The Impact of Green Intellectual Capital on Sustainable Performance Case Studies in Educational Organizations

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Abstract. Intellectual capital (IC) has become one of the most valuable resources of an organization. As awareness of sustainable practices increases, a new concept emerges: Green Intellectual Capital (GIC). However, research on GIC is still scarce, especially when discussing its relationship with sustainable organizational performance in educational organizations. Through a case study conducted on all universities in the North Sulawesi region, this study aims to assess how the organization's internal stakeholders understand the concepts of GIC, sustainability, and sustainable performance and to better understand the effects of GIC on economic, social, environmental and sustainable organizational performance. Evidence shows that stakeholders do not understand the concept of GIC and only emphasize the environmental dimension of the concept of sustainability and sustainable performance. Furthermore, it was found that the organization's sustainable performance is influenced by all components of GIC, namely Green Human Capital (GHC). Green Structural Capital (GSC) and Green Relational Capital (GRC). This study contributes to the development of different but complementary research areas namely Intellectual Capital, education and sustainability. This research has important managerial implications for educational organizations that are concerned with organizational performance within the scope of education. Generalization to the next research should only be done theoretically. it was found that the organization's sustainable performance is influenced by all components of GIC namely Green Human Capital (GHC). Green Structural Capital (GSC) and Green Relational Capital (GRC). This study contributes to the development of different but complementary research areas namely Intellectual Capital, education and sustainability. This research has important managerial implications for educational organizations that are concerned with organizational performance within the scope of education. Generalization to the next research should only be done theoretically. it was found that the organization's sustainable performance is influenced by all components of GIC namely Green Human Capital (GHC). Green Structural Capital (GSC) and Green Relational Capital (GRC). This study contributes to the development of different but complementary research areas namely Intellectual Capital, education and sustainability. This research has important managerial implications for educational organizations that are concerned with organizational performance within the scope of education. Generalization to the next research

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Keywords: GIC · GHC · GSC · GRC · Sustainability

1 Introduction

Intellectual Capital has become an important part in the development of the economy, business, environment, government and education towards an innovative, competitive and sustainable organization. Intellectual Capital is defined as the ability, skills and knowledge of lecturers and staff, structure, culture, organizational system, work comfort and relationships with stakeholders. Intellectual capital related to the level of management education in improving organizational performance (Iqbal et al., 2018; Nawaz & Ohlrogge, 2022). Intellectual Capital is also related to education and management knowledge that can encourage organizational sustainability in the political, economic, social, technological, environmental and legal dimensions that lead to the development of a better sustainable organizational system (Agrawal et al., 2021; Blinova et al., 2022; Del Giudice et al., 2022). Then Intellectual Capital which consists of human capital, structural capital and relational capital becomes a source of competitive advantage for the organization [6]. Human capital is the main driver in achieving performance with the assumption that the level of management education greatly affects the mindset, skills and capabilities of management [7]. Intellectual Capital can contribute to solving social, economic and environmental problems [8]. The current performance of the organization produces sustainable goods or services by managing Intellectual Capital more efficiently [9–11]. Intellectual Capital is very important to improve sustainable performance, so a new concept has emerged, namely about green intellectual capital (Li et al., 2021). Green intellectual capital represents intangible resources, education, knowledge, skills, innovation and related relationships with environmental protection [13]. Several studies have discussed the relationship between green intellectual capital and sustainable performance. Therefore, this study aims at first assessing the perceptions of internal stakeholders of educational organizations about the concept of green intellectual capital and economic, social and environmental sustainability in the performance of educational organizations. Second, increasing understanding of the effect of green intellectual capital on the sustainability of the performance of educational organizations. Based on the objectives of this study, the research questions can be formulated as follows:

R1. How sustainable human resources affect sustainable performance
R2. How sustainable structural capital affects sustainable performance
R3. How sustainable relational capital affects sustainable performance

This research is a case study of all universities in the province of North Sulawesi, Indonesia. In accordance with Law NO. 32 of 2009 that everyone is obliged to maintain

the preservation of environmental functions and control pollution and/or environmental damage. Based on the law, all levels of society are required to maintain the surrounding environment, including educational organizations in this study, universities throughout North Sulawesi. This research is expected to contribute to the relationship between green intellectual capital and sustainable performance.

