



Sustainable Spaces: A Perspective from the University Community

Agustina Uribe Rodriguez

Universidad Nacional del Comahue, Argentina (ag.uriberodriguez@gmail.com)

Abi Laura Cayuman

Universidad Nacional del Comahue, Argentina (abi.laura.29.9@gmail.com)

Lucio Bianchi

Universidad Nacional del Comahue, Argentina (luciobianchi7@gmail.com)

Abstract

Sustainability has become a central concern in light of the environmental, social, and economic challenges that threaten global well-being. However, its frequent use often lacks scientific precision. Morelli (2011) defines it as the condition in which human needs are met without compromising the regenerative capacity of ecosystems, emphasizing the interdependence between environmental, social, and economic systems. In higher education, universities can serve as “living laboratories” to promote sustainability and contribute to the Sustainable Development Goals (Purcell et al., 2019). Based on this premise, we conducted a quantitative study among users of the common spaces at the National University of Comahue to learn about their perspectives before and after implementing awareness interventions on the use of these spaces and to determine whether their conditions impact productivity. The results show that, after the changes were made and awareness was raised about their use, users tend to remember to care for them and therefore feel more comfortable, which in turn increases their productivity.

Palabras clave: Sustainability; productivity; university environment.

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1. INTRODUCTION

Sustainability has become a central concern in contemporary research and practice, as environmental, social, and economic challenges increasingly threaten global well-being. However, the concept is often used ambiguously. Morelli (2011) argues that “sustainability” has become a corporate buzzword lacking precise scientific meaning. He therefore proposes defining environmental sustainability as the condition in which human needs are met without compromising the regenerative capacity of ecosystems. This broader understanding establishes the fundamental role of environmental systems in sustaining social and economic structures.

The work environment emerges as a critical factor that directly influences organisational success. An organisation’s performance depends on how effectively it maximises the creative capacity and productivity of its workforce (Selden & Jacobson, 2007, as cited in Nollman, 2013). Previous research has demonstrated that the physical environment significantly affects productivity, with some studies even attributing a substantial proportion of sick leave to building conditions (Sustainability Victoria & the Kador Group, 2007, as cited in Nollman, 2013). For this reason, the incorporation of sustainability initiatives in the workplace has been proposed not only to mitigate the environmental impact of operations but also to improve the atmosphere, the well-being of occupants, and, consequently, their productivity. Such initiatives—particularly those related to Indoor Environmental Quality (IEQ), such as air quality, lighting, and thermal comfort—have shown a progressively positive effect on occupants’ satisfaction, attendance, and performance (Nollman, 2013).

Despite the relevance of sustainability as a core principle, questions remain as to how it can be effectively integrated into organisational and educational contexts. For example, Nollman (2013) demonstrates that although sustainable workplace initiatives tend to improve the work environment, little is known about how behavioural initiatives directly influence productivity. This gap reveals the need to analyse sustainability not merely as an environmental or economic imperative but also as a human-centred approach that affects motivation, health, and work performance.

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In the field of higher education, Purcell, Henriksen, and Spengler (2019) illustrate how universities can act as “living laboratories” for sustainability, fostering social transformation and contributing to the achievement of the United Nations Sustainable Development Goals (SDGs). However, they also warn that sustainability often remains peripheral in institutional governance, indicating the need for more integrative and transformative approaches. By applying sustainability principles to our own academic and operational assets, we aim to provide opportunities for real-world learning and research, transforming the university into a testbed for sustainability solutions (Brundiens & Wiek, 2011, as cited in Purcell et al., 2019).

Consequently, the objective of our study is to evaluate the impact of environmental policies on student productivity within the university context, thereby helping to fill the research gap concerning the overall influence of the environment on human performance.

2. METHODOLOGY

Considering the environment in which we decided to carry out our work — the National University of Comahue, and more specifically, its common study areas — we designed two surveys: one conducted before the interventions in these spaces and another afterwards. This allowed us to assess their impact and identify which actions generated a genuine impression within the study group.

The approach of this study was quantitative, as numerical scales were used throughout the questionnaire to enable participants to respond within a determined range. This method, which is explained in more detail later in this section, allowed us to measure perceptions and behaviours in a structured way.

The surveyed group consisted of students from the Faculty of Economics and Administration at the National University of Comahue, representing a variety of age ranges and different frequencies of use of the common spaces (such as the library, the tables in classrooms 40, and the computer lab). This diversity of habits, opinions, and perspectives provides a comprehensive view of how these spaces are used and how perceptions vary throughout the day — the experience of a student who arrives at the faculty at 7 a.m. is not the same as that of a student attending evening classes.

