Climate Neutrality Transformation in a German Higher Education Institution: Examining Climate Fresk and Governance Through a Change Management Lens

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Abstract: Could a lack of basic understanding of climate change, particularly among decision-makers, constitute a relevant barrier to transformation? This question emerged during the course of this research.

The paper examines the beginning of the climate transformation of a German Higher Education Institution (HEI) from an evidence-based change management perspective, asking how such transformations unfold in practice and what factors may facilitate or constrain organisational climate action. At an early stage of the research, the author was part of a climate project at the HEI for nine months as a participant-observer.

Subsequently, the change management intervention Climate Fresk was examined through a survey of 120 participants. While the participants, particularly those with intrinsic motivation, reported significant learning gains regarding the causes and consequences of climate change, the perceived increase in empowerment for climate action was only moderate. Nevertheless, the recommendation rate for the intervention was 90% across all participants.

In the qualitative part of the mixed-methods approach, strategic concepts and meeting minutes of governing bodies of the HEI from the last four years were analysed. These show commitment to strategic climate goals, but also a complete absence of discussions on climate neutrality as an organisational task of the HEI within important governing bodies.

As an integration of the quantitative and qualitative findings, the study introduces the heuristic Climate Action Triad, a hypothesis-generating framework for investigating the climate-related change readiness of individual actors. This framework distinguishes between 1. climate problem understanding, 2. climate solution knowledge, and 3. constraints and barriers. The heuristic is applied to interviews with two members of the HEI executive board in order to identify possible barriers to change that may need to be addressed in the further course of the transformation.

Keywords: Change management, Organisational change, Climate governance, Institutional change, Sustainability transformation.

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1 Introduction

The Paris Agreement established the goal of limiting global warming to "well below 2°C above pre-industrial levels" (United Nations, 2015a). In response, Germany committed itself to achieving climate neutrality and incorporated this objective into national climate legislation, setting a target date of 2045 (Bundesrepublik Deutschland, 2021). Achieving climate neutrality requires organisations across all sectors to substantially reduce their greenhouse gas emissions and transform established structures, processes, and practices.

Higher Education Institutions (HEIs), beyond their educational and research functions, are challenged to reduce their own emissions and implement climate neutrality strategies within their organisations. Research on sustainability transformations in HEIs has predominantly been informed by Whole Institution Approach perspectives, which emphasise the integration of sustainability across curricula, research, outreach, facilities, and governance. While this literature provides important insights into what should be transformed within HEIs, this paper adopts an organisational change perspective and focuses on how such transformations unfold in practice and what factors may facilitate or constrain organisational climate action during such processes, which constitutes the central research focus here.

In this paper, the institution-wide transformation process at the University of Applied Sciences (UAS) Coburg aimed at achieving net-zero greenhouse gas emissions is conceptualised as the Climate Neutrality Transformation (CNT). The CNT constitutes the empirical context of this study and is examined from an organisational change perspective. UAS Coburg committed itself to achieving climate neutrality as early as possible and no later than 2040 (Hochschule Coburg, 2025). Between 2024 and 2025, the author participated in the climate neutrality project KlimaCo+ and observed the early phase of the transformation, including climate-related organisational activities, decision-making processes, change interventions, stakeholder interactions, and emerging implementation challenges.

The research was guided by the evidence-based change management framework of Rousseau and ten Have (2022), which emphasises systematic problem diagnosis, multiple sources of evidence, and change readiness as central elements of effective organisational change. The CNT was continuously observed and reflected using the aforementioned change lens.

One element in the early stage of the CNT was the workshop Climate Fresk used as a Change Management Intervention (CMI). This workshop enabled stakeholder involvement during the development of the climate neutrality concept. To better understand the contribution of this intervention to the CNT, a quantitative survey of 120 Climate Fresk participants from German HEIs was conducted. While workshop participants reported a 90% recommendation rate of the Climate Fresk and high levels of perceived learning, the effects on perceived empowerment for climate action appeared considerably more moderate.

In addition to this quantitative study generating evidence about the applied CMI, a qualitative study was performed based on Rousseau and ten Have's elements of organisational and scientific evidence. The organisational structure of UAS Coburg with regard to climate topics as well as the integration of the topic within the extended management board and the university council were analysed. This revealed an ambiguous allocation of responsibilities with regard to climate topics. More notably, the organisational transformation of UAS Coburg

towards climate neutrality was not discussed in any of the 41 meeting minutes, covering a period of four years.

Whereas there might exist many different explanations, motives and reasons for the aforementioned findings, this paper introduces and applies a hypothesis-generating heuristic framework regarding individual climate change readiness. This framework, the Climate Action Triad, consists of three elements: 1. climate problem understanding, 2. climate solution knowledge, and 3. constraints and action barriers. As organisational transformations are shaped by the decisions and actions of key organisational actors, the framework is used to explore those actors. Two members of the executive board of UAS Coburg are interviewed and the Climate Action Triad is used to generate hypotheses concerning their individual climate change readiness, which may be relevant to their management decisions.

2 Theoretical background

Change management theory started already in the 1940s with Kurt Lewin's three-step-model of unfreeze-change-refreeze. In the 1990s John P. Kotter gained widespread recognition with his 8-step-model of change. In the early 2000s years, the field of evidence-based management evolved. In the following, this view was also applied to change management. Whereas the approach of evidence-based origins from medicine, it can be seen also as an integration of an economic point of view on change. Whereas many business decisions, like investments or pricing, have a direct financial and measurable impact in the profit and loss statement and balance sheet, change interventions are more difficult to evaluate. Evidence-based change research tries to close this gap and to make change somehow measurable and consequently more effective on the other hand.

In 2022, Denise M. Rousseau and Steven ten Have published their evidence-based change management approach (Rousseau & Ten Have, 2022)[2]. They highlight "quality evidence from multiple sources" as a success factor in effective change. This evidence is derived by asking what the problem is that should be addressed in the change, checking if it is really the underlying problem, what the options are to solve this problem and what evidence exists that these solutions are effective. Furthermore, four categories of evidence should be considered. These are organisational, stakeholder, and scientific evidence and professional judgement. Furthermore, trustworthiness criteria have to be taken into account when evaluating the evidence. They state: "A change informed by trustworthy facts tends to make sense to change recipients and increases their commitment to change."

Rousseau and ten Have developed a change framework that can be used as a high-level project plan for any change project. They distinguish change-supporting actions between ongoing actions or practices and phased actions. First are to be deployed during the whole change process, the latter only in different project phases.

One ongoing action of organisational change is learning. Rousseau and ten Have note that "All change involves learning." and highlight the importance of the identification and recognition of knowledge and skill gaps during all phases of the change.

[2] In the following, all references to Rousseau and ten Have refer to the here cited article, unless explicitly indicated otherwise.

