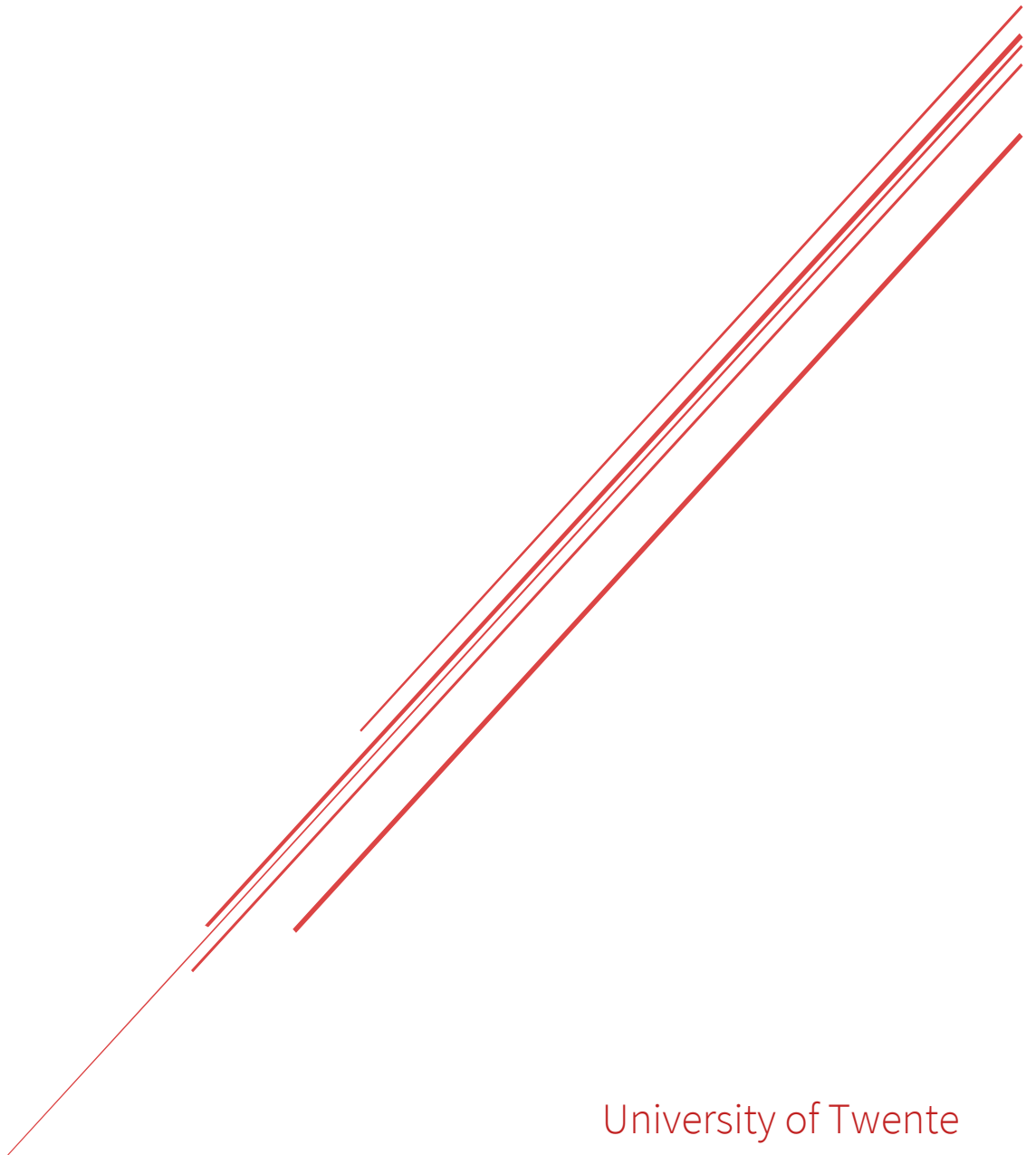


ALIGNMENT OF STUDENTS' AND THE UT'S EVENT SUSTAINABILITY PERCPETION

H.V. Ockham



University of Twente
Wouter Trieling
23-06-2023

I would like to share my gratitude to Green Hub Twente and Sustain for their support and suggestions.