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The survey questions were designed to be answered using a 1-to-5 scale (where 1 represented “not interested at all” and 5 represented “very interested”) in order to quantify what are essentially opinions. Based on the data collected, we can infer the impact generated by the interventions or, alternatively, the degree of disinterest of the population regarding the aims of this study.

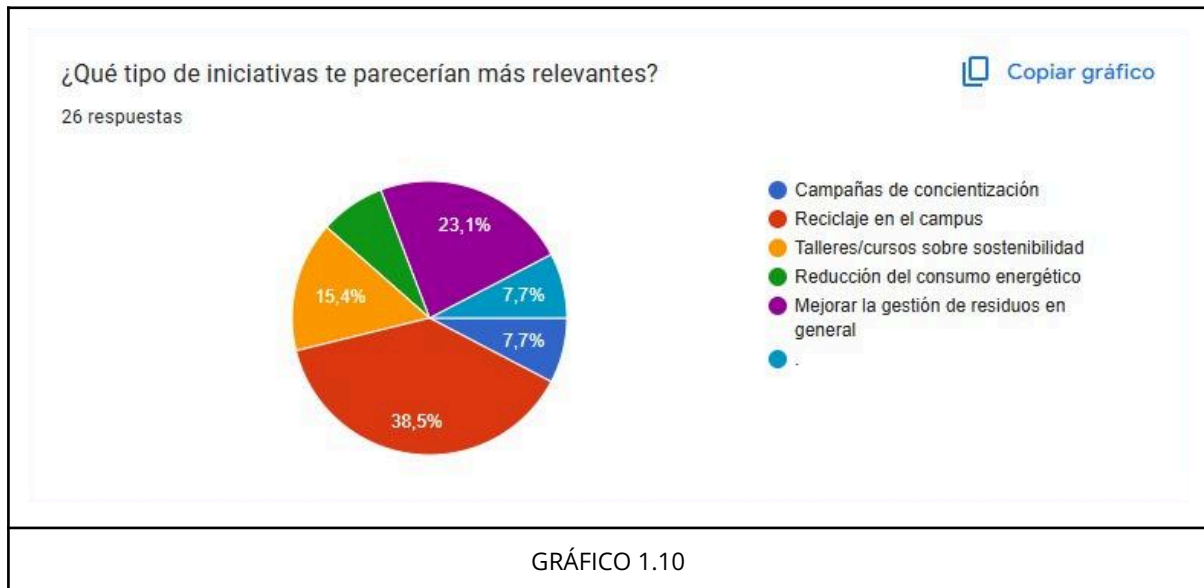
In addition, we included questions addressing the role that students believe the university should play in managing these shared spaces. This allowed us to explore their perceptions of institutional responsibility and the extent to which they believe the university authorities should be involved in maintaining and improving these environments.

3. RESULTS

In the first questionnaire we conducted, it was observed that the majority of respondents (77%) belonged to the age range between 18 and 23 years old, and that most of them used the university's common areas during the late afternoon and evening hours, between 4 p.m. and 8 p.m. (Graph 1.1; Graph 1.2).

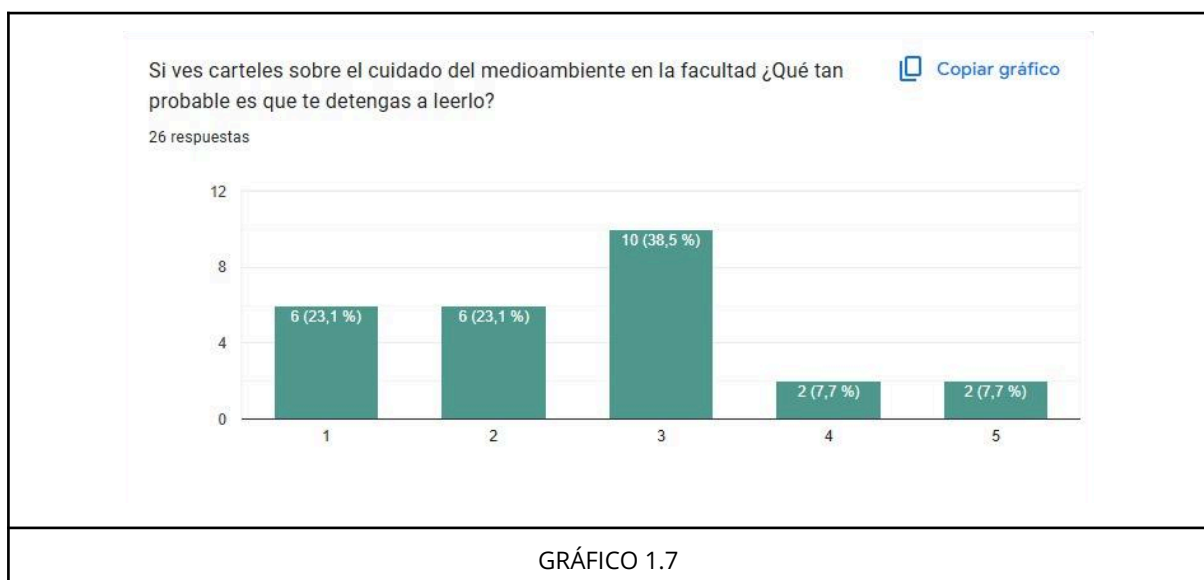
Regarding the general interest in sustainability, most participants expressed concern about the topic but, at the same time, acknowledged lacking sufficient knowledge or understanding to become more engaged or take concrete action (Graph 1.3; Graph 1.4). Graphs 1.10 and 1.11 show that one of the subjects generating the greatest interest among respondents was recycling on campus and, in particular, waste separation as a central issue. Once again, a tendency towards concern without corresponding action was noted, since in Graph 1.8 the majority admitted to generating waste regularly.

