Results and Discussion

The practical steps A to D (stated above) are as follows:

A. Reflecting the Areas of Interest in Research and Revision

At this stage of the multi-grounded theory method, theoretical-deductive analysis is performed.

The aim of this step is to determine the valid, authentic and relevant documents timely. For this purpose, articles, books, websites of reputable foreign and domestic organizations were reviewed. The data collection tool

was often an Internet search. Also, several books were identified and prepared. Scientific databases and search engines such as SID, MagIran, Civilica, Noormags, Google Scholar, etc. were used for Internet search.

To ensure the review of all domestic articles, the system of scientific and research journals of the country, the list of which is published every year by the Ministry of Science, Research and Technology was also reviewed. Some of the foreign sources of scientific research in this study also include: Emerald Insight, ProQuest, Science Direct and Springer.

In this step, 123 studies on the subject were identified.

The found documents were then examined qualitatively. The indicators studied in the evaluation are valid sources published from 2000 onwards and the use of the keywords of green accounting, environmental accounting, integrated reporting, sustainable development, social accounting and sustainability reporting in the titles of the articles. In selecting the final articles, the above filters were applied. Finally, 30 studies were selected to enter the coding stage. After reviewing the selected texts, the concepts extracted from the selected texts have been shown in Table 1.

After carefully reviewing the existing literature, the codes extracted from the literature were converted into

Table 1. Concepts Extracted From Selected Texts

Concepts	References	Sub-category 2	Sub-category 1
Insufficient disclosure of environmental information in green accounting	2-4		
The need for more coherent and meaningful theoretical foundations for green accounting	24		
Lack of comparison between two companies or two countries in green accounting	5	Lack of transparency in green accounting data and figures	Criticisms of green accounting as an independent report
Concerns about green accounting figures	25		
Lack of accepting norm in green accounting	26		
Green accounting is much broader than the current theme	27		
Green Accounting is an independent, one-dimensional report	9,13,16,17	Lack of information links in green accounting	
Failure to provide the necessary links and links for stakeholders in green accounting information	14		
Better internal decision making for a sustainable strategy	19,28	Creating a harmonious framework between disclosure and real environmental performance	
The best tool for providing a comprehensive representation of the financial and non-financial performance of the organization	19,29,30		
Reflecting the business, social and environmental context of the company	15,20,21		
The process of coordinating financial and non-financial information	15		
Reflecting environmental performance in the past, present and future	15,30	Reliability of green accounting items in integrated reporting	At the company level and users of reporting information
Clarifying how sustainable development fits into operations or business	31		
More accurate measurement of sustainability	13,28,30	Coherent reporting and creating information links	
New and accurate reporting	32		
Disclosure of separate information together	15,33		
Creating a common vision of managers and stakeholders on environmental strategies	34		
A combined action	30		
Explaining the company's ability to create and maintain company value	15,18	At the community level	
Reflecting integrated thinking in society	15		
Pay attention to social norms	31,35		
linking environment to the economy	Extracted from interviews		
Reduce employee resistance to change in reporting method	Extracted from interviews		
Increasing the specialized knowledge of the employee	Extracted from interviews	At the employee level	
Hiring experts	Extracted from interviews		
Simplifying reports	36	At the organizational level	
Strengthening internal communication between financial and non-financial teams	32, 37		
Financing	32, 34		
Acceptance of integrated thinking	19, 28, 30		
Lack of distinction between financial and non-financial performance	5, 26	cultural factors	
Organizational environmental culture	28, 30		
Conditions in the professional community	4, 13, 31		
Auditing environment	Extracted from interviews	Environmental factors	
Economic environment	Extracted from interviews		
Organization size	32, 37	Organizational factors	

concepts and categories.

Then, concepts and categories extracted from literature were used to ask interview questions. In the interviews, beyond the discussions extracted from the literature, points were raised that were not true in the practice environment and were not in the literature, or appeared in other forms and concepts, and by referring to the literature again, codes were also identified for them, as shown in Table 1.