2 Conceptual Background

2.1 Intellectual Capital

The process of evolution occurs in information systems, technology, production processes and knowledge. Humans are the main resource for the organization in the occurrence of change [14]. Intangible resources make a major contribution to sustainable performance compared to tangible resources [15]. Intangible assets are assumed to be assets that are not visible in the financial statements but have added value to the organization.

There are four distinct stages in the development of intellectual capital research [16]. The first stage of research on Intellectual Capital is to reach the terminology of the concept of Intellectual Capital, namely the joint ability of the organization [17]. The second stage occurs during the new millennium of Intellectual Capital research focusing on measurement and reporting, the two stages form an understanding of the concept of intellectual capital that leads to organizational potential, the third stage is focused on the practical application of Intellectual Capital [18] and the fourth phase is a new context of Intellectual Capital with a focus on addressing ecological, social and demographic problems faced by society [19]. Therefore, this research positions itself at the fourth research stage. Intellectual Capital does not yet have a standard definition. Draft [20]Intellectual Capital is knowledge, information and experience as a wealth generating activity. Draft (Massaro et al., 2018) defines Intellectual Capital as knowledge activities and processes that contribute to innovation, value creation, competitive advantage and broadly benefit the organization and add value to the interests of stakeholders because Intellectual Capital is the main resource in the process of connecting organizations with stakeholders [21].

Previous studies have classified intellectual capital into human capital (HC), structural capital (SC) and relational capital (RC) [22–24]. Study (Badia et al., 2022; Ferenhof et al., 2015) argues that the main dimensions of intellectual capital include not only human, structural, and relational capital, social capital but are more community-oriented. Intellectual Capital adopts the traditional taxonomy of the Intellectual Capital model which consists of three dimensions, namely human capital, structural capital and relational capital (Asiaei et al., 2022; Cabrita, 2009; Kujansivu, 2008; Stewart, 1998). The issue of Intellectual Capital has attracted the attention of previous researchers where the research concept of linking Intellectual Capital with environmental problems is still very few [30, 31]. Defining Intellectual Capital as Green Intellectual Capital that is integrated with environmental issues, then Green Intellectual Capital is defined as intangible resources, abilities, skills, and knowledge related to environmental innovation and customer, supplier and government relationships in creating products or services. environmentally friendly services both at the organizational and individual levels [32–34].

A broader understanding of Green Intellectual Capital includes all the knowledge an organization has to improve environmental management processes and gain competitive advantage [35–37]. Therefore, organizations must create and add value to their products or services by offering environmentally friendly products or services. Therefore [33] defines Green Intellectual Capital With three dimensions: sustainable human capital (GHC), sustainable structural capital (GSC), and sustainable relational capital (GRC). GHC can be defined as knowledge, skills, abilities, capabilities, experience, attitudes, wisdom, and creativity of lecturers and staff regarding environmental protection or greener innovation [33, 36, 37]. GHC can be created through education level and skills development [38]. Skills improvement can be done through further education or skills training [39]. Most management focuses on developing activities such as education and training that can help stimulate the knowledge environment of lecturers and staff, thereby enabling organizations to develop greener innovations [36]. In addition, organizations must improve skills and comfort in the workplace to improve the performance of lecturers and staff and create quality human capital [40]. Human capital can help organizations to identify intangible resources and use them to implement more sustainable activities. The advantage of having a GHC is that it results in a sustainable, competitive organization and can increase organizational value (Yusliza et al., 2020).

According to [41], individuals are not the only ones responsible for environmental problems. Structural Capital can assist organizations in driving processes and systems to facilitate the development of the knowledge needed to create organizational capabilities (Faraji et al., 2022). An organizational culture supported by an effective management system is critical to the strategic decision-making process (Haldorai et al., 2022). Therefore, sustainable human resource management and environmental culture development can be very important to potentiate sustainable organizational performance (Ullah et al., 2022; Yong et al., 2019).

Therefore, GSC can be conceptualized as organizational resources, such as management systems, computer systems, organizational processes, management philosophy, organizational culture, patents, copyrights, brands, information technology, or management mechanisms related to environmental protection or ecological innovation in organization (Chen, 2008; Yong et al., 2019; Yusliza et al., 2020). Green Innovation can be an important factor in achieving organizational sustainability [33]. Stakeholder expectations have changed, in addition to concerns about products, prices or services, stakeholders are increasingly focusing on other issues, such as the sustainable environmental behavior of organizations. Because customers are at the core of the competitive environment that drives organizations [45].