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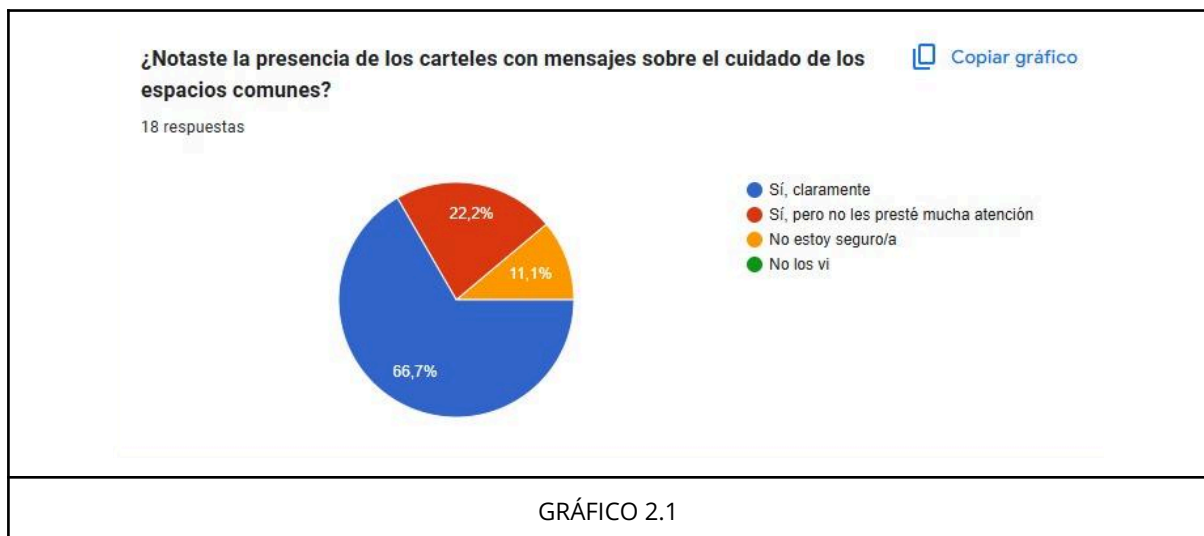
In terms of productivity, respondents demonstrated dissatisfaction with studying or performing their academic duties in poorly maintained or disorganised environments (Graph 1.6).

Finally, in this first survey, the sample population revealed a general tendency not to stop and read the posters related to sustainability topics, although most responses appeared somewhat ambiguous in this regard (Graph 1.7).



