

Master Thesis

The Implementation of a Wellbeing Room: Examining its Potential Impacts on Students' Emotional, Social, and Psychological Wellbeing

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Abstract

The mental wellbeing of higher education students in the Netherlands has been suffering. Institutions have tried to prevent it and have implemented interventions to increase students' wellbeing, such as establishing wellbeing rooms for students. However, these rooms vary in terms of their design and functionality, and their effects on wellbeing have not been empirically analyzed. Previous studies showed that students desire a room for socialization and relaxation on campus. The current study investigated how the different functions could potentially serve the three dimensions of wellbeing: emotional, social, and psychological.

Students (n=276) from two Dutch universities participated in an online survey and were randomly assigned to one of three scenarios: one room focusing on relaxation, one on socialization, and one with combined functionality. They were asked to imagine that the described rooms were implemented and that they would frequently interact with them. They then completed surveys to measure their mental wellbeing, sense of belonging (SoB), and emotional states before and after reading the scenarios. Additionally, cluster analysis was used to identify response patterns and differences across the three scenarios. Findings showed that the combined scenario led to the highest potential positive impact on wellbeing dimensions, while the relaxation scenario resulted in a high potential positive impact on psychological wellbeing as well. The potential positive impact was higher for international students than for non-international students. The cluster analysis showed no patterns regarding age, gender, pursued degree, or study program that could explain the effects.

The findings highlighted that all wellbeing room types could positively contribute to student wellbeing, with multifunctional spaces offering the highest benefits. International students seem to particularly benefit from all functions wellbeing rooms could offer. The results encourage universities to implement such spaces.

The Implementation of a Wellbeing Room: Examining its Potential Impacts on Students' Emotional, Social, and Psychological Wellbeing

The WHO has defined health as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity” (WHO, n.d.-a). This definition emphasizes that health includes not only the absence of illness but also the strengthening of preventive factors and applies both to physical as well as mental and social wellbeing. Recently, a stronger research focus has been put on various populations' mental health and wellbeing, and students in higher education have been identified as a vulnerable group (Balon et al., 2015). Studies indicate that the mental wellbeing of students has been declining (Lipson et al., 2019), and in an assessment from the WHO, one in three students screened positive for a mental disorder (Auerbach et al., 2018).

An assessment of mental health among university students in the Netherlands showed that 12% of students suffered from poor mental health, and one in three students reported feelings of loneliness (Caring Universities consortium, 2023). Additionally, international students reported more psychological complaints than Dutch students (Caring Universities consortium, 2023; Kelders et al., 2019). However, solely addressing the symptoms of mental health issues is not a sustainable approach to deal with this crisis, as it fails to strengthen psychological resilience and thriving of higher education students (Seppälä et al., 2020). Recognizing this, many institutions have implemented preventive measures to enhance student wellbeing, such as establishing wellbeing rooms on campus. These dedicated spaces, designed to provide comfort, facilitate socialization, and offer relaxation, have already received positive feedback from many institutions (Erasmus University Rotterdam, n.d.; Leiden University, 2023; The University of Manchester, n.d.; University of Michigan Library,

n.d.). However, this feedback has not yet been empirically analyzed, and its impact on students' wellbeing remains unclear.

Vollenbroek et al. (2024) conducted an initial investigation into these rooms in different higher education institutions in the Netherlands and queried students about desired features. Students expressed a desire for spaces that offer both relaxation and socialization opportunities. They wished for a space where they could relax and retreat while also being able to meet new people, build friendships, and socialize (Vollenbroek et al., 2024). However, these results did not provide insights into how these desires relate to students' mental wellbeing, nor did they offer a comprehensive understanding of how demographic or cultural factors influence these preferences. The potentially conflicting desires for different functions, i.e. socialization vs. relaxation, pose practical challenges for designing and implementing these spaces. To design effective spaces, it is crucial to understand the diverse emotional, social, and psychological wellbeing needs of different student groups, as well as how different room functions can impact these aspects of wellbeing. Only with this understanding can the rooms be designed to effectively benefit all students.