B. Inductive Coding (Open Coding)

In this section, a part of an interview and how to extract concepts from them, which is known as inductive coding in the multi-grounded theory method, is given inside each{}

Interviewee 5

“... Integrated reporting includes environmental accounting, social accounting and financial accounting {Reflecting the business, social and environmental context of the company}. In other words, it can be said that integrated reporting combines financial and non-financial information {The process of coordinating financial and non-financial information}. I personally see this type of reporting and the integration of separate reports {a combined action}, but the IIRC has a great impact on the way of reporting. For example, members of this committee can make this type of reporting more common and encourage companies to report on this type with logical solutions... The number of employees and level of production can be also important in preparing integrated reporting. The bigger an organization, the more it is visible and tries to use more this type of report and be less attacked. {The organization size}

The concepts extracted from the interviews are listed in Table 2. The total concepts extracted from the interviews are 234.

C. Pattern Coding (Axial Coding)

As explained earlier, this step is to determine the main category and the relationships between the discovered components. In this section, the main categories include causal conditions, contextual conditions, intervening conditions, core category or phenomenon, strategies and consequences (Table 3).

D. Condensation Theory (Selective Coding)

The last step in creating a theory is condensation theory. This step is equivalent to selective coding in the grounded method. However, in axial coding, categories are systematically improved and linked to subcategories. However, these categories must be integrated to form a larger theoretical arrangement. Therefore, in the step of creating the theory, the process of integration and improvement of categories takes place. Therefore, the raw data of the present research interviews, after being coded and categorized in terms of concepts and categories, lead

into extraction of a core category or the main research phenomenon, namely green accounting in integrated reporting, based on the great emphasis of interviewees on this theme. Figure 1 shows the output model from the above steps.

To determine the validity of each of the main categories of the model, 25 experts other than the sample members were used on a 5-point scale. Then, the ratio test is used to check the validity of each component of the model and the whole model. The level of scores is between 1 and 5. Therefore, the average limit is considered to be 3. If the average of the variable is more than 3, it will indicate the high validity of the model. In other words, the higher the response ratio greater than 3, the higher the value of the model. The ratio test results are presented in Table 4.

Based on the results obtained for the general validity of the model with a mean of 4.24, the ratio of responses greater than 3 is 0.97 and the significance level of the test is less than 0.01. As a result, the general model is 99% valid. Also, for each dimension of the model, the significance level is less than 0.05 and the response ratio greater than 3 is greater than 0.50. As a result, each dimension of the model has a significant validity.

The validity and reliability of the findings of the present study are confirmed by two strategies.

A. Member checking: The findings of the analysis of the collected data were provided to the interviewees and they confirmed the accuracy of the findings after comparison with the raw data.

B. External review: The findings obtained from the analysis of the collected data were provided to the professors of other universities and they confirmed the accuracy of the findings based on research documents.

Conclusions

According to research texts and experts' opinions, when green accounting is disclosed as part of integrated reporting, it can cover criticisms that are independent reporting. In this research, a model for green accounting in integrated reporting with a critical approach was developed, the main categories of which are as follows.

A. Causal Conditions

Causal conditions in the research model include Criticisms of green accounting as an independent report, which is divided into two categories. The first is lack of transparency in green accounting data and figures.

Despite the value of any company's efforts to do green accounting, one of the criticisms to it is about the transparency of the company's environmental information and figures.