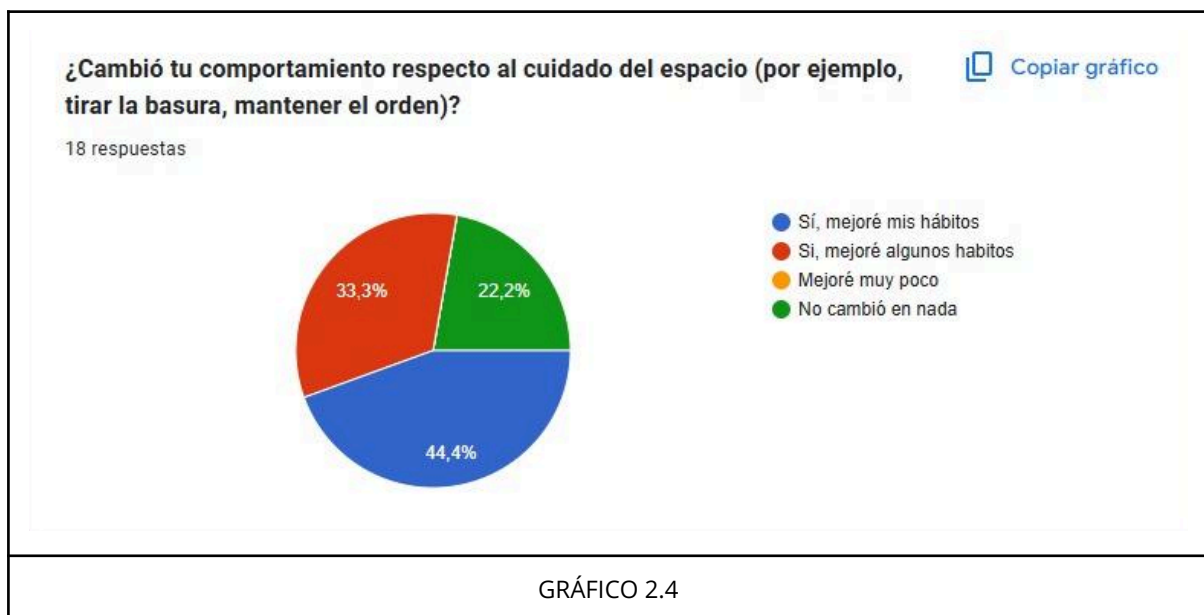
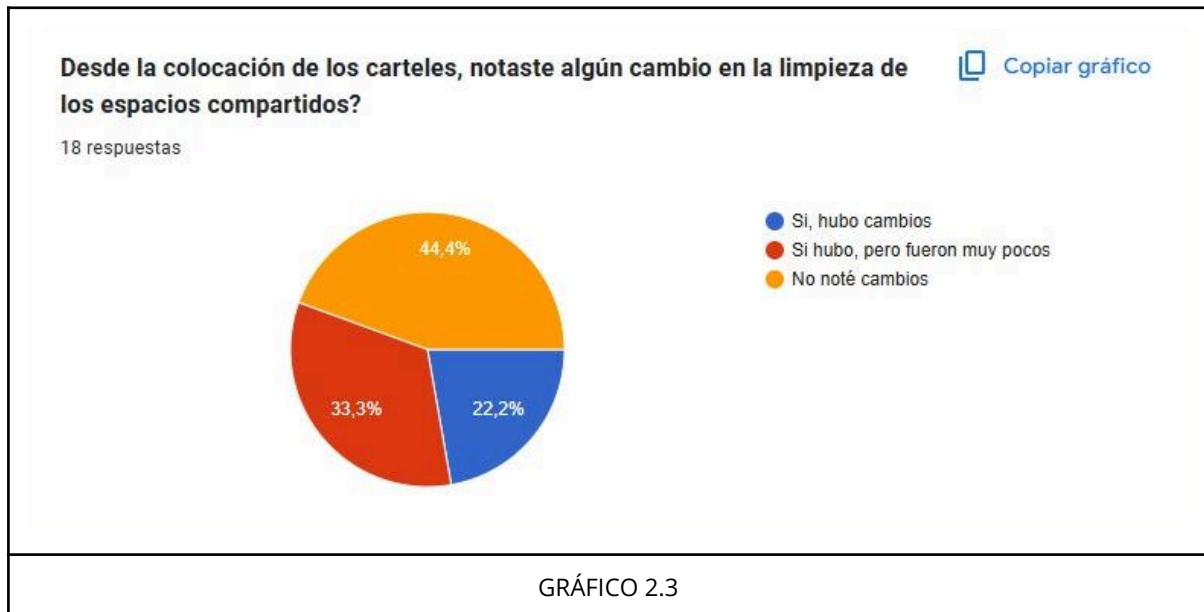
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In the second questionnaire, students were asked directly about the impact of the posters placed in classrooms 40. A total of 89% of respondents reported having seen the posters displayed in the shared space, recalling messages such as “Keep the space clean”, “Take your rubbish with you”, and “Let’s all take care of the faculty” (Graph 2.1; Graph 2.2).