The present study, which is part of a Netherlands Initiative for Education Research (NRO) project, aims to determine whether interventions can enhance emotional, social, and psychological wellbeing and how these interventions affect various student groups. This preliminary study seeks to inform design decisions regarding the implementation of wellbeing rooms in educational institutions. It assesses the potential benefits of wellbeing rooms on students' mental wellbeing before investing resources in their implementation. This study employs imaginative scenarios to explore whether the conflicting functions of wellbeing rooms—relaxation, socialization, or a combination thereof—could positively impact different dimensions of wellbeing. Given the trade-offs between these functions, where emphasizing one may limit the effectiveness of another, and combining both may dilute the benefits overall, it is essential to determine which function is perceived as most beneficial for students

and what specific effects each function can offer on wellbeing. To do this without spending resources this study uses mental imagery as a method as mental imagery has been shown to elicit responses similar to experiencing the real situation (Ji et al., 2016).

Additionally, the study will analyze which demographic variables influence the potential benefits of the imagined wellbeing rooms, focusing on the difference between international and non-international students. This study assesses students' mental wellbeing at two Dutch universities and presents them with one of three scenarios of potential wellbeing rooms with varying functionalities and asking them to imagine interacting with the room. A cluster analysis makes apparent which groups of students require which functions for improved mental wellbeing. The findings will guide universities in designing spaces that address students' wellbeing deficits and improve their mental health by offering insights into which functionalities serve the different dimensions of wellbeing.

Mental Health

The WHO defines mental health as “a state of mental wellbeing that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community“ (WHO, n.d.-b). Mental wellbeing is a multidimensional construct that refers to emotional, social, and psychological wellbeing (Keyes, 2002). Keyes (2002) argues that mental health should be characterized as subjective wellbeing. Subjective wellbeing is an individual's perception of life based on three dimensions, their affective state as well as their psychological and social functioning. The MHC thus focuses on three factors: emotional wellbeing, social wellbeing, and psychological wellbeing (Keyes, 2002).

Emotional wellbeing reflects the presence or absence of positive feelings in one's life. If emotional wellbeing is high, an individual should experience more positive than negative affect (Keyes, 2002).

Social wellbeing is divided into five subdimensions: social integration, social contribution, social coherence, social actualization, and social acceptance (Keyes, 1998). It is therefore an evaluation of public functioning and related to the feeling of being accepted by a community (Keyes, 2002). One concept closely related to social wellbeing is Sense of Belonging (SoB), defined as “the experience of personal involvement in a system or environment so that persons feel themselves to be an integral part of that system or environment” (Hagerty et al., 1992, p. 173). When individuals feel a strong SoB, they are more likely to perceive themselves as integrated and accepted within their community, which enhances their overall social wellbeing. Strayhorn (2021) found that an intervention that increased SoB also helped create stronger social bonds and fostered connecting with others. Accordingly, fostering the SoB can enhance social wellbeing by strengthening individuals' perceptions of their integration, contribution, coherence, actualization, and acceptance within a community.

Psychological wellbeing refers to the private functioning in life and consists of six subdimensions: self-acceptance, personal growth, purpose in life, positive relations with others, autonomy, and environmental mastery (Ryff, 1989).

Based on these three dimensions in Keyes' MHC, individuals can be categorized as flourishing, languishing or moderately mentally healthy. Flourishing individuals are seen as full of positive emotions and function well both psychologically and socially. Languishing describes people that show poor social and psychological functioning with more negative than positive feelings. Finally, neither flourishing nor languishing individuals are categorized as moderately mentally healthy. The categorization depends on how often individuals feel positive emotions and elements of psychological and social wellbeing (Keyes, 2002; Keyes et al., 2008). The items used for this assessment are depicted in Appendix A. Universities especially should strive for flourishing for their students as this state relates to higher academic achievement (Howell, 2009).