The first phase as described by Rousseau and ten Have is called "Getting started". This phase includes fact-gathering and problem definition, assessment of the organisation's change readiness and addressing this topic, and the identification of evidence-based change interventions.[3] This evidence-based change framework serves as the analytical lens for examining the organisational context of the CNT at UAS Coburg.

According to Rousseau and ten Have, CMIs can be considered as change solutions as they provide support for organisational change. They recommend using appropriate interventions and implement them well. They argue that successful and effective CMIs often include ability and motivation increase as well as the facilitation to behave in the changed way. They emphasise relying on evidence-proved CMIs.

As there is only little scientific evidence available concerning the CMI Climate Fresk, this research includes a quantitative study about the workshop in order to evaluate it. During the project KlimaCo+, it was mainly used to generate climate action measures for UAS Coburg and led to valuable input from different stakeholders.

The following figure 1 shows Rousseau and ten Have's change framework in a simplified version highlighting the practices, in which the Climate Fresk was used in the project context at UAS Coburg.

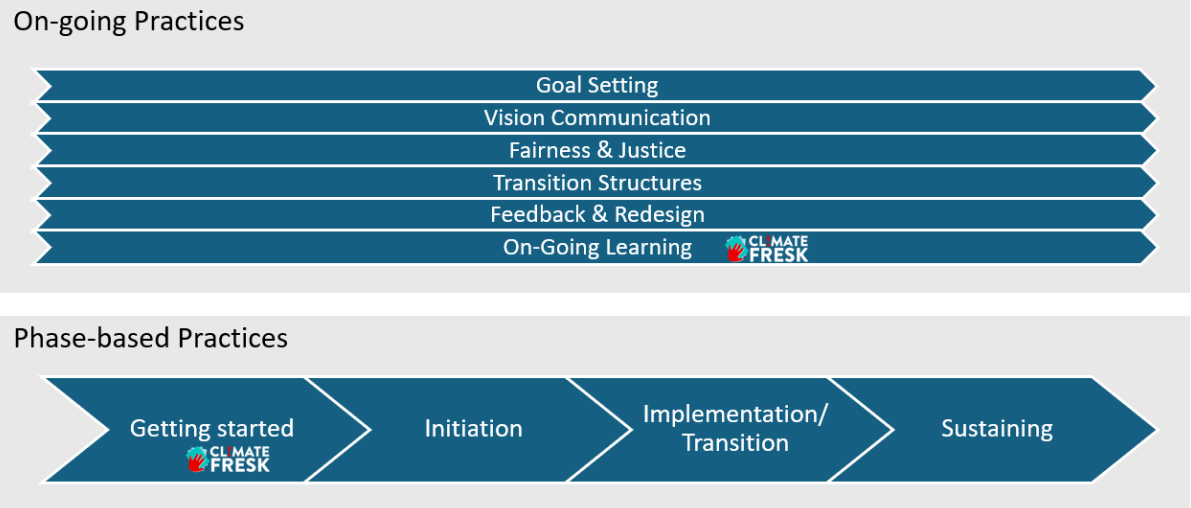


Figure 1. Rousseau and ten Have's change framework
Note: Simplified version highlighting actions in which CMI Climate Fresk was used. Source: Own illustration.

3 Methodology

This chapter introduces the research design and context and explains the methodology of the quantitative and the qualitative study. Finally, the integration of both methods is presented.

3.1 Research design

[3] As the CNT as research focus is in the initial phase, further phases of Rousseau and ten Have's framework are not described here.

The research followed an exploratory mixed-methods design based on Rousseau and ten Have's change approach. As they recommend to use evidence-based change interventions, the quantitative part of this study assesses the CMI Climate Fresk in the context of the CNT in order to provide scientific evidence on this intervention. As they also recommend to rely on organisational evidence, two main governing bodies of the UAS Coburg, the accountability and climate-related organisation were analysed. Both the quantitative and qualitative parts of the study incorporated insights gained through participant observation conducted during the initial phase of the research, when the author was part of the KlimaCo+ project team at UAS Coburg.

This participant-observer role of the author provided insights into organisational processes, stakeholder interactions, internal documents, and decision-making situations that would have been difficult to access through external observation alone. At the same time, the dual role of project participant and researcher may have influenced data interpretation and the identification of relevant themes. In order to reduce this risk, the study combines multiple sources of evidence, including participant observation, document analysis, survey data, and interviews. Furthermore, alternative interpretations of the findings are explicitly considered and discussed throughout the analysis.

The integration of quantitative and qualitative findings is led by Rousseau and ten Have's question concerning the "real problem" that has to be solved in the change and their considerations about learning. As a kind of problem-detector, this paper introduces the Climate Action Triad that may assess climate change readiness on an individual level and serves as a hypothesis-generator concerning possible transformation barriers. This exploratory heuristic framework is applied to two executive board members of UAS Coburg interviewed at the end of this investigation.

3.2 Research context and sample

The qualitative and main research context is the institution-wide transformation at UAS Coburg to a climate neutral HEI. This transformation aimed at achieving net-zero greenhouse gas emissions is conceptualised as the Climate Neutrality Transformation (CNT). At UAS Coburg, such a project was not set up. However, the project KlimaCo+ can be considered as the planning phase of such a CNT project. Project KlimaCo+ ended in July 2025 with the finalisation of the integrated climate protection concept.

UAS Coburg is a public HEI in the state of Bavaria in Germany. Around 4,100 students are matriculated in 50 bachelor or master programs in the fields of architecture and design, social sciences and health, engineering and computer science, and business. (Hochschule Coburg, 2026b) From a change point of view, this context is interesting, as UAS Coburg is at the "beginning of a cultural change towards sustainability and climate protection" (Freistaat Bayern & Hochschule Coburg, 2023) whereas the target timeline and the substantive goal of achieving climate neutrality are identical across all Bavarian HEIs.

The quantitative research context comprises in addition to UAS Coburg further HEIs in Germany, as they also face climate transformation similar to UAS Coburg. These HEIs were identified and addressed via the Climate Fresk expert network.

3.3 Quantitative study

The quantitative study examines the Climate Fresk workshop as CMI at HEIs in Germany. Climate Fresk is a facilitator-led, collaborative workshop in which small groups use 42 cards to reconstruct the causes and consequences of climate change and their systemic relationships. These cards are based on scientific evidence on climate change from the IPCC reports. Following a creative and emotional reflection phase, participants develop ideas for climate action.