According to experts in this research, managers consider the company's environmental information as the company's black box and do not easily disclose all the company's environmental information and figures really. There are many motivations for managers in this information. To achieve transparent information, the

Table 2. Inductive Coding - Equivalent to Open Coding

N	Interviewee Number	Concept
5	1, 7, 13, 17 and 20	Linking environment to the economy
11	1, 3, 4, 5, 6, 7, 9, 11, 13, 15 and 120	Insufficient disclosure of environmental information in green accounting
12	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 14 and 15	Disclosure of separate information together
13	1, 2, 3, 4, 5, 7, 9, 10, 11, 12, 14, 15 and 16	Reflecting integrated thinking in society
12	2, 4, 5, 8, 9, 10, 11, 14, 15, 17, 19 and 20	Reflecting the commercial, social and environmental context of the company
9	3, 5, 6, 7, 8, 9, 11, 14 and 17	The process of coordinating financial and non-financial information
8	1, 4, 5, 8, 9, 14, 18 and 20	A combined action
10	1, 2, 5, 6, 7, 12, 14, 15, 18 and 19	Organization size
10	1, 2, 4, 5, 6, 9, 10, 11, 14 and 18	Lack of accepting norm in green accounting
7	2, 3, 4, 5, 9, 13 and 18	The need for more coherent and meaningful theoretical foundations
8	1, 3, 4, 5, 9, 14, 18 and 20	Concerns about green accounting figures
5	4, 5, 9, 15 and 20	Reducing employee resistance to changing reporting practices
6	3, 4, 9, 14, 19 and 20	Hiring specialized people
7	1, 6, 9, 12, 16, 17 and 18	financing
4	3, 8, 12 and 15	New and accurate reporting
6	1, 7, 12, 14, 19 and 20	Organizational environmental culture
7	2, 5, 7, 9, 12, 17 and 18	Economic environment
6	1, 7, 12, 15, 18 and 20	Auditing environment
5	5, 6, 8, 12 and 13	Creating a common vision of managers and stakeholders on environmental strategies
7	1, 5, 10, 14, 16, 17 and 20	Increasing the specialized knowledge of employees
8	2, 4, 6, 10, 11, 13, 16 and 19	Reflecting environmental performance in the past, present and future
5	3, 9, 11, 16 and 17	Simplifying the reports
4	1, 8, 10 and 16	Strengthening internal communication between financial and non-financial teams
6	3, 11, 12, 16, 18 and 20	Conditions in the professional community
7	2, 4, 6, 12, 14, 17 and 20	Lack of comparison between two companies or two countries in green accounting
3	1, 15 and 19	Green accounting is much broader than the current theme
5	2, 5, 9, 17 and 19	Green accounting is an independent, one-dimensional report
6	3, 5, 6, 7, 15 and 17	Failure to provide the necessary links and links for stakeholders in green accounting information
5	2, 4, 14, 16 and 20	Better internal decision making for a sustainable strategy
3	3, 15 and 17	The best tool for providing a comprehensive representation of the financial and non-financial performance of the organization
4	1, 11, 13 and 19	Clarifying how sustainable development fits into operations or business
3	2, 4 and 18	More accurate measurement of sustainability
2	6 and 17	Paying attention to social norms
6	2, 4, 6, 8, 12 and 15	Explaining the company's ability to create and maintain company value
4	1, 7, 14 and 20	Acceptance of integrated thinking
5	2, 7, 13, 18 and 19	Lack of distinction between financial and non-financial performance

reporting method must be such that the gaps caused by the lack of transparency in environmental information and figures are filled. This criticism is a reason to disclose environmental information in a more comprehensive report such as the integrated report, which has a stronger framework than green accounting. The next criticism is lack of information links in green accounting. Green accounting discloses company environmental information when provided independently to users. This information (when is not associated with financial and management information, etc., alone cannot provide a complete picture of all areas of the company and create

good and coherent information links. Integrated report reports all financial and non-financial information of the company. In a comprehensive report, users have full access to all company information together. According to interviewees, these are critical reasons for the existence of green accounting in integrated reporting.