Wellbeing Rooms

A wellbeing room is designed with different students' needs in mind, aiming to strengthen togetherness, facilitate meetings, or offer a relaxation spot. Various universities have implemented such rooms, each with unique focuses and names. For instance, at the Erasmus University of Rotterdam and the University of Leiden, it is called a Living Room and intends to provide a break from studying by offering a relaxation spot but also a place where students can interact with one another (Erasmus University Rotterdam, n.d.; Leiden University, 2023). In other places, such a space has been implemented as a room of silence, focusing on relaxation and retreat, also offering a place for spirituality, such as praying or meditating (Christensen et al., 2019; Holsappel-Brons, 2010). While all spaces intend to promote wellbeing, the rooms offer different functionalities and cater to different aspects of students' emotional, social, or psychological wellbeing. In a study on student wellbeing in higher education by Vollenbroek et al. (2024), students mentioned that they have various needs that they feel are currently not being met on campus in regard to wellbeing support. They expressed the wish for two main factors. First, they would like a space for relaxation on campus, where they can rest, feel safe, and unwind. Secondly, students desired a place to meet new people and socialize (Vollenbroek et al., 2024).

Research by Girang et al. (2022) highlights the importance of spaces where students can detach and be alone to alleviate stress, thus increasing their psychological wellbeing. When students have access to a relaxation-focused wellbeing room, they can momentarily escape their stressors, facilitating mental recovery and promoting a sense of calm. Similar to Yusli et al. (2021) who found that feelings of being away, fascination, and compatibility in restorative spaces are positively correlated with psychological wellbeing. In a wellbeing room, these elements can be incorporated through thoughtful design, such as natural elements, comfortable seating, and soothing colors. These aspects create a sense of being away from the

usual academic settings such as classrooms and libraries, sparking fascination through pleasing surroundings and ensuring compatibility by aligning with students' wish for calmness. Further a wellbeing room focusing on relaxation offers a place where meditation is welcome and encouraged (Smit & Prenger, n.d.). A dedicated area for meditation can help students develop a habit of meditating, which has been shown to positively influence psychological wellbeing (Lykins & Baer, 2009; Vijayaraghavan & Chandran, 2019). Subsequently, the room focused on relaxation should include factors like comfortable furniture, meditation, and quietness to enhance psychological wellbeing.

A wellbeing room can also enhance social wellbeing by facilitating student interactions and creating a SoB. Research focusing on higher education indicates that the SoB can be enhanced by strengthening student relationships. The wellbeing room could offer an opportunity to build new friendships and positive student relationships as it intends to offer a positive and informal environment where students from all university faculties can meet up (Erasmus University Rotterdam, n.d.; Leiden University, 2023). Structured interaction opportunities, such as board games or workshops, can promote these interactions, fulfilling immediate socialization needs and potentially leading to long-term friendships. This is especially beneficial for international students who lack family support due to studying abroad (Johnson et al., 2007). Friendships have been found to relate to the SoB in students and can even positively affect the SoB (Delgado et al., 2016; Pittman & Richmond, 2008).

Furthermore, a potential positive environment can increase the SoB towards the university (van Gijn-Grosvenor & Huisman, 2020), which the wellbeing rooms aim to achieve by creating a welcoming and safe space where students can take a break from their daily stress (Erasmus University Rotterdam, n.d.; Leiden University, 2023). In addition, participating in student organizations can increase the SoB by facilitating social integration and providing a meaningful task for students to contribute to their community (Gieg et al., 2016; Rienties et al., 2012). However, Vollenbroek et al. (2024) found that especially

international students find it challenging to join and feel accepted by these clubs with specific norms, as is common in the Netherlands. The wellbeing rooms could thus be an informal alternative for forming a community, which international students especially lack.

Accordingly, the wellbeing room focused on socialization should include engaging with others and offering activities to connect with others to foster a SoB.