Introduction

The University of Twente (UT) has a certification system organised by Green Hub Twente and Sustain that helps organisations affiliated with the UT make their events more sustainable and provides them with a certificate as recognition for their sustainability efforts. The certification system can be understood as having three phases.

In the first phase, the event organisers familiarise themselves with the publicly available Sustainable Event Certification Checklist (<https://www.utwente.nl/en/sustainability/green-hub-twente/more-sustainable/for-events/>), fill out each applicable line in accordance with their event plan, send it to Green Hub for review, and have an interview with Green Hub to discuss the checklist and implementation of the sustainable design choices. This phase is finalised with the receipt of a 'Green Pass' that allows the event to be promoted as a sustainable event certified by Green Hub.

In the second phase, the event takes place. The event might be visited by a Green Hub employee with verify compliance to the planned sustainable choices.

In the third and last phase, the entire process is evaluated in a meeting with Green Hub. Any deviations from the plan reflected in the Sustainable Event Certification Checklist are discussed and the final score is determined. In case the Bronze, Silver, or Gold level is reached, Green Hub and Sustain grant the official Green Certificate signed by the Executive Board of the UT and Green Hub. Optional support by a marketing officer is available to coordinate the promotion of the issued Green Certificate.

According to Green Hub (personal communication, June 2023), the Sustainable Event Certification Checklist was constructed in 2020 by three Green Hub officers with the goal of making events more sustainable. According to them, at the time of making, few (English) sustainable event checklists could be found online. A checklist from an MIT project was deemed best and was adapted for the UT environment. Attempts made by Green Hub to get in contact with MIT for their research turned out futile (Green Hub Twente, personal communication, June 2023).

The checklist provides a total of 45 concrete actions with clarification and helpful resources in 4 categories (Communicating Sustainably Throughout the Event Process, Catering Your Event Sustainably, Lowering Your Event's Energy & Transit Footprint, and Managing Materials & Waste Sustainably). Implementing an action can earn the event 1 or 2 points. Only the applicable actions are taken into account in calculating the score, with the level of certification—Bronze, Silver, or Gold—being based on what percentage of the applicable points are earned.

In the last two months, the first three Green Certificates have been granted to the Open Days, Week of Inspiration, and the H.V. Ockham Batavierenrace BBQ (Green Hub Twente, 2023; H.V. Ockham, 2023). This impulse has sparked ideas for improvements to the Sustainable Event Certification Checklist and for an increased utility of the certification. However, it has not been investigated whether students' perception of the sustainability of events aligns with the scoring from the Sustainable Event Certification Checklist. This paper reports on a study that investigated this exact question.

Methodology

A questionnaire survey (N = 52) was used to measure how students perceive the sustainability of events. The sample was well balanced between male and female respondents. Participants were shown descriptions of events and asked to give it a score based on how sustainable they believed the event to be. These scores were later compared to the scores the Sustainable Event Certification Checklist V.1 yielded.

Questionnaire

The questionnaire was conducted online using the Qualtrics survey platform. This platform can record incomplete survey responses, allowing time-constraint participants to contribute with partial completion of the survey.

Prior to data collection, the participants received a brief explanation of the study. The first two questions were designed to gauge how passionate the participants are about sustainability and how familiar they are with the Sustainable Event Certification Checklist.

After collecting information regarding participants' study and gender, participants were asked if they attended the Week of Inspiration 2023. This event, held in April 2023 and open to the entire UT community, was one of the recipients of a Green Certification. Participants who answered "Yes", were asked to score the sustainability of the Week of Inspiration 2023 on a slider with the statement "How sustainable do you think this event was?", scale points from 0 till 100, and the labels "Couldn't be less sustainable (0)" and "Couldn't be more sustainable (100)". Instead of scoring using the slider, participants could also opt for the checkbox "I know the exact score". This option was added for H.V. Ockham members and Green Hub employees who had seen the score printed on this event's Green Certificate. An optional text box was included for participants to provide explanation for their score and to indicate any improvement points they see for the Week of Inspiration.