Relational Capitalas the most important dimension of Intellectual Capital. The behavior of the organization's environment can shape the perceptions of its clients. Therefore, it can be said that GRC is based on continuous relationships between the organization and its customers, suppliers and other partners, with a focus on environmental aspects, something that can provide an important competitive advantage for the organization [33, 37].

2.2 Sustainability and Corporate Social Responsibility

CSR is considered an indicator of organizational success and a potential means to achieve sustainable development. In sustainable development CSR is based on three dimensions of economic, social and environmental. In recent years, researchers have begun to link the concepts of CSR and sustainability with the economic, social, and environmental performance of organizations (Lopes de Sousa Jabbour et al., 2020). On research [47] proves that the CSR program can be implemented if the organization has a manager level with a good level of education, environmental awareness and professionalism. Global sustainability performance can be reported as a strategic tool for organizational management and communication once assessed and taken into account [48, 49]. Therefore, it is important to distinguish between economic, environmental and social development in order to better understand overall sustainability performance. Sustainability performance as a process that impacts on the economic, environmental and social of an entity with certainty, more specifically economic performance must reflect the organization's impact on society (Büyüközkan & Karabulut, 2018; Dijkstra-Silva et al., 2022; Vieira Nunhes et al. 2022). Environmental performance is related to the organization's impact on natural systems, ecosystems, soil, air and water related to the consumption of raw materials, water or energy [52]. Finally, social performance refers to the impact of an organization's activities on the social system which includes attention to employment and decent work practices as well as the consequences of the organization's actions on society or products (Samy et al., 2022; Souto, 2021).

The main focus of the organization's sustainability performance is environmental, social and economic performance and sustainable development. One of the determinants of the success of sustainable performance is the level of management education (Greenland et al., 2022; Rands, 2009). Currently improving sustainability performance is a focus for development, however, many researchers consider financial performance as a proxy for improving organizational performance [57]. Therefore, the relationship between organizational sustainability performance and organizational performance is still not well understood (Goyal et al., 2013). (Alvino et al., 2020) analyzing how the characteristics of Intellectual Capital can promote entrepreneurship based on sustainable development, smart and stay in line with sustainable development goals and sustainable performance, the research shows that the development of Intellectual Capital potential is related to the concept of long-term value.

According to (Ying et al., 2019), intangible resources facilitate sustainable performance, especially in organizations with scarce resources [61]. Combined with other elements of innovation, Intellectual Capital can improve processes, convey information, and stimulate relationships, with positive effects on environmental and social performance. Intellectual Capital can make a cultural change in organizations and civil society towards a commitment to sustainability [59]. Intellectual Capital contributes to achieving sustainable performance for the organization. According to (Yusliza et al., 2020), Sustainable Intellectual Capital and sustainable performance are closely related. The study found that SIC positively affects economic, environmental, and social performance. Organizations cannot ignore the environmental and social impacts of organizational activities so it is important to explore the linkages between GHC, GSC, and GRC and organizational sustainability.

2.2.1 Green Human Capital and Sustainable Performance

Human resources are very important to develop organizational sustainability because HR helps improve organizational performance in its three dimensions (economic, environmental, and social). In addition, there is a positive influence between the level of education and the creation of knowledge and behavior of lecturers and staff [62, 63]. However, several studies have shown that GHC has no effect on the sustainability performance of manufacturing organizations in Malaysia [64]. Different from research [65], which was conducted on non-financial organizations in India, proved that there is a significant relationship between GHC and sustainable organizational growth. GHC creates ethical principles and organizational culture related to the organization's sustainability values. Therefore, CSR strategies can positively affect an organization's GHC in different ways. First, by being more sensitive to environmental and social issues, organizations can empower lecturers and staff who have more knowledge. Second, CSR strategies can lead to human resource practices, such as developing environmental-related activities to achieve goals with social and environmental commitments. Lastly, CSR tends to improve the morale and working conditions of lecturers and staff (Nirino et al., 2020).

2.2.2 Green Structural Capital and Sustainable Performance

Having a Structure Capital with a strong collaborative environment that can motivate lecturers and staff and other stakeholders to transfer and absorb more knowledge. On the other hand, organizations with poor systems and procedures tend not to achieve maximum performance [31]. The policies and structures established by the organization are very important to be implemented to achieve the organization's sustainability performance. Organizations need a good organizational structure to implement CSR strategies [41]. Several studies show evidence of the positive influence of GSC on organizational performance (Hsu & Wang, 2012; Wang et al., 2014). For example, (Delgado-Verde et al., 2014) found a positive effect of GSC on the development and innovation of environmental products besides that CSR strategies can encourage the creation of structural capital, such as organizational capabilities, processes, organizational culture, organizational image, and increase organizational values and performance.