Providing access to support services like counseling centers can positively impact psychological wellbeing and the SoB. O’Keeffe (2013) highlights that counseling centers, which offer financial, administrative, and psychological help, play a crucial role in making students feel cared for. This has been cited as one of the most desirable factors students wished for at a university (Graham-Smith & Lafayette, 2004). Furthermore, social support is strongly associated with higher levels of functioning and psychological wellbeing. Research indicates that individuals who perceive a high level of social support tend to function better in daily life (Wang, 1998) and exhibit better psychological health (Turner, 1981). This correlation underscores the importance of creating supportive environments within educational institutions. Peer support centers, specifically, have been shown to positively impact mental wellbeing and help reduce stress and anxiety among students (Brar et al., 2012).

However, for these centers to be truly beneficial, they must address students' concerns about confidentiality and the feared negative impact of disclosing personal problems to faculty members on their study progress (O’Keeffe, 2013; Vollenbroek et al., 2024). As a consequence, the way in which these counselling offers are presented is crucial for students’ benefit. O’Keeffe (2013) proposes campus-based counselling centers instead of faculty based ones, to eliminate the connection between the person one confides in and their study program. A university-provided wellbeing room, independent of any specific faculty, could serve as a safe space with a lower barrier for students seeking initial support. This environment would allow students to confide in peers and access information on available support services

offered by the university, such as financial or psychological help, without the fear of academic consequences. Wellbeing rooms regardless of their function can thus increase the respective wellbeing dimension by offering a first contact point for all types of issues students may have.

Moreover, the social network built and strengthened by the wellbeing room could improve factors of emotional wellbeing like life satisfaction (Amati et al., 2018; Kaufman et al., 2022). Besides, negative emotions could be decreased, for instance, by creating a restorative area in the wellbeing room for students to relax and reduce stress (Yusli et al., 2021). Since the experience of more positive emotions increases emotional wellbeing (Keyes, 2002), it is assumed that the room can increase emotional wellbeing by influencing the emotions students feel inside the rooms as well as the positive impact the room would have on their life and general wellbeing.

Another similar concept to the wellbeing room with a relaxation function is the concept of rooms of silence. Rooms of silence can be found in many public institutions, like hospitals, airports, or malls (Christensen et al., 2019). These rooms are established for diverse religious or spiritual needs, meditation, or personal rituals and are open to anyone (Holsappel-Brons, 2010). Christensen et al. (2019) have investigated such rooms of silence at Scandinavian universities and identified a conflict. The rooms investigated were introduced as a space where everyone is welcome as long as the silence is respected and are clearly defined as interreligious rooms and intended to be rooms of reflection, meditation, or prayer. The room is primarily used by different students for religious purposes. However, student organizations at two of the three investigated universities have complained, wanting the space to welcome and encourage conversation and group activities. This has created a conflict between those seeking a quiet, reflective space for religious practices and others desiring a place to connect with peers. This indicates that different groups of students need different functionalities. However, it also highlights another conflict between the goals of the universities and the expectations of the students. If students lack a place where they can meet

and socialize with others, a room of silence might seem like a waste of space. Understanding the different groups' wellbeing deficits and how the wellbeing room could improve the dimensions of wellbeing is crucial for designing effective spaces that have the potential to increase the wellbeing of diverse student groups.

As mentioned one of the target groups of this study are international students as different research carried out in the Netherlands has been comparing the mental wellbeing of international and non-international students has shown that international students reported worse levels on all stress and wellbeing variables (Caring Universities consortium, 2023; Kelders et al., 2019). Potential reasons include that international students are away from their familiar surroundings and their social support circle is smaller than that of non-international students, who can generally connect with their familiar social circles more easily (Lee et al., 2004). Furthermore, studies find that international students struggle to find the right support for their issues at their universities (Newton et al., 2021; Vollenbroek et al., 2024). In this regard this research can also guide the design of wellbeing rooms as these could offer a first contact point for international students. On the one hand, they can get in touch with new people, expanding their social circle, and on the other hand, the room could offer support in different forms, like the presence of information flyers to provide further support options.