Existing studies suggest that Climate Fresk may influence participants' understanding of climate mechanisms, emotional responses, attitudes, and intentions towards pro-environmental behaviour (Hognon et al., 2026). Climate Fresk has been used within the HEI context (e.g. (Klein-Wiele et al., 2025; Maleval, 2025)), but also by large organisations, including the EDF Group for employee training, and by the French state for the training of senior civil servants (Vaujour et al., 2023). This led to currently more than 2.3 million participants in 170 countries. (La Fresque du Climat, 2026)

3.3.1 Survey research question and operationalisation

The ultimate objective of any CNT is the reduction of GHG emissions and, ultimately, the achievement of climate neutrality. Accordingly, the HEI's GHG inventory represents the most relevant indicator of progress towards this objective. However, changes in the inventory may result from a wide range of contextual factors, such as legislation, technological developments, funding programmes, and other climate-related measures (Matthies et al., 2024). Consequently, the contribution of a single CMI to changes in the GHG inventory is difficult to isolate.

This study therefore assesses the potential contribution of Climate Fresk to a CNT through the constructs of appropriateness and effectiveness. It investigates to what extent Climate Fresk constitutes an appropriate and effective CMI for supporting a climate neutrality transformation in HEIs.

Appropriateness is defined as "the quality of being suitable, acceptable or correct for the particular circumstances"[4]. In this study, appropriateness is assessed through two dimensions. First, participants are asked whether they would recommend the intervention to others, which is interpreted as an indicator of its acceptance and perceived suitability. Second, the study examines participants' perceived learning regarding the causes and consequences of climate change. Given that learning constitutes a core function of HEIs, both acceptance and learning are regarded as relevant indicators of the appropriateness of Climate Fresk in the HEI context.

Effectiveness, derived from the Latin origin effectivus, is defined as "the fact of producing the result that is wanted or intended; the fact of producing a successful result". The intended overall result would be the omission of any GHG-emitting activity related to the HEI. A more general target would be to achieve climate action.

[4] Definition, also the following definition of effectiveness by the Oxford Advanced Learner's Dictionary, available via www.oxfordlearnersdictionaries.com. An in-depth investigation on criteria for appropriateness or effectiveness was not part of the study.

Numerous theoretical perspectives seek to explain why increased knowledge and awareness do not necessarily result in action, for example self-efficacy (Bandura, 1997), the agent-action-aim framework (Hamann et al., 2024), motivation and volition (Heckhausen & Gollwitzer, 1987), and the Social Identity Model of Pro-Environmental Action (Fritsche et al., 2018). Rather than testing a specific behavioural theory, this study adopts a pragmatic perspective and examines participants' perceived empowerment for climate action by asking the question "Do you now feel more capable of taking action to reduce climate change or to adapt to it?". This perceived empowerment for climate action is considered a pragmatic proxy for the potential contribution of the CMI to climate action.

3.3.2 Questionnaire development

The study used a specifically developed online questionnaire. As the intervention lasts three hours, the questionnaire was designed as concise as possible to minimise respondent burden. After an introductory question, three mandatory questions covered the narrow research question. All further questions were optional. These included for example possible biases, e.g. personal interest or obligation, importance of the topic, as well as sociodemographic information.

Acceptance was measured with a multiple-response item. Participants could select one or more status groups for which they would recommend the CMI. In addition, a "No" option was mutually exclusive available. Learning and empowerment were assessed via self-perception on a six-point scale with both ends described.

The choice of a six-point scale was guided by the design of the questionnaire and the wording of the questions. Existing research does not provide conclusive evidence for the superiority of either five- or seven-point scales over six-point scales (Preston & Colman, 2000).

The even scale reflects the questions as yes-no questions with an enlarged answer scale. This is visible in the German original as both ends are described with symmetric negative and positive descriptions ("gar nicht besser – sehr viel besser", "gar nicht – sehr deutlich"). A middle answer on an uneven scale would therefore be difficult to interpret as something in between yes and no.

3.3.3 Pretest

The questionnaire was pretested with 8 persons, including teaching, administrative staff and students as well as non-HEI persons. The objective was to receive feedback on the comprehensibility and duration as well as on the technical aspects of the online questionnaire. A participation duration of three minutes was confirmed. Minor adjustments to the questionnaire were made to improve clarity, e.g. adding the information "multiple answers possible" in question 1. The final questionnaire in a translated version can be found in the Appendix.

3.3.4 Data collection

Although the focus of this study is the CNT at UAS Coburg, the quantitative survey was conducted among participants of Climate Fresk workshops at German HEIs. This broader scope resulted from the sequential mixed-methods design of the study. Insights gained during the exploratory phase informed the development of the quantitative research question, while

the German Climate Fresk HEI network enabled access to a larger pool of participants exposed to the intervention. Additionally, broadening the scope to German HEIs is warranted, as these institutions can be assumed to perform a similar CNT as UAS Coburg.

The target population of the quantitative survey comprised individuals who had participated in a Climate Fresk workshop at a German HEI. In the specific case context of UAS Coburg, an institution-wide assessment across all status groups, including members of the executive board, would have been desirable. However, obtaining access to such a population was not feasible. Consequently, a non-probability convenience sampling strategy was employed, recruiting respondents through Climate Fresk workshops that were accessible to the researcher and the Climate Fresk HEI network.

Workshop participation occurred in different organisational settings. Some workshops were offered as voluntary events open to interested members of the institution, while others were embedded in academic courses and attended by students as part of their studies. As these contexts may have produced different selection mechanisms, respondents were asked whether their participation was primarily motivated by personal interest, obligation, or a combination of both. This information was collected to assess potential selection effects in the sample.

Data collection began on 13 March 2026. Participants were recruited through two procedures. First, individuals attending workshops during the survey period were invited to complete the questionnaire immediately after the intervention via a QR code displayed at the end of the workshop. Second, individuals who had participated in Climate Fresk workshops before the start of the survey were contacted retrospectively and invited to complete the questionnaire. Because retrospective responses may differ from immediate post-intervention assessments, respondents were asked whether they had participated in the workshop directly before completing the survey or at an earlier point in time.

The questionnaire was distributed through the German Climate Fresk HEI network and through workshops conducted by the researcher. Depending on local circumstances, invitations were either sent directly to participants or distributed indirectly via lecturers and workshop organisers who forwarded the survey link to former participants. As a result of this multi-stage recruitment process, the number of individuals who ultimately received the invitation could not be determined reliably. Consequently, a response rate could not be calculated.

This paper includes questionnaire responses received by 30 June 2026, resulting in a sample of n = 128 participants. Prior to the analysis, the dataset was screened for completeness. Participants who did not answer all three mandatory questions related to the quantitative research question were excluded from further analysis. Eight cases were removed on this basis, reducing the analytical sample from 128 to n = 120.

Missing responses to optional questions did not lead to exclusion and were retained as missing values. The overall completion rate was high, with only 19 missing responses (2%) across all optional items. Data were collected using QuestorPro5 and analysed using IBM SPSS Statistics.

3.3.5 Sample details

The following Table 1 shows the details of the analytical sample[5].