The rest of the questionnaire asked participants to score the sustainability of three fictional events using a slider with scale points from 0 till 100 and the labels "Couldn't be less sustainable (0)" and "Couldn't be more sustainable (100)". All participants received the same event descriptions to base their score on. The participants were also asked the optional question "What did you base your score on?".

Multiple event descriptions were hallucinated by ChatGPT using a series of prompts (see Appendix 1). Three events of ranging sustainability (32%, 52%, 89%) were modified by hand to include more specific information on sustainability practises necessary to complete the checklist without making big assumptions—which would introduce significant bias in the checklist scoring. Care was taken to include both sustainable and unsustainable practises in every event description to minimise social desirability bias of participants answering what they think the researcher wants to hear. See Appendix 2 for the full event descriptions included in the questionnaire.

To mitigate response bias stemming from participants scoring events without closely reading the event description, the time every participant spent on each fictional event was recorded in the background (not visible to the participants). In anticipation of incomplete responses, the order in which these three events were presented was randomised and they were evenly presented (see Survey Flow in Appendix 2). This was also beneficial for the mitigation of question order bias.

On request of Green Hub, participants received the hyperlinks of a webpage with green opportunities and of the webpage with the Green Guide upon completion of the questionnaire (<https://www.utwente.nl/en/sustainability/green-hub-twente/more-sustainable/green-opportunities/>; <https://www.utwente.nl/en/sustainability/green-hub-twente/more-sustainable/for-you/>). Additionally, participants were presented with a table in which they could see their scores compared to the

(estimated) scores the Sustainable Event Certification Checklist yielded. Figure 1 below shows the scoring based on the categories. Using the formula $\frac{SCORE}{TOTAL\ APPLICABLE\ POINTS} * 100$, these scores were transformed to a 1-100 scale to allow for a comparison with the participants' scores.

CATEGORY	SCORE		TOTAL APPLICABLE POINTS		SCORE		TOTAL APPLICABLE POINTS		TOTAL POSSIBLE POINTS
	Conference	Lasergaming	Conference	Lasergaming	Cleanup	Conference	Lasergaming		
Communication	8	2	16	8	8	10	19		
Catering	11	1	21	13	15	15	22		
Energy & Transit	1	3	5	3	3	4	9		
Material	6	2	8	9	8	9	10		
Innovation	0	0	0	0	0	0	5		
Total Score	26	8	50	33	34	38	65		

Figure 1 Sustainable Event Certification Checklist score for each of the three fictional events

Finally, there was an optional text entry possible for any comments or suggestions that the participants wanted to share.

After distribution, issues were found in how the Sustainable Event Certification Checklist was filled in for the lasergaming event. For several actions, no information on the implementation or lack thereof was included in the event description, yet these actions were scored as not being implemented. These action items were changed into not applicable, which reduced the total applicable points from 33 to 25.

Questionnaire distribution

The survey was promoted to approximately 1000-1300¹ UT students using text messages in the association WhatsApp groups of H.V. Ockham, Sustain, and Atlantis; text messages in the Year 2 and Year 3 Creative Technology and Honours 2023-2024 cohort WhatsApp groups; an Instagram story on the H.V. Ockham and Green Hub accounts; an Instagram post on the H.V. Ockham account; and face-to-face promotion, most notably on the centrally located O&O square on campus with free sandwiches as incentive. Other participants received no incentives or compensation for their participation. The response rate was approximately 4,5%, of which 11% from Sustain and 37% from Honours.

¹ Uncertainty is introduced by the unknown degree of overlap between the audiences of the various outreach channels.

Results

Of the 51 recorded responses, 14 stopped before scoring any of the fictional events and were subsequently filtered out before any analysis. Another 2 responses have been filtered out for spending less than 7 seconds for every event, which is too little time to read and score any of the descriptions. Of the remaining 35 responses, 5 scored one fictional event, 2 scored two fictional events, and the remaining 28 scored all three.

The first set of questions aimed to identify how passionate the respondents are about sustainability and how familiar they are with the Sustainable Event Certification Checklist. Table 1 provides an overview of this familiarity of the participants categorised by their passion for sustainability.