2.2.3 Green Relational Capital and Sustainable Performance

Good relational capital management enables the exchange of information between the organization and its stakeholders, thereby enabling the organization to obtain relevant information. The greater the interaction with stakeholders, the better the organizational relationships [37, 70]. Collaboration is essential to encourage more sustainable knowledge sharing and environmental awareness. Therefore, knowledge sharing and collaboration are essential for adopting sustainable practices (Dickel et al., 2018; Matinaro et al., 2019). Study [23, 31] concluded that GRC has a positive and significant relationship with organizational sustainability. Likewise research [61] on industrial organizations in Korea, showing that Relational Capital positively affects organizational sustainability. From another point of view, Relational Capital can influence CSR activities because organizations are concerned with social and environmental issues such as stakeholder

expectations. Thus, Relational Capital must be managed properly so that the organization gains a competitive advantage (Cillo et al., 2019; Yong et al., 2019). Environmental and social aspects that are managed properly can develop the culture and image of the organization and encourage its commitment to sustainability.

3 Methodology

Universities in North Sulawesi, Indonesia, which consist of six public universities, eight private universities, one private institute, twenty-six private high schools and eight private academics. This article aims to assess the perceptions of internal stakeholders from each university regarding the concept of Green Intellectual Capital, sustainability and sustainable performance as well as to increase understanding of the influence of Green Intellectual Capital on sustainable performance. Thus, an in-depth case study method was adopted to achieve the above-mentioned objectives. One of the advantages of this method is that it provides an assessment and understanding of organizations that are unique, rare, and difficult to imitate.

3.1 Contextualization of the Organization and Methodological Framework of the Research

The complexity of the organization and the diversity of participants require the adoption of different sources for collecting data, in particular semi-structured interviews, document analysis, and direct observation. Using the most commonly used sources in case studies allows triangulation of data, which makes research more consistent [74]. Documents, such as emails, letters, minutes, or mass media articles, are also considered an important source of information, direct observation is very often used to assess both the context and behavior that occurred during interviews or in other circumstances [74]. Data were collected between July and August 2021. There were ten semi-structured interviews conducted with the Chancellor and Head of each College; Finance Manager (FM) and Information Technology Manager (ITM); marketing manager (MM); an R&D Manager (RDM); an Organizational Continuity Improvement Manager (CIM); an Education Quality Assurance (QM) Manager; General Manager (EHSM); a Human Resources Manager (HRM); an Operations Manager (OPM). These interviewees were selected for their in-depth knowledge of various areas of the organization, thus providing an important illustration of how Green Intellectual Capital in an organization and its sustainable performance is intertwined. While looking for illustrations, The interview also aims to capture stakeholder perceptions about the concept of Green Intellectual Capital, sustainability, and sustainable performance. Semi-structured interviews were conducted in the organization's facilities, supported by the text described earlier. Their duration ranges from 18 to 45 min. All interviews were recorded and then transcribed. In addition, notes were made during the interview with the theme and purpose of the interview presented at the beginning of the interview.

Document analysis was carried out on project report information and the results of audit examinations taken from the organization's website were used to group according to the type of organizational part, the last direct observation was carried out. This makes

it possible to contextualize the organization and assessment of the interviewee's behavior such as acceptance, confidence, curiosity, interest, and enthusiasm regarding the topic being discussed. Qualitative data is analyzed through content analysis, which allows researchers to organize and categorize them into sub categories [75]. The data is divided into pre-determined analytical categories and sub-categories by considering the concept referred to as the distribution of Green Intellectual Capital sustainability, and sustainable performance as a category concept and the influence of Green Intellectual Capital on sustainable performance as a sub-category of data. The allocation of interviews for each category and subcategory as codification is depicted in Table 1:

4 Finding and Discussion

4.1 Perception of Green Intellectual Capital and Sustainable Performance Concept

The case studies provide evidence of a lack of knowledge about the concept of Intellectual Capital, particularly sustainable intellectual capital. This is evidenced by the answers from the highest leaders and managers who do not understand what is meant by Intellectual Capital. However, after the interviewer briefly explained what is meant by Intellectual Capital and Green Intellectual Capital it was found that the basic idea behind the concept of Green Intellectual Capital was implied in most of the answers interviewed. For example, HRM stated that he had never heard of the concept of Intellectual Capital but in further interviews revealed an organizational strategy that was in accordance with the concepts of Intellectual Capital and Green Intellectual Capital.