Table 1
Characteristics of the analytical survey sample

	n	%
Status groups		
Students	82	68
Academic staff	16	13
Administrative staff	9	8
Other	13	11
Reason for participation		
Obligation	49	41
Interest	36	30
Both	35	29
Timing of questionnaire completion		
Immediately after workshop	65	55
Retrospective participation	54	45

Note: Based on valid responses. Source: Own calculations based on survey data.

As described in data collection, the quantitative study did not target a representative sample. However, the sample should include all status groups to reflect a range of perspectives within the HEI context. The sample is therefore compared to German HEI data. This shows 78% students, 12% academic staff and 10% administrative staff (authors' calculation based on (Statistisches Bundesamt (Destatis), 2026a, 2026b)[6]). The sample, reduced by the category Other[7], shows similar distribution across status groups: students 77% vs. 78%, academic staff 15% vs. 12%, administrative staff 8% vs. 10%.

3.3.6 Quantitative data analysis

The recommendation item was analysed descriptively. Participants selecting at least one recommendation category were classified as recommending the intervention, whereas participants selecting the mutually exclusive “No” option were classified as not recommending it.

The learning and empowerment items were measured on six-point rating scales. For descriptive analyses, responses were coded from 1 to 6, with higher values indicating stronger perceived learning and empowerment. Means and frequency distributions were calculated for both variables.

To assess whether participants reported learning and empowerment levels above the theoretical midpoint of the scale (3.5), both parametric and non-parametric statistical

[5] Four respondents did not indicate a status group. As three respondents reported multiple affiliations, the total number of status group responses equals the analytical sample size (120). Percentages are based on valid responses.

[6] Latest available data 2023 for staff, WS 2024/25 for students.

[7] Other was included as at UAS Coburg there is a group of senior experts who cannot be attributed to the three aforementioned groups. As they have a sustainability focus, they were also trained as facilitators. (Esslinger et al., 2024) As some workshops were open to the public, potential guests of a HEI may also use this category.

procedures were applied. One-sample t-tests were used to compare observed means with the theoretical midpoint.

In addition to the overall analysis, subgroup analyses were performed based on participants' reported reason for participation. Three groups were distinguished: interest, obligation, and both. Descriptive statistics and significance tests were calculated separately for each group to explore potential differences in the perceived effects of the intervention.

3.4 Qualitative study

The qualitative study focused on **organisational evidence** as recommended by Rousseau and ten Have. The organisational implementation of the CNT was analysed by examining first organisational structures (e.g., accountability and internal organisation) and second the treatment of the topic within two principal governance bodies at UAS Coburg.

Organisational structures were identified through a review of relevant governance and project documents. The university executive board is responsible for the day-to-day management of the university, is accountable for achieving the objectives defined in the university agreement and reports on progress toward these objectives to the university council (Freistaat Bayern, 2022). The university agreement for UAS Coburg includes climate-change-related targets.

As the meeting minutes of the executive board were not available to the researcher, the minutes of the *extended executive board* of UAS Coburg were analysed as a proxy to the executive board meetings. The extended executive board advises and supports the executive board in the performance of its duties, adopts proposals concerning research priorities and the establishment of major research institutions, decides on strategic budget priorities, and approves proposals regarding the organisational structure of the university and its faculties (Freistaat Bayern, 2022).

The analysis comprised 28 meeting minutes from 2023 to 2026. First, there was a text search performed within Adobe Acrobat Reader for the word "Klima" followed by a manual evaluation of the content excluding non-climate-change-related topics.

The *university council* performs strategic decision-making, electoral, supervisory, and advisory functions. It is responsible in particular for decisions regarding the appointment of the university's executive board, the university constitution, the faculty structure, and the establishment, modification, and discontinuation of study programs. In addition, it exercises oversight and advisory functions in matters relating to budgeting, strategy, and target agreements, and monitors the achievement of the university's agreed institutional objectives (Freistaat Bayern, 2022). The same analysis as described before was performed with the meeting minutes of the university council of UAS Coburg including 13 meeting minutes from 2022 to 2026.

The qualitative study also included **scientific evidence** as recommended by Rousseau and ten Have. Therefore, the short version of the climate protection concept of UAS Coburg was analysed and compared to "findings from scholarly research" with regard to recommended climate action for HEIs.

3.5 Integration of quantitative results and qualitative findings

The quantitative study focuses on the specific CMI Climate Fresk in the context of a CNT. The intervention itself is assessed, but the question arose if the CMI is addressing the right target group. The qualitative study describes and analyses how the climate transformation unfolds within UAS Coburg. The executive board was identified as the main and probably most powerful stakeholder within the transformation.

During the participant-observer phase of the study, the researcher had the perception that the executive board did not sufficiently support the transformation despite the strategic importance given to the topic. The hypothesis arose that a change barrier might lie within the executive board. Whereas Rousseau and ten Have refer to the organisational change readiness, this paper proposes a climate-specific individual change readiness assessment, the Climate Action Triad. This framework will be applied to the findings of two interviewed executive board members of UAS Coburg in order to generate hypotheses about possible transformation barriers.

4 Results

First, the results of the quantitative study will be presented, followed by the qualitative results.

4.1 Quantitative results

The analysis of the first item recommendation shows that the vast majority, i.e. 90% (n=108), recommended the Climate Fresk, thereof 73% for all status groups. The results are displayed in Figure 2 (left).

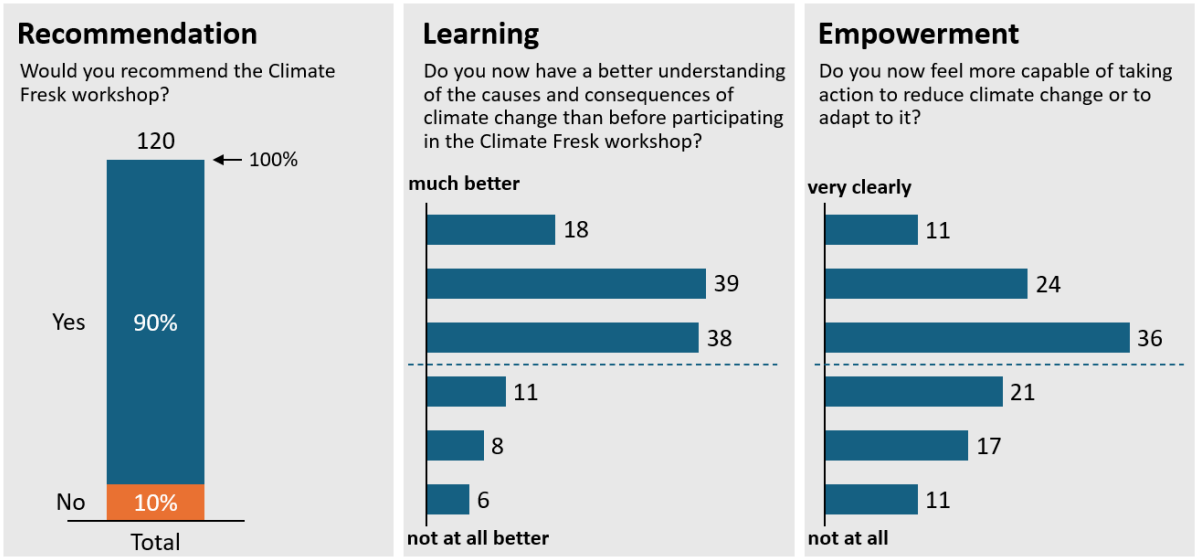


Figure 2. Survey results for recommendation, perceived learning, and perceived empowerment
Note: n=120. Source: Own illustration.