B. Contextual Conditions

Based on the selected texts and the opinions of the interviewees, cultural factors are the most important specific factors influencing the creation of a context to influence green accounting strategies in the integrated

Table 3. Pattern Coding - Equivalent to Axial Coding

Main Category	Sub-category
Causal conditions	Criticisms of green accounting as an independent report: -Lack of transparency in green accounting data and figures -Lack of information links in green accounting
Contextual conditions	cultural factors: -Acceptance of integrated thinking -Lack of distinction between financial and non-financial performance -environmental culture of the organization
Intervening conditions	Environmental factors: -Conditions in the professional community -Auditing environment -Economic environment Organizational factors: -Organization size
Core category or phenomenon	Green accounting in integrated reporting
Strategies	At the organizational level: -Simplification of reports -Strengthening the internal communication between financial and non-financial teams -financing At the employee level: -Reducing employee resistance to change in reporting meth -Increasing the specialized knowledge of employees -Hiring specialized people
Consequences	At the level of company and users of reporting information: -Creating framework between disclosure and real environmental performance -Reliability of green accounting items in integrated reporting -Coherent report and creating informational links At the community level: -Explaining the company's ability to Create and maintain company value -Reflecting the integrated thinking in community -Paying attention to social norms -The link between the environment and the economy

Table 4. Ratio Test Results to Determine Model Validity

Variable	F	Mean	> 3	P Value
Fit of concepts with categories	25	4.33	0.87	0.000
Fit between categories	25	4.27	0.77	0.005
Fit of paradigm model with green accounting	25	4.13	0.77	0.005
Fit of paradigm model with integrated reporting	25	4.47	0.83	0.000
Systematic fit between concepts	25	4.40	0.90	0.000
Conceptual links and developing of categories	25	4.60	0.93	0.000
Ability to understand the problem and its solution in theory	25	4.10	0.80	0.001
Considering changes in conditions in theory	25	4.50	0.90	0.000
Describing the macro conditions affecting the phenomenon	25	4.20	0.90	0.000
Generalizability of theory strategies	25	3.90	0.70	0.043
Practical relevance of explanatory theory with problems	25	3.90	0.73	0.016
Extensive data collection	25	4.07	0.77	0.005
General validity of model	25	4.24	0.97	0.000

reporting. In the research model, cultural factors include “acceptance of integrated thinking”, “lack of distinction between financial and non-financial performance” and “environmental culture of the organization”.

C. Intervening Conditions

Based on the selected texts and the opinions of the interviewees, the most important general intervening

factors to influence green accounting strategies in integrated reporting are environmental factors and organizational factors. According to experts in this research environmental factors refer to the general conditions of each country in the political, economic, social, and legislative areas. According to the selected texts and the opinions of the interviewers, the changing nature of the conditions and environmental factors leads