The findings also show that before the concept of Green Intellectual Capital was explained by the interviewers, stakeholders emphasized the human dimension of Intellectual Capital. They think that the concept of Green Intellectual Capital is one of the dimensions of GHC. As RDM states, "Suppose I work for another organization now, I already have sustainability skills because I have had them personally." The organization's internal stakeholders do not yet have a perception of the concept of Green Intellectual Capital because they assume that Green Intellectual Capital is indirectly the HC dimension, so there is a contradiction with the literature that classifies Intellectual Capital on three dimensions (Aljuboori et al., 2022; Cavalluzzo & Ittner, 2004; Bontis et al., 2017; Stewart, 2010).

Therefore, they are also unaware of the need for interaction between the dimensions of Intellectual Capital to create value, as suggested (Bananuka et al., 2021; Cabrita, 2009). However, it should be underlined that SCM states that Green Intellectual Capital is an intangible capital, but in the end it will become a concern for organizations because it affects the environment around them and those they own." This opinion is in line with (Benevene et al., 2021; Chen, 2008) which defines Green Intellectual Capital as integrating Intellectual Capital with environmental aspects.

When respondents were asked if they were familiar with the concepts of sustainability and sustainable performance, they all expressed their understanding. However, the findings suggest the first focus on environmental sustainability second on the economy. For example, MM argues that environmental and economic areas are the most frequently associated with the concept of sustainability. Another opinion came from HRM, which

Table 1. Codefication

THEME	Category	Sub Categories
Green Intellectual Capital Perception	Sustainable Human Resources	
	Sustainable Structural Capital	
	Sustainable Relational Capital	
Sustainability and Sustainable Performance Perception	Economic practice	
	Economic performance	
	Environmental Practice	
	Environmental Performance	
	Social Practice	
	Social Performance	
The Effect of Green Intellectual Capitalon Sustainable Performance	The Effect of GHC on Sustainable Performance	GHC and Economic Performance
		GHC and Environmental Performance
		GHC and Social Performance
	The Effect of GSC on Sustainable Performance	GSC and Economic Performance
		GSC and Environmental Performance
		GSC and Social Performance
	The Effect of GRC on Sustainable Performance	GRC and Economic Performance
		GRC and Environmental Performance
		GRC and Social Performance

stated that organizational sustainability is carrying out organizational activities without damaging the environment. Environmental care activities are carried out every day within the organization, starting from turning off the lights, using sufficient water, separating waste and maintaining the environment so that it is not damaged by organizational activities. In addition, education is always given to students to dispose of garbage in the provided place.

Therefore, the findings show that internal actors of the organization misperceive sustainability as part of the environmental dimension. While the authors assume organizational sustainability as a business strategy to stimulate economic growth, that requires considering environmental and social dimensions (Z. Wang et al., 2014). Studyak, (2015) suggest a balance between environmental, social, and economic dimensions to support sustainability. Therefore, to continue the interview, the interviewer needs to clarify the concept of sustainability, so that the interviewees can express their perception of organizational performance by considering various dimensions of sustainability (economic, environmental, and social). Economic performance is considered as efficiency with a focus on reducing waste, such as reducing the use of paper and plastic waste. PM's opinion related to innovation to be able to produce cost efficiency in waste management with new technologies such as the availability of good technology services to assist teaching and learning processes and administration in order to reduce paper usage (Rehman et al., 2022; Yusoff et al., 2019).

There is agreement on the perception of the organization's concern for environmental issues. Environmental care in universities began with an agreement to become a minimal paper use organization, save water and energy which began to shift to cost-effective technology. However, there are some answers that focus on the problem of reducing waste and how to solve it.

Another example comes from CIM and MF who argue that they must reduce waste and have a target to reduce waste. Thus, the perceptions of the interviewees are in line with the research [31] where indicators such as waste reduction or energy consumption are used to measure an organization's environmental performance. Non-polluting processes that conserve natural resources should be adopted to preserve the environment [81]. Waste reduction and management is seen as important in economic and environmental performance. FT and CIM stated that the organization is committed to investing in waste management in order to reduce environmental damage.