Based on these findings, we assume that providing spaces on campus catering to different aspects of students' wellbeing can promote flourishing, thus, experiencing positive emotions and functioning well psychologically and socially. While there is research on what can positively impact students emotional, social, and psychological wellbeing, no studies have been carried out to assess what potential impact the functionalities of a wellbeing room can have on those dimensions. Therefore, the current study investigates which functionalities of an imagined wellbeing room can cater to which dimensions of wellbeing. In order to understand the diverse wellbeing deficits and ways to attend to them better differences

between international and non-international students are investigated. The following hypotheses, based on the findings discussed above, will be analyzed.

H1: Imagining a wellbeing room that focuses on relaxation has a potential positive impact on psychological wellbeing.

H2: Imagining a wellbeing room focusing on a social aspect has a potential positive impact on the SoB.

H3: Imagining a wellbeing room that combines a relaxation and socialization function is assumed to have the highest potential positive impact on all dimensions of wellbeing.

H4: Imagining a wellbeing room focusing on relaxation, socialization, and combining both functions elicits positive emotions in the participant.

H5: International students benefit more from imagining a wellbeing room than non-international students.

Method

Participants

This study surveyed students at the University of Twente (UT) and the University van Amsterdam (UvA). Students from all programs and study years were approached. The total sample consisted of 276 students with 206 from the UT and 70 from the UvA (113 male, 157 female, 5 non-binary/third gender, 1 preferred not to say). Participants were aged between 17 and 45 years with a mean age of 22.33 ($SD=3.06$) years. Most students were pursuing a Bachelor's degree ($n=164$) and were in their third study year ($n=53$). Participants recruited from the UvA were slightly older than participants from the UT. The percentage of international students was 47.46%, with the biggest share coming from Germany. Table 1 provides an overview of the demographic variables.

Table 1*Demographic variables for UT and UvA students*

	UT (n=206)	UvA (n=70)
Gender		
Female	100	57
Male	102	11
Non-binary/third gender	3	2
Prefer not to say	1	0
Mean Age (SD)	21.76 (2.46)	23.91 (3.92)
Pursued degree		
Bachelor	147	19
Master	59	51
Internationals	120	11
Non-internationals	86	59

The participants were recruited with the help of study advisors, study associations and other students. At the UT most participants were recruited by being approached in public places on the university campus by the researcher. As students were selected randomly the self-selection bias is reduced. To reduce a selection bias from the researcher all students that were present in the area of recruitment were approached and flyers were distributed on campus so that, every student visiting the university buildings could take part. The participation was voluntary and carried out using an online survey. Data collection took place between the 6th of May and the 4th of June 2024. The survey completion rate was 67%. Responses were checked for outliers by using the interquartile range method. Responses that were outside the 25th to the 75th percentile were considered outliers. Participants who were outliers in more than one dimension of wellbeing after reading the scenario, and including the MHC-SF dimensions, were excluded. This led to the exclusion of 4 participants and resulted in a total of 272 participants included in the analysis. Ethical approval for this survey was granted by the BMS Ethics Committee (request number 240718).

Participants were asked to fill in an online survey using Qualtrics and informed that it was a survey about wellbeing at their university. The surveys were customized to the

universities to account for different study programs and different circumstances regarding existing wellbeing rooms. However, the items included in the analysis did not differ. After filling in demographic measures and the first mental wellbeing assessment, participants were randomly assigned to read one of three scenarios of a potential wellbeing room. After reading one scenario, participants were again asked to answer questions regarding their mental wellbeing. Participants did not know that there were different scenarios so that their answers would not be biased, and they would not have other functions of that room in mind when providing the following answers. Randomization of the scenarios was achieved by using the Qualtrics “Question randomization” function.