Table 1 *The number of participants per level of familiarity with the Sustainable Event Certification Checklist categorised by how passionate there are about sustainability.*

Not at all	2
Not familiar at all (I hadn't hear of it before)	1
Very familiar (I've seen but forgotten the scoring criteria)	1
Somewhat	17
Not familiar at all (I hadn't hear of it before)	15
Moderately familiar (I know what it is)	1
Extremely familiar (I know the scoring criteria)	1
Very much so	16
Not familiar at all (I hadn't hear of it before)	4
Slightly familiar (I've heard of it before)	5
Moderately familiar (I know what it is)	2
Very familiar (I've seen but forgotten the scoring criteria)	1
Extremely familiar (I know the scoring criteria)	4

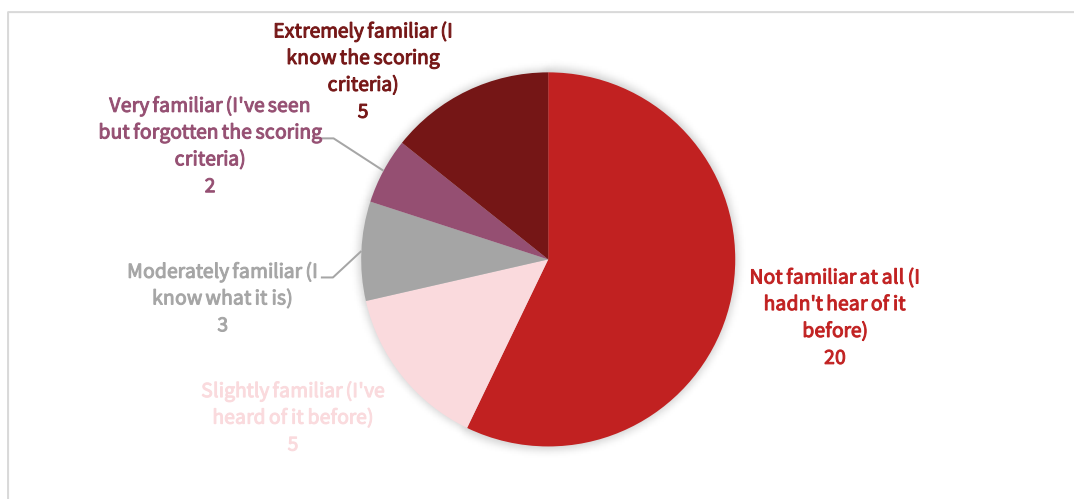


Figure 2 *Breakdown of familiarity with the Sustainable Event Certification Checklist*

The average score the 8 respondents who visited the Week of Inspiration 2023 gave the event was 5,8% lower than the actual score (68.75 versus 73 points).

Figure 3 shows that the average score assigned by the participants to the conference and cleanup events deviated very little from the score assigned by the Sustainable Event Certification Checklist (a deviation of 2.4 and 2.3 points, respectively). However, on average, the participants were 37 points removed from the checklist score when assessing the sustainability of the lasergaming event.