Apart from environmental issues most of the interviewees emphasized the importance of the welfare of lecturers and staff regarding the social dimension, giving examples of several recognition initiatives, such as career monitoring, faculty and staff integration programs, or health programs. As FM said the organization really cares about lecturers and staff as evidenced by receiving annual bonuses and respecting lecturers and staff more than just paying salaries. The perception of the results of this interview is in accordance with the opinion (Jiao et al., 2022; Yusoff et al., 2019; ak, 2015) who judged that the organization should respect lecturers and staff. Key informants, namely the rector and chairman of the Foundation, claimed that lecturers and staff are organizational assets, so occupational health and safety is the priority.

4.2 The Effect of Green Intellectual Capitalon Sustainable Performance

The second objective of this paper is focused on understanding the influence of Green Intellectual Capital and sustainable performance. More specifically to assess how GHC, GSC, and GRC affect the organization's sustainable performance.

4.2.1 The Effect of Green Human Capital on Sustainable Performance

The findings show that the level of education of managers affects understanding of the context of the creation of GHC and the amount of experience in participating in training, courses and comparative studies affects the sustainable performance of the organization in a broad sense, as well as on the economic, environmental and social dimensions. All interviewees considered GHC to be an important dimension by providing examples of how GHC evolved over time in the organization. Some examples are educational and training actions provided by organizations, empowerment of lecturers and staff, or knowledge dissemination among lecturers and staff aimed at increasing awareness of lecturers and staff about developing knowledge to address environmental problems and creating new skills.

In organization Z there are monthly meeting activities, in this meeting the management reminds lecturers and staff to be sensitive to the issue of reducing waste, this problem is the responsibility of RDM. In this activity, the rector and the chairman of the foundation appealed to the lecturers and staff to be able to dedicate their concern for environmental protection. According to MM, university organizations have contributed to the community's concern for the environment by conducting training on separating waste and processing waste that can still be used into recycled products. According to QM, the organization put up several posters to socialize care and love for the environment on campus and in the environment around campus. GHC is a factor in improving its sustainable performance because.

This finding also shows the importance of organizations in promoting the knowledge of lecturers and staff about waste reduction and finding sustainable solutions, which have an impact on the economic, environmental and social performance of the organization. It is important to emphasize that the various dimensions of sustainable performance are interrelated. According to RDM, there is a relationship between GHC with economic and environmental dimensions. Supporting this statement, the results of interviews with the organization's EHSM strongly encourage lecturers and staff to develop knowledge about environmental issues. For example, regarding waste sorting, and the organization also holds garbage collection activities every month. Of course, this activity costs money, so at the economic level, lecturers and staff must be aware that the more waste produced, the higher the cost for collecting waste. In addition, lecturers and staff are sensitive to reducing water consumption, because it has an impact on monthly bills and burdens expenses.

Furthermore, GHC can affect sustainable organizational social performance. PM exemplifies how developing environmental knowledge of lecturers and staff can generate social benefits for them. PM illustrates this relationship by claiming that there are annual costs to address environmental issues, and organizations wish to reduce these costs. This is supported by the knowledge of faculty and staff if faculty and staff have more knowledge about environmental issues and can be more effective. Where if these costs can be reduced then these costs can be allocated to improve working conditions so as to improve organizational performance [62, 63]. Therefore, there is a positive relationship between the behavior and knowledge of lecturers and staff, and continuous improvement of organizational performance in its three dimensions [64, 65].

4.2.2 The Effect of Green Structural Capital on Sustainable Performance

The findings show that all interviewees emphasized the importance of GSC to drive the sustainable performance of the organization. There are several illustrations for the development of the GSC. Most opinions focus on organizational culture, operational procedures, environmental protection systems that include environmental management and certification policies, or investments made in intangibles such as software, which enable waste reduction.

ITM states that in educational organizations, environmental themes are part of the organizational culture. ITM and RDM emphasize the importance of finding solutions for better environmental care, one of which is producing environmentally friendly products, which have a positive impact on the environment. ITM and RDM state that environmental certification is the main point in developing green operational procedures and environmental management policies. For example, as claimed by RDM that organizations have policies to reduce paper and encourage the use of IT facilities, organizations develop online applications so that administrative activities can be carried out online rather than using paper. This activity can be in the form of registration, collecting student assignments and managing lecturers and staff files. In PM's words one of the main goals of Lean methodology is waste reduction. Lecturers and staff must be prepared to achieve sustainability.