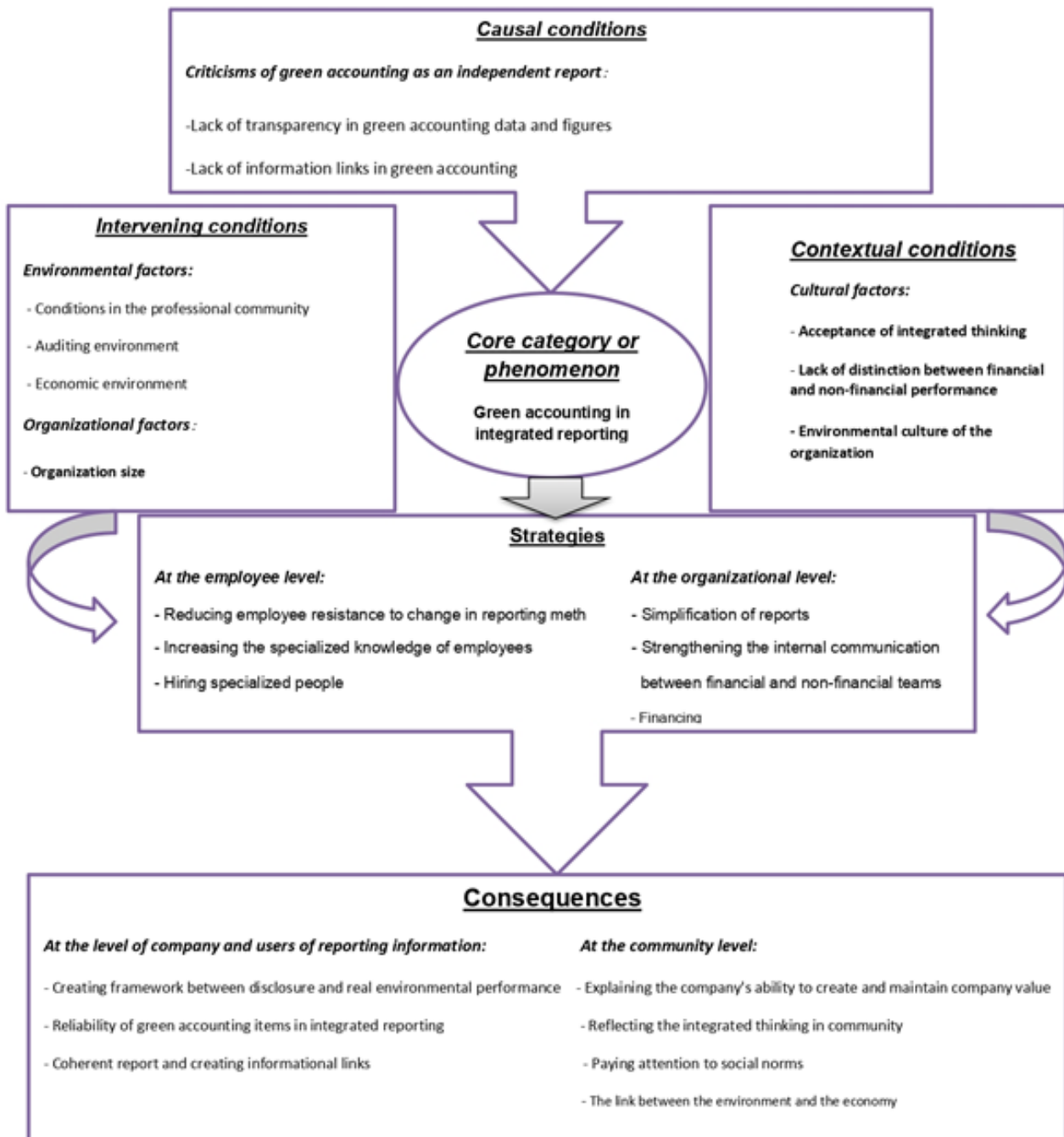


Figure 1. The Green Accounting Model in Integrated Reporting With a Critical Approach.

to a different impact on green accounting strategies in integrated reporting. According to them environmental factors include the conditions in the professional community, the audit environment, and the economic environment.

The organization size is organizational factor is this model. One of the interviewees said, "... Larger organizations disclose more environmental information than smaller organizations. This issue confirms the agency theory. The agency states that larger organizations tolerate more social pressure." "They usually thought of showing more legitimacy in society and reducing political costs. For this reason, they use environmental disclosure as a criterion for action ..."

The small or large size of the organization can be an intervening factor in green accounting strategies in integrated reporting.

D. Strategies

Strategies for green accounting in integrated reporting have been extracted under the influence of causal conditions, contextual conditions and intervening conditions. Based on the selected texts and the opinions of the interviewees, the most important strategies are "At the organization level" and "At the employee level".

At the organization level emphasizes what tools and strategies green accounting is used in integrated reporting at the organizational level, which includes simplification

of reports, strengthening the internal communication between financial and non-financial teams and financing.

Regarding the financing, one of the interviewees said, "... Green accounting can be done by smallest and largest companies. However, if we search the Internet, we will see that integrated reporting, which also has green accounting in its heart, is more related to large and strong companies. For example, Toyota has an integrated report. In my view, this shows that the preparation of integrated reports requires a lot of financing and small companies may not be able to easily prepare this report ..."

At the employee level refers to the tools and strategies at the employee level for green accounting in integrated reporting, which include reducing employee resistance to change in reporting method, increasing the specialized knowledge of employees and hiring specialized people.