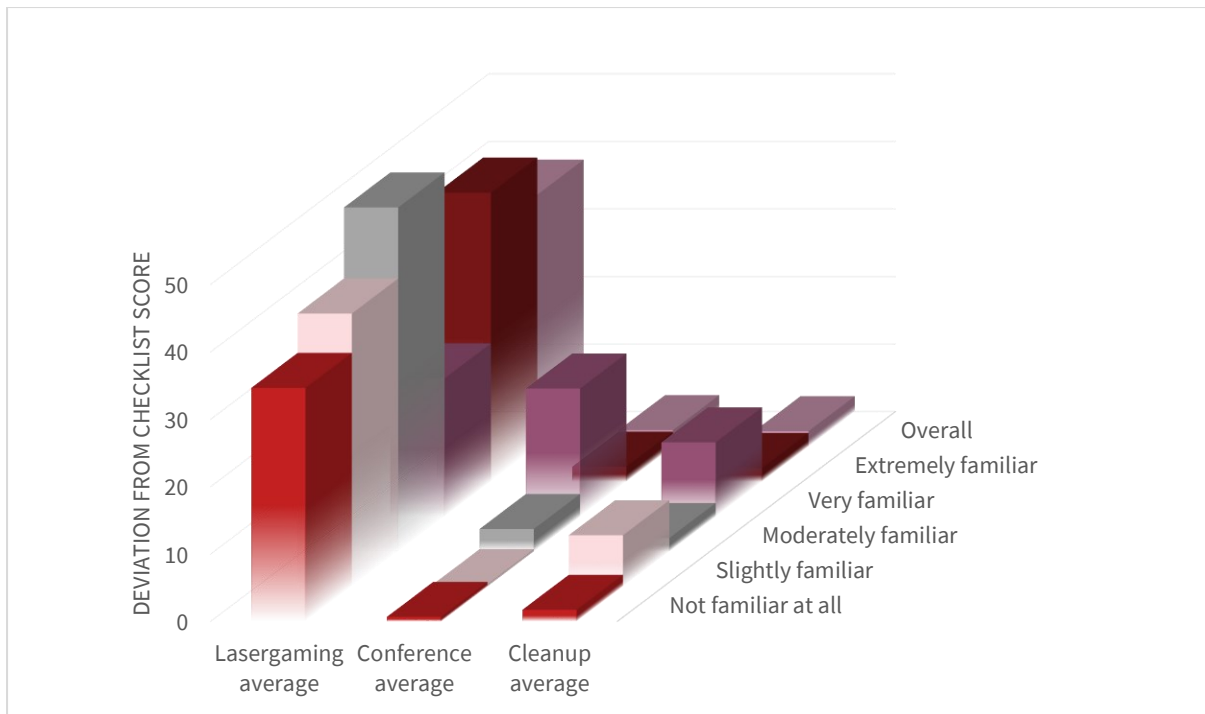


Figure 3 The absolute deviations of the average scores per event based on the familiarity with the Sustainable Event Certification Checklist

The dark-coloured lines in the graphs below show the correlation between the time spent on the events and the scores given. This time is the count of how long the respondent spent on the page with the event, which includes the event description, the scoring slider, and a text box inviting the participant to explain what they based their score on. The light-coloured lines represent the absolute deviation from the estimated Sustainable Event Certification Checklist values.

The correlation coefficients between the scores/deviations and the time spent on the event vary between ± 0.03 and ± 0.27 . All of the linear models (the dotted lines) have an R-squared of less than 0.1, indicating that the time spent on the events cannot be considered an important factor in explaining the scores given by the participants.