The analysis of the second item learning is displayed in Figure 2 (middle). The mean is 4.25. 21% of answers lie within the no-range, 79% in the yes-range – referring to a positive self-reported learning effect. This positive learning effect is significant. Participants report significantly more positively than the theoretical midpoint 3.5 of the scale. This was confirmed with the parametric one-sample t-test with highly significant results ($p < .001$).

The analysis of item 3 empowerment does not show statistically significant results. 59% of respondents lie within the yes-range of answers, 41% in the no-range. The mean is 3.65, very near to the scale midpoint of 3.5. The results are displayed in Figure 2 (right). A strong positive correlation was observed between self-reported learning and empowerment ($r = .689$, $p < .001$, $n = 120$).

The analysis of these results by motivation groups shows notable differences in learning and empowerment. Highest learning and empowerment can be seen for persons participating by interest, lowest for those who felt obliged to participate. The group giving both reasons showed intermediate values. Participants motivated by personal interest reported empowerment levels significantly above the theoretical midpoint of 3.5. This was confirmed with the parametric one-sample t-test with highly significant results ($p < .001$). The values are displayed in Table 2.

Table 2
Self-reported learning and empowerment by reason for participation in Climate Fresk.

Reason	**Number**	**Learning (mean)**	**Empowerment (mean)**
Interest	36	4.72	4.17
Both	35	4.51	3.89
Obligation	49	3.71	3.10
Total	**120**	**4.25**	**3.65**

Source: Own calculation based on survey data.

4.2 Qualitative findings

The qualitative results are structured first by organisational evidence, including organisational structure and the topic climate in governing bodies, and second by scientific evidence according to Rousseau and ten Have's recommendation.

4.2.1 Organisational evidence

Organisational structure

The target of climate neutrality for the UAS Coburg is included in its agreement with the ministry. Responsible for the achievement of the agreed targets is the executive board of the UAS (Art. 30 (Freistaat Bayern, 2022)) that takes decisions by majority of votes; in case of equality, the president as chair of the board has decisive power (§55 (Hochschule Coburg, 2011)). The executive board consists of six members.

The climate protection organisational chart depicts the president and the chancellor on an equal level at the top of the chart. The vice-president for sustainable regional development is included in the climate protection team. All three are marked as part of the executive board

(Vogt et al., 2025). The distribution of responsibilities of UAS Coburg does not show explicit responsibility for climate protection (Hochschule Coburg, 2026a).

The sustainable development goal 13 is "Take urgent action to combat climate change and its impacts" (United Nations, 2015b) and accordingly climate change is also integrated in the sustainability strategy of UAS Coburg. The vice-president for sustainable regional development is shown as responsible for sustainability (Hochschule Coburg, 2026a).

However, the climate protection manager is part of the department of facilities and construction within the responsibility of the chancellor. (Hochschule Coburg, 2026a, 2026c) This is confirmed by the interviewed executive board member: "Responsibilities are distributed and are addressed either by the vice president in matters of sustainability or by the chancellor with regard to carbon neutrality." A clear distinction between their respective roles and responsibilities could not be identified from the available documents and information.

Topic climate in governing bodies of UAS Coburg

The analysis of 28 meeting minutes of the *extended executive board* revealed, that only in July 2025 the topic climate appeared within the main body of the meeting minutes, when the chancellor introduced the topic of "establishing a centralised space management system" from the sustainability strategy action catalogue with a particular focus on sustainability and climate protection considerations.[8]

Ten meeting minutes did not deliver any climate-related content. 17 meeting minutes included climate-related content in the appendix of the minutes. Six out of seven search results in 2023 referred to the agreement with the ministry but did not provide any specification beyond the wording of the agreement itself. Climate-related topics were Impact25/26, sustainability strategy, regional development, interdisciplinary competencies, teaching mission statement and heat action plan of the UAS Coburg. The climate neutrality of UAS Coburg itself in the context of CNT or the integrated climate protection concept, approved by the executive board of UAS Coburg on July 23, 2025, was not part of the meetings.

The analysis of the 13 meeting minutes of the *university council* showed that the topic climate did not appear in the agenda or main body of any of the 13 meeting minutes. In four meetings, the topic did not appear even in the appendix. The issue of climate change was addressed in several contexts, including the university agreement, individual projects, and the introduction of a new bachelor's degree program. As before in the extended executive board, the climate neutrality of UAS Coburg itself in the context of CNT or the integrated climate protection concept was not part of the meetings.

4.2.2 Scientific evidence

The short climate protection concept for UAS Coburg was published after the integrated concept. The short concept states that "we acknowledge the scientific evidence of human-induced climate change and are committed to making our contribution to preventing an escalating climate crisis" (Vogt & Tvrtković, 2025). Further on, it gives main information, so the results of the GHG inventory performed within the project KlimaCo+ are presented. The GHG inventory was calculated according to the Bavarian HEI guideline for GHG inventory

[8] Minutes of the 174th meeting of the extended executive board of UAS Coburg.

calculation (Sargl et al., 2025) and resulted in 4,708 tCO_2e emissions in the inventory 2023, thereof 87% commuting emissions of students and staff (Vogt et al., 2025).

The short climate concept introduces a new concept of GHG inventory, the "core inventory". This core inventory comprises 539 tCO_2e – this is 11.4% of total GHG emissions addressed in the integrated concept. This core inventory is regarded as the "central governance and monitoring tool on the pathway to climate neutrality" (Vogt & Tvrtković, 2025).

This reduced inventory is explained in two ways, first the high resource need for updating part of the inventory, second with controllability: "Some emission sources can be directly influenced through university measures, whereas others can only be affected indirectly or at a disproportionately high additional effort."[9] (Vogt & Tvrtković, 2025)

5 Discussion

First, the quantitative, then the qualitative findings will be discussed in this chapter. The integration of those findings leads to the framework of the Climate Action Triad that is applied to the two executive board interviews.

5.1 Discussion of the quantitative results

The survey investigates whether the Climate Fresk workshop is an appropriate and effective CMI for a HEI in the transition to climate neutrality. Appropriateness is assessed by the recommendation item and the learning item. Given the very high recommendation rate and the significant levels of self-reported learning (mean of 4.25), the findings indicate that Climate Fresk is perceived as an appropriate CMI in the HEI context.