Some evidence of the efforts of lecturers and staff to achieve sustainability goals can be seen in lecturers and department staff starting to save energy use by turning off lights or other devices that are not used by developing sensors that are installed so that tools that are not used will turn off by themselves and most importantly trying to reduce waste. Finally, GSC was created through investment in new software.

Furthermore, the findings indicate that GSC has an impact on the environmental performance of the organization. As suggested by SCM that the structural components of the organization have everything to do with sustainable performance. If the organization does not have a structure and is not organized then the waste of consumables will be much greater so that there is concern about the failure of waste reduction. Interviewees emphasized various factors that drive the environmental performance of universities, such as the reduction of paper or the use of technological mechanisms that are more related to the transition to the adoption of recycled materials.

Lastly, the health and safety item shows concern for the welfare of lecturers and staff in the workplace. The whole organization aims to achieve the best value. This fact is in line with [37], which states that organizations with strong structural capital foster a collaborative environment that can motivate lecturers and staff and stakeholders to absorb more knowledge thereby improving organizational performance. This finding is also in line with (Farzaneh, et al., 2022; Hsu & Wang, 2012) who considers that all dimensions of Intellectual Capital have a positive effect on performance sustainability. Study (Burlea-Schiopoiu et al., 2022) stated that policies and organizational structure are very important to be implemented. and implemented to achieve organizational sustainability.

4.2.3 The Effect of Green Relational Capital on Sustainable Performance

From the results of interviews about Green Intellectual Capital, it can be concluded that the role of the GRC is very important to connect organizations with stakeholders. The interviews provide insight into how GRC can affect an organization's ongoing performance. In addition to influencing the sustainable performance of GRC, it can also improve the image of the organization with organizational activities that care about the environment.

According to MM, the organization uses social media as a means to improve the organization's image and build communication with stakeholders to inform that the organization is implementing an eco- green program as a form of the organization's concern for the environment. So technological innovation for the benefit of the campus becomes more environmentally friendly, such as reducing paper. This innovation can economically also minimize the budget from an economic point of view. In addition to reducing paper, the organization also carries out cleaning, collection and separation of waste.

PM provides information that the importance of MM's part in providing information to stakeholders that the organization cares about the environment. The fact is that there are stakeholders who consider that the organization's eco green efforts add value to the organization but there are also ordinary stakeholders. This is because stakeholders do not understand eco green, there are also those who do not care about the environment and only think about the quality of university graduates. high enough to be able to work immediately, besides that other thoughts also arise about how the tuition fees can be

Table 2. Research Findings

Theme	Concept/Question		Finding
Perceptions of the organization's internal stakeholders Capital	Green Intellectual	1.	All respondents interviewed did not understand the concept of Intellectual Capital which plays an important role in increasing organizational value.
		2.	All respondents interviewed were not very familiar with the concept of sustainability of intellectual capital. They do not understand the concept of Green Intellectual Capital which functions to improve the organization's sustainability performance
	Sustainable	1.	The results of the interview found that the respondents did not understand the meaning of sustainability

(*continued*)

Table 2. (*continued*)

Theme	Concept/Question		Finding
		2.	Respondents interview results that the concept of sustainability only relates to the maintenance of the environment around the organization
		3.	The results of interviews with respondents that the concept of sustainability that is understood only in the environment is not related to Green Intellectual Capital and sustainability performance
	Sustainability Performance	1.	Interview results from most stakeholders understand that economic and social factors are the main supporters of sustainable performance
		2.	The results of the interview respondents agreed that the organization should care about the environment but the environment does not support the sustainability of performance
		3.	Respondents 'interview results agree that waste reduction requires GHC to produce low -cost innovation
Understanding of the effect of Green Intellectual Capital on Organizational Sustainable Performance	Impact of GHC Sustainability Performance	1.	The fact that the interviews found a positive relationship between knowledge, behavior and sustainable organizational performance on the economic dimension
		2.	The fact that the interviews found a positive relationship between knowledge, behavior and sustainable organizational performance on the environmental dimension
		3.	The fact that the interviews found at positive relationship between knowledge, behavior and sustainable organizational performance on the social dimension

(*continued*)