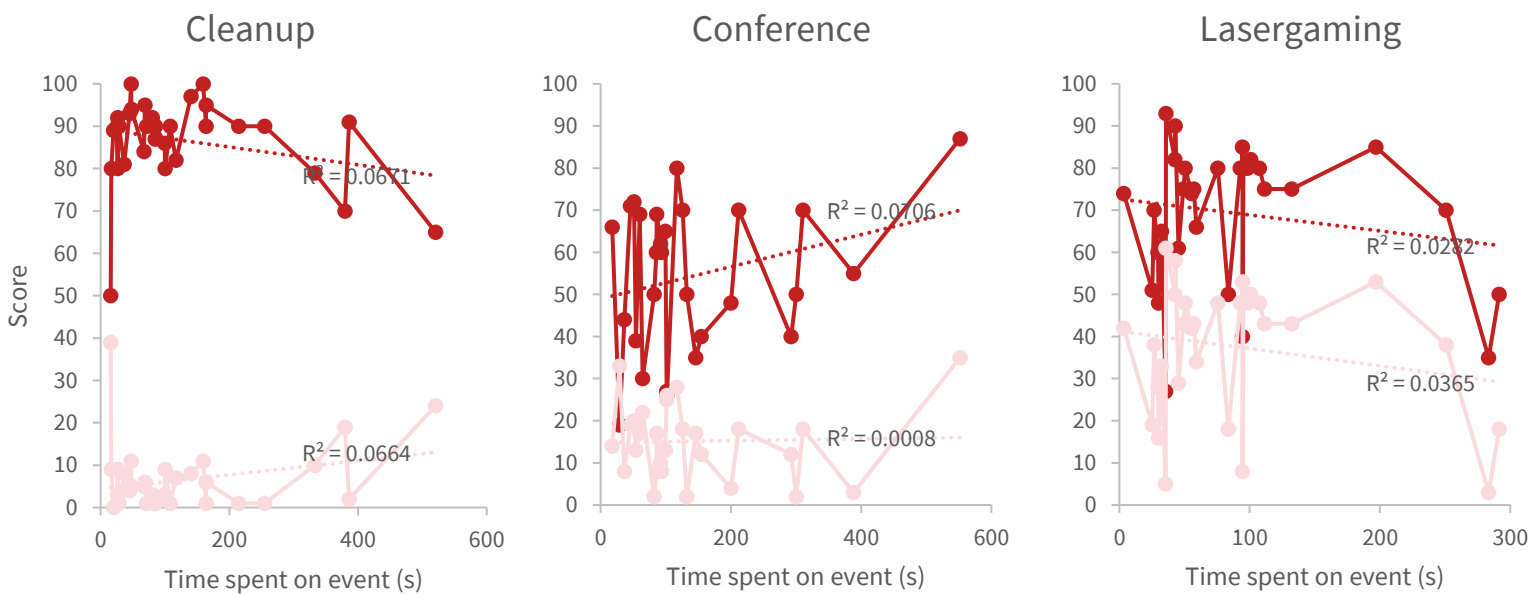


Figure 4 Participant scores and deviations from the checklist score as a function of the time spent on scoring the event. This time includes the reading, scoring, and the (optional) writing of an explanation for the scoring.

- Score
- Deviation
- Linear (Score)
- Linear (Deviation)

Discussion

The present study was designed to determine whether the perception of the level of sustainability of events of UT students is consistent with the perception of the level of sustainability of events of UT as measured by its Sustainable Event Certification Checklist.

The first part of the questionnaire revealed that this survey attracted mainly students who self-report to be somewhat or very much passionate about sustainability. Figure 3 shows that those who are either most or least familiar with the Sustainable Event Certification Checklist tend to score the events most accurately. There is little indication that increasing one's knowledge of the scoring criteria helps to align their sustainability perception with the Green Certificate sustainability assessment.

One unexpected finding was the extent to which the average of the scores given by the 35 students to the conference and cleanup events aligns with the score from the Sustainable Event Certification Checklist score. The difference of only two points on a scale of 100 points for the conference and cleanup events provides evidence for a very high level of alignment between the sustainability perception of students and the UT.

One unanticipated result was that for the third event—lasergaming—the average score was more than double the score from the Sustainable Event Certification Checklist. Most participants mentioned as sustainable actions in their explanation for their score the stimulation of biking as method of transport, the vegan snacks, and the location (outdoors). On the flip side, mainly the bottled water was mentioned as an unsustainable element. A possible explanation for the discrepancy between the Sustainable Event Certification Checklist and participant scores, could be the unequal weighting of actions in the checklist. For example, the statement that participants do not need to take anything with them as there will be enough bottled water, accounts for almost a fourth of the missed points, whereas the vegan snack only earns the event 1 point. As the event description lacked many details needed to assess the sustainability of the event, the checklist was filled in with many N/A (not applicable—causing the points to not be considered in the scoring of the event) causing actions such as the event not being promoted as a "Sustainable Event" to have a relatively big impact in the overall sustainability score.

One issue that thus emerges from these findings is that it is difficult for students to properly assess the sustainability of events when the communication about the (sustainability practises of the) event is limited. The results suggest that the ability to accurately perceive the sustainability of events is related to the adequacy of information pertaining to the practises relating to the sustainability of the event. This stipulates the importance of transparent communication of sustainability measures of events for students. This study shows that if event descriptions are transparent enough, students are well able to assess how sustainable events are, thus allowing them to make informed decisions as to their participation in events.

Despite these promising results, further research is needed to determine how the findings of this study with its limited sample size of 35 are representative of the entire student body of the University of Twente. Moreover, the generalisability of the results is also subject to other limitations. For instance, the participant group consisted of almost exclusively students who are at least somewhat passionate about sustainability. The scope of this study was also limited in terms of the number of fictional events.