E. Consequences

By exploring selected texts and interviewees' opinions, the consequences of green accounting in integrated reporting resulting from strategies include "At the level of company and users of reporting information" and "At the community level".

Two of the consequences at the level of company and users of reporting information include Creating framework between disclosure and real environmental performance and Reliability of green accounting items in integrated reporting.

One of the interviewees said, "... Accounting reliability refers to whether financial information can be consistently approved and used by investors and creditors with the same results. Basically, reliability means whether end users can trust in what is in the financial statements. If decision makers cannot trust what is in the financial statements, financial reporting will be generally useless. For this reason, developer and regulatory organizations are very concerned about the reliability of financial information. Today, we see that with increasing the importance of non-financial information and its alignment with financial information, the ability to rely on non-financial information, including environmental information has become crucial. "I think the companies that provide integrated reporting, including green accounting, are really trying to show off ..."

Based on the interviewee, green accounting information in integrated reporting disclosed by well-known and large companies can be relied. In other words, decision makers can rely on what is stated in the integrated reporting on green accounting.

The third case of consequences at the level of company and users of reporting information is Coherent report and creating informational links.

The concern of independent reports on environmental and social activities is that they provide non-financial information that is non-integrated and segregated. Therefore, they are unable to provide the necessary links for stakeholders to effectively evaluate economic

performance, strategy, and potential for future value creation.¹⁴ The integrated report, which includes green accounting information, is viewed as a response to this criticism. The goal of integrated reporting is to provide a unified report for the integration of financial information and sustainability information reported separately in previous formats.^{9,16,17} The IIRC believes that the integration of financial information and sustainability meets the information needs of investors in a new way by providing a more comprehensive picture of a company and its performance.⁹

The first case of consequences of green accounting strategies in integrated reporting at the community level is Explaining the company's ability to create and maintain company value. Another interviewee said, "... When a green accounting company presents an integrated report with a better understanding of the relationship between financial and non-financial performance, it will also improve its monitoring and control of non-financial performance and they will experience more efficiency and effectiveness. This type of report can show the value of the company and prove that not only the value of the company is preserved, but also this value increases everyday due to its comprehensiveness and completeness".

Based on the above interview, green accounting in integrated reporting can show the value and credibility of the company to external users optimally, and comparing the information of this type of report over different periods can show a growing trend in company value.

The second and third cases of consequences of green accounting strategies in integrated reporting at the community level are Reflecting the integrated thinking in community and Paying attention to social norms. One of the interviewees said, "... Man grows up in a natural environment, so human interaction with the environment is as important as his or her interaction with other human beings, and financial science should pay more attention to this level of social communication. From an accounting point of view, human interaction with the environment is emerging as a new field. Environmental accounting is a turning point in establishing an interaction between companies and the environment. In new reports of companies, not only attention to the environment has not been removed but has become an integral part of these reports. For example, the environmental information presented in the integrated report shows how much social norms are considered by companies. Either this attention is due to beneficial fear or compassion of the company is not so important..."

According to this expert green accounting is one of the dimensions of corporate social responsibility. Green accounting in integrated reporting shows the company's attention to social norms and is a positive factor for the company from a community point of view.

And the last case of consequences is the link between the environment and the economy.

Another interviewee said, "... We see that population

growth along with economic growth in addition to reducing the quality of resources has led to more pollutants than can be tolerated by the natural environment. Most of this pollution results from manufacturing companies. Although the population can also play a key role in environmental pollution, in the case of the population, high pressure and obligation does not work and a culture must be developed. Although much leverage can be used in the case of companies such as obligation for real environmental reporting can be effective, there are reports such as social responsibility, sustainable development and, more recently, integrated reporting. Hence, in short, it can be stated that economy is related to the environment in many aspects. Most of them have inverse relationship, but sometimes their relationship is direct, and these company reports are among these relationships". The interaction between the economy and the environment has been a controversial issue for several decades. Green accounting in integrated reporting can reverse this reaction and establish a direct and effective association between the environment and the economy..."