The effectiveness of the workshop was assessed by the empowerment item, resulting in 59% of answers lying in the yes-range. The effect on perceived empowerment appears to be moderate as the mean was 3.65. However, the moderate level of empowerment stands in contrast to the very high recommendation rate. As the survey included workshops facilitated by different facilitators, variations in workshop delivery may have influenced participants' reported learning and empowerment.

When interpreting these findings in the context of a CNT, it should be considered that both learning and empowerment were operationalised in a highly simplified manner. Furthermore, empowerment represents only a proxy for climate action and ultimately for the GHG reductions required to achieve climate neutrality.

The survey sample includes participants from different HEIs and organisational contexts. The findings therefore primarily reflect perceptions of the intervention itself rather than its effects within a specific organisational change process.

Furthermore, the suitability of the CMI may differ across target groups. This issue is illustrated by the following comment from an environmental engineering student who stated that "for us the workshop was very basic and, frankly, quite boring. For people who are not already familiar with the topic, however, it is probably a good way to raise awareness and

[9] Additionally, the specifications of the Bavarian State Ministry of Science and the Arts may have contributed to the introduction of the core inventory.

provide a general introduction to climate change." CMIs can have different effects in different circumstances (Abildgaard et al., 2020), and therefore the suitability of a specific CMI should be considered with regard to its target recipients (Hagl et al., 2024).

5.2 Discussion of qualitative findings

The apparent lack of a clearly defined allocation of responsibilities for organisational climate neutrality within the executive board may foster responsibility diffusion and create ambiguities regarding authority and accountability, potentially resulting in coordination challenges. While this may constitute an additional layer of complexity in achieving the climate-related objectives, it may simultaneously offer a potential explanation for the further findings.

UAS Coburg "is committed to climate action aimed at phasing out the emission of climate-damaging greenhouse gases at the earliest possible date, and no later than 2040" (Hochschule Coburg, 2025). Although this research neither investigated how agenda topics are introduced into the governing bodies nor the executive board as the main governance body, it is nevertheless a notable finding that climate neutrality of UAS Coburg itself was absent from the agendas of the 41 meetings over the last four years of the extended executive board and the university council examined in this study. This finding is based exclusively on the minutes of the extended executive board and the university council, as the minutes of the executive board itself were not available.

This lack of discussion of climate neutrality within central governance bodies raises questions regarding the mechanisms through which the CNT is intended to be coordinated, monitored, and advanced at the institutional level. This finding contrasts with the strategic significance attributed to climate neutrality in institutional agreements and official policy documents. Additionally, there was no application for a follow-up project to KlimaCo+ although this might have provided additional funding and resources for the pursuance of the CNT.[10]

These findings may also be interpreted from the perspective of organisational decoupling (Bromley & Powell, 2012). While climate neutrality is formally embedded in institutional agreements, strategic concepts, and official commitments, it remained largely absent from the governance bodies examined in this study. Such a pattern may indicate a decoupling between formal commitments and organisational processes through which strategic priorities are discussed and advanced.

The GHG inventory can be considered as trustworthy organisational evidence according to Rousseau and ten Have, leading to a higher acceptance of change. Rather than working with this trustworthy data basis, the inventory was reduced to the 11.4% core inventory, arguing with resource-intensive updates and difficult-to-influence emissions. However, the BayCalc guideline explicitly treats commuting as a relevant emission source within HEI GHG accounting and recommends its inclusion in institutional carbon inventories. At the same time, the guideline acknowledges the high effort associated with mobility data

[10] Project KlimaCo+ received an external funding of 153 k€ during two years, 51 k€ were HEI-internal funds. The annual climate budget of UAS Coburg amounts to 100 k€, so the external funds tripled the internal project budget. (Schalk, 2025)

collection and allows existing estimates to be carried forward, requiring updates only every three to five years (Sargl et al., 2025).

The guideline therefore suggests that commuting remains a relevant field of climate monitoring and management even where comprehensive annual data collection is not feasible. From a change management perspective, the classification of mobility emissions as difficult to influence does not necessarily imply that they should receive less attention. Rather, such issues may be viewed as precisely the type of complex organisational challenge for which structured change management approaches are required.

The change vision according to Rousseau and ten Have is “an expression of a compelling future that motivates the change”. In contrast, UAS Coburg states its “contribution to preventing an escalating climate crisis” (Vogt & Tvrtković, 2025). The latter can be seen as a technical wording that uses negative frames rather than a change-motivating positive perspective.

It might be an obvious, but simple interpretation of all these findings, that the organisation is not yet change-ready. Rousseau and ten Have refer explicitly to the current capacity of an organisation, also in terms of time and priorities, which is probably an important point in the context of UAS Coburg. Additionally, the agreement itself states that UAS Coburg is at the beginning of the cultural transformation toward sustainability and climate action (Freistaat Bayern & Hochschule Coburg, 2023). It might be also an obvious, but simple interpretation, that there was not enough change capacity within the project or interpersonal conflicts within the organisation.

It might be also possible, that the organisational structures and implementation of the CNT at UAS Coburg are sufficient to achieve climate neutrality in the expected timeframe. Nevertheless, this paper intends to identify further levers to accelerate the change and the CNT as the target climate neutrality is set “as early as possible” (Hochschule Coburg, 2025).

Rousseau and ten Have recommend asking key questions in evidence-based change:

1. What is the problem we are trying to solve?
2. What is the evidence that this is the real problem?
3. What are possible solutions?
4. What is the evidence these solutions will work?

Concerning the CNT, the problem description would be the GHG emissions of UAS Coburg. As evidence, the GHG inventory could serve. Possible solutions, the GHG-reducing measures, are described in the integrated climate neutrality concept. A solution-supporting intervention is the Climate Fresk. However, the evidence that these solutions will work is not yet given. The intervention participants were difficult to recruit. UAS Coburg will use the core inventory as the main steering instrument. So how will the mobility emissions significantly decrease?

Although Rousseau and ten Have do not explicitly argue in this way, this paper proposes to continuously ask the four key questions during a change in order to evaluate any situation or intervention. With regard to the CNT at UAS Coburg, the question arose if the individual climate-related change readiness might be the problem to be tackled, especially among the executive board, the key decision-maker.

5.3 Integrated discussion using the Climate Action Triad

This chapter introduces the Climate Action Triad as a hypothesis-generating heuristic framework for assessing individual readiness for effective climate action. Then, this framework is applied to the interviews of two executive board members of UAS Coburg.

5.3.1 Introduction of the Climate Action Triad

Most people are highly aware and also concerned about climate change. But when the researcher started asking people to explain climate change, the answers ranged from IPCC-based physical explanations to "I cannot explain". When asked about climate action, the answers ranged from highly effective measures to very little-impact measures. As within any change, there are also barriers existing that are hindering climate-friendly transformation, like time and money.