References

Green Hub Twente. (2023, May). *Post* [LinkedIn]. https://www.linkedin.com/posts/green-hub-twente_greencertificate-sustainability-events-activity-7061677419409108992-T02o/?utm_source=share&utm_medium=member_desktop

H.V. Ockham. (2023, June 19). *Post* [Instagram]. <https://www.instagram.com/p/Ctq1qn5sFH7/>

Appendices

Appendix 1: ChatGPT conversation

The full conversation in which the concept event descriptions were created can be found by following this hyperlink: <https://chat.openai.com/share/a4bf5579-084f-4d1b-acba-ddb9d06190ec>

Appendix 2: Qualtrics questionnaire Sustainable event checklist perception study

Survey Flow

Block: Inform (5 Questions) Standard: Week of Inspiration (3 Questions)
BlockRandomizer: 3 - Evenly Present Elements
Standard: Event 1 (4 Questions) Standard: Event 2 (4 Questions) Standard: Event 3 (4 Questions)
Standard: End (2 Questions)
EndSurvey:

Page Break

Start of Block: Inform

Hi, we appreciate that you want to help us!

Last Friday, H.V. Ockham received 2 sustainable event certifications from the UT (Greenhub/Sustain). But we are also very curious how you (UT students) perceive the sustainability of events.

On the following pages we will show you descriptions of (fictional) events. We ask you to score how sustainable you perceive these events to be. You can choose yourself how many events you want to score, you can choose to end at any moment and your previous answers will still be usable for us. You can also return later in the week to continue where you left. So you can help us with anywhere between 3 and 10 minutes of your time!

If you score all three/four events, you will be able to see how the UT's sustainable event checklist scores the events, and you'll find some sustainability resources!

We will use these fully anonymous scores to check how well students' perception aligns with the scores given by the UT. We will store the anonymous data on the H.V. Ockham's Google Drive. The results will be shared with Greenhub, Sustain, and to other associations on request. We might also share the results on our website or other communication channels. You can email secretary@hvockham.nl to request the results.

Thank you in advance!
Wouter Trieling
Secretary of Honours Association Ockham

How passionate are you about sustainability?

- Not at all
- Somewhat
- Very much so

How familiar are you with the UT's green event certification checklist?

- Not familiar at all (I hadn't hear of it before)
- Slightly familiar (I've heard of it before)
- Moderately familiar (I know what it is)
- Very familiar (I've seen but forgotten the scoring criteria)
- Extremely familiar (I know the scoring criteria)

I am ...

- an honours student studying _____
- a Sustain member studying _____
- neither, but a student of... _____
-

What is your gender?

- Male
- Female
- Non-binary / third gender
- Prefer not to say

End of Block: Inform

Start of Block: Week of Inspiration

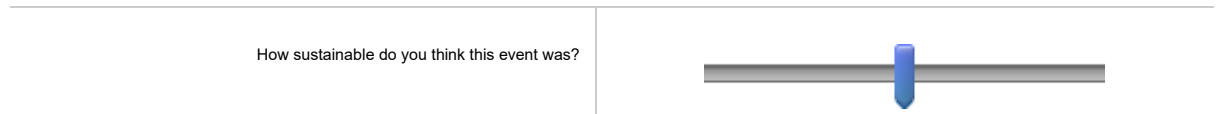
Before getting to the fictional activities, did you visit the Week of Inspiration 2023 (end of April)?

- Yes
- No

Display This Question:
If Before getting to the fictional activities, did you visit the Week of Inspiration 2023 (end of Ap... = Yes

How sustainable do you think that the Week of Inspiration 2023 was?

Couldn't be less sustainable (0)	Couldn't be more sustainable (100)	I know the exact score
0 10 20 30	40 50 60	70 80 90 100



Display This Question:
If How sustainable do you think that the Week of Inspiration 2023 was? [How sustainable do you think this event was?] , Is Displayed

(optional) What did you base your score on/what improvement points did you see?

End of Block: Week of Inspiration

Start of Block: Event 1

Timing
 First Click
 Last Click
 Page Submit
 Click Count

Event networking conference The networking conference is an in-person professional event that brings together students, industry experts, and companies. The conference offers keynote speeches, speed-dating, and a networking drink. It will be held in the Technohal atrium and surrounding classrooms, which are equipped and

commonly used for conferences. Parking is available on the adjacent 'Parkeerplaats De Achterhorst'.