Comparing the model of this research with the integrated reporting models, we can refer to the comparison with the model of de Villiers et al⁷ entitled "Conceptual model of the effects of integrated reporting". In terms of category comparison, the model of this research has more categories. Because the two categories of determinants and consequences cover the categories of the model of de Villiers et al while the model of this research includes causal conditions, contextual conditions, intervening conditions, core category or phenomenon, strategies and consequences. The model of this research has also examined integrated reporting in a more detailed way and with a critical approach to green accounting.

And at the end, the recommendations and limitations of the research are stated as follows:

Applied Research Recommendations

- The Accounting Standards Development Committee is recommended to hold meetings to assess the feasibility of the requirement for integrated reporting in the country and to use the experiences of other countries using this report. Given the serious situation of the environment in Iran, if the conditions for integrated reporting are provided, the implementation of this type of report can lead to transparency of environmental information and figures and establish links with other financial and non-financial information pieces of the company.
- To encourage companies, the tax administration is advised to consider tax exemptions for voluntary integrated reporting.
- Companies are recommended to hold explanatory and training courses for their employees to promote environmental culture and create appropriate conditions for integrated reporting.
- The auditing organization is recommended to assign

a case as the presence or absence of an integrated report in its review headings in companies. It can be a stimulus for companies to follow and become familiar with integrated reporting.

- Companies are encouraged to strengthen internal links between financial and non-financial teams to create coherence for integrated reporting.
- It is recommended to the Central Bank to provide special facilities for companies that prepare integrated reports to finance and encourage companies.
- Based on the model presented in the research, it is recommended to stock exchange organization to form a committee related to integrated reporting and review the submission of this type of report by companies listed on the stock exchange.
- It is recommended that integrated reporting containing green accounting information should be implemented in a company listed in the stock exchange that implements green accounting separately and examine the reaction of the company's shareholders to this type of report to an independent green accounting report.
- Undoubtedly, sufficient motivation among company managers and all employees are needed to implement an integrated reporting strategy and consequently green accounting. Thus, it seems that the material achievements and compensation systems by legislators and the government can be effective in supporting this strategy.
- Environmental protection and paying attention to integrated reporting criteria requires mutual cooperation of different organizations. Therefore, it is recommended that environmental legislators and relevant institutions cooperate with each other to use the results of this study and the final model presented for legislation.

Research Limitations

Undoubtedly, any research in implementation is not free of challenges and problems and this research was no exception in this regard and faced some limitations. The most important limitation of this research is related to the inherent limitations of the qualitative research method. Some of these are as follows.

Due to COVID-19 and time constraints, access to more experts for interviews was limited.

- The results of this study are highly dependent on the researcher's observations and due to the lack of quantitative data; the validity of the researcher's conclusion cannot be fully controlled.
- The results of this research, like the results of other qualitative studies, may not be fully generalizable and this is a kind of limitation for this research.
- There is no study that has looked at green accounting report individually with a critical approach and explained it in integrated reporting. Due to the novelty of the subject of integrated reporting, the

number of Persian sources with this title was limited.

Recommendations for Future Studies

The conceptual model that this study achieved regarding the green accounting in integrated reporting with a critical approach can be used for further investigations in future research. Some recommendations for future studies are as follows:

- It is recommended that this study be conducted with using the same method and with a larger number of experts.
- It is recommended that this study should be conducted with other qualitative methods such as thematic analysis.
- It is recommended that this study should be conducted with the Glaser grounded approach.
- It is recommended that this research should be done with a quantitative method such as structural equation modeling and with a larger statistical population.
- It is recommended that this model should be tested in knowledge-based companies, since the nature of these companies is different from other companies and might yield results different from the results of this study.
- Given the importance of integrated reporting in accounting research, domestic researchers are recommended to consider the following cases to expand the area of integrated reporting studies: Barriers to integrated reporting in Iran, providing a conceptual model of integrated reporting, integrated reporting model using fuzzy method

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