These observations led to the development of the Climate Action Triad (CAT) as an exploratory and hypothesis-generating heuristic framework to assess individual readiness for effective climate action.[11] Rather than evaluating individuals as informed or uninformed, the CAT aims to identify strengths, knowledge gaps, and perceived barriers that may influence climate-related decision-making and change readiness. The framework was subsequently linked to concepts of systems knowledge and transformation knowledge from transdisciplinary research (Schneider & Buser, 2021).

The CAT consists of three elements:
1. Climate problem understanding
2. Climate solution knowledge
3. Constraints and action barriers.

The first element *climate problem understanding* is defined as the understanding of the basic logic of human fossil fuel use (coal, oil, and natural gas) and animal-based food production as main drivers of global warming.[12] This can be considered as the basics or the ABCs of climate change. The robustness of this basic understanding should be high – it requires sufficient trust in the scientific evidence base underlying contemporary climate science[13] and the ability to actively explain these basic mechanisms and to have them readily available in decision-making situations.

Only this high robustness and presence in mind will enable this understanding to inform decisions and actions. By focusing on underlying emission drivers rather than individual behaviours like flying on holidays, climate problem understanding provides an integrated systemic view and a neutral technical-physical basis for developing and evaluating mitigation actions and transformation strategies.

Problem understanding should not be confused with high awareness or concern, acknowledging the seriousness of the problem or high factual knowledge in specific details or

[11] The derivation or scientific base of the CAT is not part of this paper. The following definition of elements should be considered as assumptions made by the researcher needing further research.

[12] The Climate Fresk aims to develop this understanding of the causes of climate change in combination with their expected consequences.

[13] Pupils learning about climate change at school may not know about the scientific evidence base, but may rely on information transmitted at school.

concepts. Even this high awareness or concern may lead to the rejection of effective mitigation measures or the support of ineffective, marginal, or even counterproductive responses. Individuals with a high level of climate problem understanding are likely to recognise that limiting global warming requires the substantial reduction and, ultimately, the phase-out of fossil-fuel-related emissions and the reduction of animal-based food production.

The second element, *climate solution knowledge*, refers to knowledge about available pathways for mitigating climate change. It includes an understanding that effective technological, behavioural, organisational, and societal solutions exist and that climate neutrality can be achieved through combinations of such measures. Climate solution knowledge therefore comprises not only specific technologies or actions, but also the broader understanding that viable transformation pathways are available. Climate solution knowledge includes recognising that climate neutrality is technically and organisationally achievable in principle and that the remaining challenge lies primarily in the large-scale implementation, diffusion, and coordination of available solutions.

The third element, *constraints and action barriers*, refers to factors that may hinder climate action despite climate problem understanding and climate solution knowledge. These barriers may arise at individual, social, organisational, or societal levels and may include competing goals, economic concerns, strategic priorities, cognitive biases, social norms, resistance to change, low perceived self-efficacy, institutional constraints, or collective action problems.

From a change management perspective, the absence or missing imagination of a desirable future may constitute an additional action barrier. Moreover, even individuals who understand the climate problem and are aware of potential solutions may fail to act if they perceive change as difficult, ineffective, or beyond their sphere of influence. Constraints and action barriers therefore include not only objective limitations but also subjective perceptions regarding the feasibility, desirability, and influenceability of climate-related change.

The underlying assumption of the CAT is that perceived conflicting interests may warrant examination of climate problem understanding before being interpreted as genuine goal conflicts. Also limited knowledge about solutions and transformation pathways may constitute a constraint or action barrier. The CAT framework proposes to examine first climate problem understanding, then solution knowledge before accepting and investigating any argument of conflicting interests.

At its current stage, the CAT should be understood as a conceptual heuristic derived inductively from the present research rather than as a validated model. Its purpose is to support the generation of hypotheses about CNT barriers to be addressed from a change perspective.[14]

The three dimensions should be understood as continua rather than binary categories. Additionally, individuals may differ in the extent of their climate problem understanding, climate solution knowledge, and perceived action barriers. For example, an individual may recognise the role of fossil fuels in driving climate change while having a more limited understanding of the contribution of animal-based food systems. Likewise, the level of understanding required may depend on the decision-making context. While some decisions may only require limited climate-related knowledge, broader strategic or governance

[14] The CAT also serves as a communication tool.

responsibilities may require a more comprehensive understanding of climate change, solutions, and associated barriers.

5.3.2 Application of the CAT framework to board interviewees

The CAT framework will now be applied to the two interviewed members of the executive board of UAS Coburg. The interviews took place in July and August 2026. They were asked to explain climate change. One participant stated that they were not an expert on climate change at all and therefore the wrong person to be asked, then describing climate change as "the greatest challenge humanity has ever faced". One participant explained climate change primarily through its tangible and already perceptible consequences in everyday life rather than through a scientific definition. Examples mentioned included rising temperatures, drying rivers, and climate-related societal and political transformation processes.

When asked about the IPCC, one participant initially stated that it was frequently discredited. The participant reported being familiar with the name but indicated that they did not know how the IPCC was constituted and therefore could not evaluate its scientific authority. The participant argued later in the interview, that the group might consist of intrinsically motivated individuals and that the label *Intergovernmental Panel on Climate Change* itself could suggest a certain predisposition[15]. The participant further stated that people with existing convictions may come together in such a body and attempt to convey these views to governments. Later in the interview, the participant stated that their information on climate change had mainly been obtained through private reading of newspapers that they regarded as high-quality.

Both executive board members seemed to be highly aware of the problem of climate change and willing to act, what can be derived from explicit statements ("I would like to be able to reduce it." referring to the UAS Coburg's GHG emissions) and also the willingness to contribute to this research. The interviews may be interpreted as raising questions regarding the extent of *climate problem understanding* as defined within the CAT framework.

When asked about most effective solutions to address climate change, one board member argued that effective climate action requires the establishment of shared societal goals. Individual and collective goals may conflict, and climate protection can only be achieved if the preservation of livelihoods and the climate is recognised as a common objective. The board member further stated that without such a shared commitment, coordinated action for climate protection would be unlikely.

One board member emphasised that effective climate protection measures must balance ecological, economic, and social considerations. They identified reducing air travel, decreasing the use of fossil fuels, and limiting high levels of mobility demand as particularly important measures. At the same time, they noted that instruments such as taxes, electrified mobility, heat pumps, and photovoltaics may contribute to climate protection but can raise social equity concerns.