Table 2. (*continued*)

Theme	Concept/Question		Finding
	Impact of GSC Sustainability Performance	1.	Interview results prove that Green Intellectual Capital is very important to sustainable performance assessed from the economic dimension
		2.	Interview results prove that Green Intellectual Capital is very important to sustainable performance assessed from the environmental dimension
		3.	Interview results prove that Green Intellectual Capital is very important to sustainable performance assessed from the social dimension
	Impact of GRC on Sustainability Performance	1.	In general, there is a positive relationship between GRC and sustainability performance from the environmental dimension
		2.	In general, there is a positive relationship between GRC and sustainability performance from the social dimension
		3.	Sustainability of performance from the economic dimension does not benefit the organization and the stakeholders in this case are the customers

cheaper without thinking that from a social point of view the tuition fees can be used for environmental care [36, 73, 86] (Table 2).

5 Concluding Remarks

The first research objective is to assess the perceptions of internal stakeholders of educational organizations regarding the concept of Green Intellectual Capital, sustainability, and sustainable performance. Secondly understand the influence of Green Intellectual Capital on the sustainable performance of the organization. A single case study was conducted and analyzed in depth to achieve this goal. Regarding the first objective, it was found that internal stakeholders did not understand the concepts of Intellectual Capital and Green Intellectual Capital. However, in contrast to the concept of sustainability and sustainable performance, it was found that internal stakeholders quite understand

the concept. Of the three dimensions studied, internal stakeholders focus more on the environmental dimension than on the social and economic dimensions (Avesani, 2020; Niţă & tefea, 2014; ak, 2015).

The first research question of the second objective is intended to understand the effect of GHC on the sustainable performance of the organization. It was concluded that all interviewees considered GHC important to achieve good sustainable performance. The increase in GHC is carried out by increasing the level of education through actions to increase the level of education, courses and training. GHC is also expected to have awareness raising initiatives, and other incentives, have a positive effect on economic and environmental performance. Great attention is also paid to efforts to reduce waste. While these actions have the potential to reduce costs and have an impact on the environment. GHC has a positive effect on performance on the value of the social dimension.

The second research question of the second objective is intended to understand the effect of Green Intellectual Capital on the sustainable performance of the organization. Everyone interviewed considers Green Intellectual Capital an important element to achieve sustainable performance. Some examples illustrate the creation of Green Intellectual Capital in organizations, such as improvements in the investment process in software, established environmental management policies and an eco-green culture. These factors positively influence the environmental dimension of sustainable performance. In addition, adopting a systems development methodology provides evidence of the influence of Green Intellectual Capital on the economic and social dimensions of sustainable performance, namely through improving product quality and concern for the health and safety of lecturers and staff. Thus, it can be concluded that Green Intellectual Capital has a positive effect on the sustainable performance of the organization in all its dimensions [89] suggest that organizations with efficient systems and procedures, sound environmental management policies, and well-established structures enable full implementation and the achievement of sustainable performance.

The third research question of the second objective is to understand the effect of GRC on sustainability performance. GRC is considered as an important element to achieve good sustainable performance. Several examples of GRC creation were identified, namely investments enhancing the value and image of the organization. Through case studies, it can be concluded that this dimension affects organizational social performance in various ways. Actions affect the environmental and economic dimensions of sustainable performance. The organization adheres to the principles of environmental sustainability. Thus, it is important to emphasize the GRC in improving performance sustainability.

This paper contributes to the development of research on Green Intellectual Capital, sustainability and performance sustainability in educational organizations. This makes it possible to link two distinct but complementary areas of knowledge, thereby filling a gap in the literature on intellectual capital. More specifically this research contributes to a better understanding of the relationship between Green Intellectual Capital and sustainable performance in educational organizations. This study enables managers to better understand the relationship between Green Intellectual Capital and sustainable performance from a management-oriented perspective. Therefore, this paper can provide

such managers with insights to better guide their organizations to be economically viable and sustainable.

Furthermore, regardless of the validity of the interpretation given in the context of the case study, generalizations to other situations should only be made within a theoretical framework. As a suggestion for further research, it is recommended to understand why some organizations implicitly apply and relate the concepts focused on this research, even though they are not fully aware of it. In addition, further research should assess how sustainable performance can affect an organization's Green Intellectual Capital. Finally, similar studies in different industrial and non-industrial sectors (such as financial organizations) should be carried out.

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