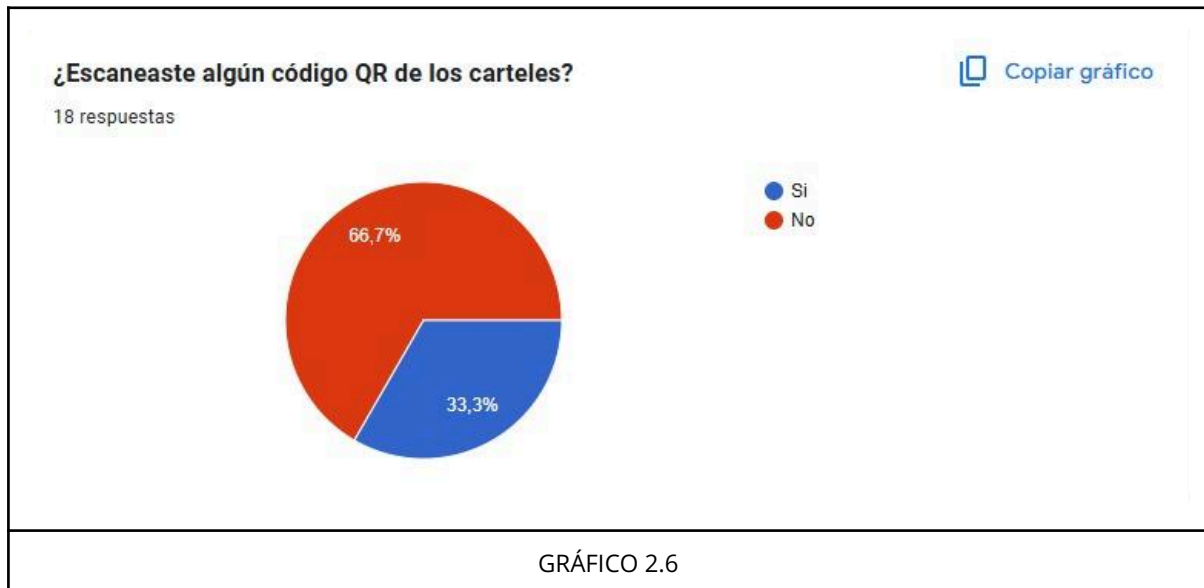
However, 78% of students pointed out that before the posters were displayed, they had not noticed any significant improvement in the cleanliness of the area and did not believe that the posters had influenced those who had not seen them (Graph 2.3; Graph 2.5). Nevertheless, many indicated that the campaign had encouraged them to change their own behaviours in terms of caring for the environment (Graph 2.4)

Informe de investigación



Finally, the survey revealed that 66% of participants did not interact with the QR codes, and only 55% of those who did reported finding them helpful in promoting environmental awareness (Graph 2.6; Graph 2.10).

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Anexo Graficos: Common Ground

4. DISCUSSION

By comparing the results obtained from the questionnaires administered before and after the interventions, several conclusions can be drawn.

The posters we categorised as “*classic*”—those that contained only a short message accompanied by an image related to the topic—received the most positive response, compared with the posters that included a QR code (Graph 2.6).

We can infer that this reaction is due to the fact that members of the university community are generally more committed to small, effortless actions than to larger initiatives requiring additional engagement. In other words, they prefer the simple reminder provided by classic posters (“Take your rubbish”, “Keep the place tidy”) over actions that demand an extra step, such as scanning a QR code to access information or participate in a game.

At first glance, this might appear concerning, as it could suggest that students do not demonstrate a genuine interest in environmental sustainability issues. However, we have chosen to interpret it as an opportunity to guide students towards more direct environmental action based on the basic knowledge they already possess. In this sense, they only require the right

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motivation to translate awareness into concrete behaviours that promote environmental well-being.

5. CONCLUSION

We can therefore conclude that the campaigns receiving the most positive response are those that encourage the implementation of small, practical habits in students' daily lives — such as simple reminders to take their rubbish with them or to keep their study areas clean and organised. Campaigns that require greater effort, such as accessing a webpage via a QR code, tend to be ignored by the audience.

Although these changes may seem minor, they contribute to maintaining a pleasant and functional environment for everyone and, as demonstrated through the surveys, they also help improve the productivity and concentration of those who use these spaces regularly.

The new generations entering university environments seek to learn through direct action, immediately applying the knowledge they acquire. For this reason, we recommend that future awareness campaigns carried out at the National University of Comahue — and more broadly, in educational environments aimed at these new generations who prefer active involvement with the issues that affect them — should focus on actions that can be implemented immediately. In this way, all members of the community can identify with the cause and adopt the positive habits promoted by such initiatives as their own.

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