The board member stated that, in the context of UAS Coburg, climate action should primarily be pursued through education. According to the participant, students should be

[15] With regard to UAS Coburg as a whole, (Esslinger & Tvrtković, 2025) observed that transformative actors were, in some instances, perceived as being motivated by 'political ideology'.

enabled to understand societal challenges such as climate change and to actively contribute to addressing them. The participant further emphasised that this objective should be embedded in institutional mission statements, sustainability strategies, curricula, and teaching practices in order to prepare students to shape sustainable societal transformation. Only in the very end of the interview, the participant stated they could also initiate organisational changes. Both interviewed board members switched very quickly to conflicting interests as constraints rather than giving high-level solutions such as decarbonisation. This pattern is consistent with one possible CAT-based interpretation involving limitations in *climate solution knowledge*. Alternative explanations remain possible, like considering individual agency of actors.

With regard to *constraints and action barriers* at the organisational level of UAS Coburg, one interviewed board member described a conflict between the institution's strategic orientation as a campus-based university and the goal of climate neutrality. This was linked to the housing situation of students, many of whom live farther away and therefore need to commute to campus.

This perception may indicate limited consideration of climate-friendly mobility options as potential mitigation measures. Also, a hybrid teaching model might still support the strategy of campus-based teaching whereas at the same time supporting the reduction of GHG emissions. Interestingly, the interviewee did not mention employees and their commuting emissions. UAS Coburg is located within walking distance of a railway station and is also served by several bus stops. However, given its rural setting, the available public transport services may not meet the mobility needs of staff members.

From a learning and change perspective, the relevant observation is not necessarily limited climate-related understanding and knowledge itself, but the possibility that existing knowledge gaps remain unrecognised as many conversations focus on possible solutions and constraints. Moreover, if individuals, especially decision-makers, perceive themselves as sufficiently informed, they may see little need for further learning, even when important elements of climate problem understanding as defined in the CAT might be missing.

If climate problem understanding as defined within the CAT framework is requisite for decision-maker, can be discussed. Even people with high climate problem understanding argue, that decision-makers may not need this problem understanding with regard to climate change as many decisions are taken based on external expertise and decision-preparation by subject-matter experts.

6 Conclusion

The investigation and reflection of the climate transformation at UAS Coburg from an evidence-based change management perspective might be questioned or considered as inappropriate as the organisational structure of a HEI per se was not examined and therefore many explanations or existing factual constraints were not included. This paper rather applied a controlling-oriented understanding of emission targets combined with the conceptualisation of the CNT as a project needing management and change expertise. However, the research revealed valuable findings.

The CMI Climate Fresk can be considered as an appropriate intervention within climate transformation in HEIs. The target group of this intervention should be carefully selected and

further investigated. The embedding of this CMI into a strategic climate neutrality program led by the executive board might increase the effect of the intervention.

The strategic importance and urgency of climate change and climate action were recognised and transferred into strategic concepts, frameworks and new responsibilities within UAS Coburg. In contrast, neither the extended executive committee nor the university council had integrated the topic of organisational change towards climate neutrality in the agenda of the 41 examined meetings within the last four years.

The CAT framework was introduced as a hypothesis-generating heuristic approach concerning individual climate-related change readiness. The application of this framework to two interviewed board members led to the hypothesis, that within the executive board of UAS Coburg, there might possibly be a lack of basic climate problem understanding as defined by the CAT framework.

The CAT framework needs further investigation and validation. Likewise, the assumption that individuals with a high level of climate problem understanding are likely to recognise that limiting global warming requires the phase-out of fossil-fuel-related emissions and the reduction of animal-based food production has to be examined.

The conclusion that this lack of understanding may constitute a relevant change barrier that could be overcome by such simple means as a three-hour workshop of Climate Fresk has to be endorsed with further research. However, compared to many technical or infrastructural measures, such interventions like Climate Fresk require comparatively limited financial resources while potentially influencing subsequent strategic and organisational decisions.

The findings suggest that the identification of adequate change interventions may be only the first step. An equally important challenge concerns how individuals can be motivated to engage voluntarily in further learning. This question appears particularly relevant given that learning and empowerment in the investigated CMI were highest when participation was driven by intrinsic interest.

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ANNEX: Questionnaire

! Questions marked with this symbol are mandatory.

Welcome to the survey on the Climate Fresk. This survey is addressed exclusicvely to participants of the Climate Fresk workshop at universities and other higher education institutions.

Completing the questionnaire will take approximately 2–3 minutes. Participation is voluntary, and the survey is anonymous. Please complete and submit the questionnaire only once.

The survey is part of my master's thesis in Change Management and Transformation at Coburg University of Applied Sciences (Germany). The study examines the effectiveness of the Climate Fresk workshop as a change intervention in higher education institutions. If you have any questions — including questions related to data protection — please do not hesitate to contact me: birgit.knauer@stud.hs-coburg.de.

Did you enjoy your participation in the Climate Fresk workshop?

○ Yes ○ No ○ No answer

! Would you recommend the Climate Fresk workshop? (multiple answers possible)

☐ No

☐ Yes - for students

☐ Yes - for lecturers/teaching staff

☐ Yes - for staff members

☐ Yes - for everyone at the university

	not at all better					much better
! Do you now have a better understanding of the causes and consequences of climate change than before participating in the Climate Fresk workshop?	○	○	○	○	○	○

	not at all					very clearly
! Do you now feel more capable of taking action to reduce climate change or to adapt to it?	○	○	○	○	○	○

	not at all important					very important
How important is the topic of climate change to you?	○	○	○	○	○	○

Why did you participate in the Climate Fresk workshop?

○ Personal interest ○ Obligation ○ Both

Are you interested in becoming a Climate Fresk facilitator yourself? Please also answer “yes” if you are already a facilitator.

○ Yes ○ No

When did you participate in the Climate Fresk workshop?

○ Just now ○ Some time ago

Almost finished! Just a few questions missing about you:

Which group within the university do you belong to?

- [ ] Student
- [ ] Faculty or academic staff
- [ ] Administrative staff
- [ ] Other

Which academic discipline or field would you associate yourself with?

How old are you?

- ○ 16-29
- ○ 30-43
- ○ 44-57
- ○ 58 or older

Gender

- ○ Male
- ○ Female
- ○ Prefer not to answer

The following text field is available for any additional comments, feedback, or ideas.

Extension in case of extremely negative answers:

I would like to better understand some of your answers.

You indicated that you would not recommend the workshop. Could you briefly explain why?

You indicated that your understanding of the causes and consequences of climate change did not improve through the Climate Fresk workshop. Do you have an explanation for this?

You indicated that you do not feel more capable of taking action on climate change. What would have helped you in this regard?

Authors biography

1. Birgit Knauer holds a German diploma in Industrial Engineering and Management from Karlsruhe Institute of Technology. She is currently pursuing an MSc in Change Management and Transformation at University of Applied Sciences Coburg. Following her diploma studies, she gained extensive experience in different industries and consulting. She has several years of experience in each of the following areas: Internal Audit, Controlling, Strategy Consulting and Operations Consulting. Besides her academic career, she works as an independent advisor in organisational climate transformation and is a professional Climate Fresk facilitator.