There will be refreshments from Appél throughout the day to keep attendees energised. Please inform the organisation if you have any dietary preferences (vegetarian/allergies/...). This is a professional event, so help us keep the conference areas clean and free of clutter and follow the instructions and signage for proper waste separation.

Don't forget to register for the catering and a goodie bag. Download the app for the most up to date schedule! (Paper conference booklet only available on request at the service desk) Please keep in mind that you are expected to return your badge at the end of the conference, they will be reused next year.

Promotion channels: online platforms, newsletter, and mentioned at every event leading up to the conference.

How sustainable would you say this fictional networking conference is?

Couldn't be less sustainable (0) Couldn't be more sustainable (100)

0 10 20 30 40 50 60 70 80 90 100



(optional) What did you base your score on?

End of Block: Event 1

Start of Block: Event 2

- Timing
- First Click
- Last Click
- Page Submit
- Click Count

Event lasergaming *You read on a big printed poster:*

Join us for an exhilarating day of lasergaming adventure! Gather your friends and prepare for an adrenaline-fueled experience in an outdoor lasergaming arena. Test your tactical skills, teamwork, and strategy as you engage in friendly competition. You are responsible for your own transportation to the lasergaming arena, but it is easily accessible by bike and you can join the organising committee in cycling together from campus.

If you need to bring with you are comfortable clothes and a good mood. We will arrange all equipment, plenty of bottled water, and some (vegan) snacks. So sign up now for the most thrilling activity of 2023!

How sustainable would you say this fictional lasergaming activity is?

Couldn't be less sustainable (0) Couldn't be more sustainable (100)

0 10 20 30 40 50 60 70 80 90 100



(optional) What did you base your score on?

End of Block: Event 2

Start of Block: Event 3

Timing
 First Click
 Last Click
 Page Submit
 Click Count

Event cleanup day The Cleanup Day was an event aimed at improving the local environment. Participants gathered at Rutbeek (a big recreational lake with several beaches ~10km from campus) to clean up litter and engage in other activities to enhance the community feeling, such as frisbee, swimming, and drawing in the sand. Participants were encouraged to carpool and information about carpools was provided to minimise individual vehicle usage.

The event was organised and promoted as a sustainable event, and they applied for green event certification. Sustainability was promoted by offering locally sourced organic and seasonal snacks and beverages to volunteers. The emphasis was on healthy options, including fresh fruits, sandwiches, and refillable water stations to reduce single-use plastic waste and make the event zero-landfill. Participants were asked to bring their own dishware if they wanted any for lunch. The amount of leftovers was noted to select appropriate volumes of food and drinks for the next event(s).

During the event, the impact of litter and the importance of waste management with separate bins for paper, composting, PMD, and residual waste was stressed. The participants were educated on proper waste disposal practices to minimise landfill contributions, and one person from the organisation kept an eye out to make sure these practices were followed.

The event was promoted with flyers and posters made from recycled paper at several association rooms on campus, and through Instagram. The focus of the promotion was on community engagement, raising awareness about the importance of environmental stewardship, and encouraging participation in the cleanup activities. To make the barrier to join as low as possible, people did not have to register but could just show up.

How sustainable would you say this fictional clean-up activity is?

Couldn't be less sustainable (0) Couldn't be more sustainable (100)
 0 10 20 30 40 50 60 70 80 90 100



(optional) What did you base your score on?

End of Block: Event 3

Start of Block: End

Thank you for helping us out! The university has a nice new webpage with [green opportunities](#). There is also a [green guide](#) made for Enschede.

Here are the scorings of the UT's sustainable event checklist:

Event

Event	Certification Checklist Score	Your perceived score
Week of Inspiration 2023	73%	#{q://QID13/ChoiceNumericEntryValue/1}
Event Networking conference	52% (estimated)	#{q://QID5/ChoiceNumericEntryValue/1}
Event Lasergaming	24% (estimated)	#{q://QID19/ChoiceNumericEntryValue/1}
Event Cleanup day	89% (estimated)	#{q://QID16/ChoiceNumericEntryValue/1}

(optional) Any comments or suggestions you want to share?

End of Block: End