G*Power (Faul et al., 2007) was used to estimate the needed sample size. For this an effect size of 0.3 was assumed based on the literature on other positive psychology interventions on wellbeing (Carr et al., 2021; Colenberg et al., 2021). Depending on which statistical test needed to be done for the different hypotheses the estimated sample size varies between 57 and 484. Realistically a sample size of 200 to 300 was aimed for and 276 were recruited.

Situations

As mentioned before, students need different functions to restore their mental wellbeing. Relaxing and being away helps increase psychological wellbeing, while socialization and positive relationships are essential for social wellbeing. Therefore, three different scenarios were developed based on these functions. Students were presented with one of the three descriptions and asked to imagine that the described room would be implemented and that they interacted with it frequently. The first scenario focused on relaxation and is based on aspects found in the literature, as well as projects that are planned at the UT for the wellbeing rooms (Girang et al., 2022; Holsappel-Brons, 2010; Smit & Prenger, n.d.; Vollenbroek et al., 2024; Yusli et al., 2021). It included factors like resting,

meditation, quietness, and mentions no social interaction. The second scenario focused on the socialization function and included aspects of interacting with others and engaging in active activities. The description is based on findings in the literature as well as current projects at the UT (O’Keeffe, 2013; van Gijn-Grosvenor & Huisman, 2020; Vollenbroek et al., 2024). The third scenario combined both the relaxation and socialization functions and their respective descriptions in one room. It was added that there will be a visual and soundproof barrier, separating the different functions. The descriptions of the situations can be found in Appendix B.

Instruments

The study assesses three dimensions of wellbeing: emotional, social, and psychological. The Mental Health Continuum – Short Form (MHC-SF) was used to evaluate participants' mental health before reading the scenarios, as it offers a valid and concise assessment of these dimensions in the moment. However, to better fit the imaginative context of this research, different scales were used to measure wellbeing after reading the scenarios.

Emotional wellbeing after reading the scenarios was assessed using a semantic differential, which evaluates participants' affective and cognitive responses to a concept (Ploder & Eder, 2015). As emotional wellbeing corresponds, among others, to the affective aspect of wellbeing (Keyes, 2002), the valence of participants' reactions to the wellbeing room indicates its potential contribution to their emotional wellbeing. Social wellbeing was assessed by measuring the SoB to the institution, which correlates strongly with social wellbeing (Hagerty et al., 1996). The SoB scale (Bollen & Hoyle, 1990) could be adjusted to the study design. To assess psychological wellbeing the original psychological wellbeing scale (Ryff, 1989) was used, as the scale had shown good psychometric properties and the larger item selection allowed to find items that fit better into the research context.

Demographic Measures. Demographic measures of age, gender, and home country were collected. Furthermore, information on the study program and year the student was in was obtained. International students were asked when they came to the Netherlands.

Wellbeing. Initial wellbeing was measured with the MHC-SF, which consists of 14 items, measuring the three dimensions of wellbeing: emotional, social, and psychological wellbeing. Participants were instructed to state the frequency of a particular feeling over the past month using a 6-point scale ranging from *never* (1) to *every day* (6) before reading the scenario. Lamers et al. (2011) report good reliability with Cronbach Alpha ranging from .74 to .83. They also reported good test-retest reliability and confirmed the scale's validity in a Dutch sample. Additionally, the MHC-SF has been applied in different countries and has demonstrated reliability across diverse populations (Żemojtel-Piotrowska et al., 2018), which is vital for administration in a multi-cultural context.

Emotional wellbeing. A semantic differential is used to assess the impact of the wellbeing room on the emotional wellbeing dimension. Participants were instructed to provide self-reports on 19 bipolar dimensions, utilizing 5-point numeric scales labeled with two opposing descriptive adjectives on each end. These dimensions covered valence, for instance, lifeless and lively or unpleasant and pleasant. The adjectives were taken from similar studies that assessed how rooms in virtual reality were perceived by participants (Faul et al., 2007; Tawil et al., 2021).

Social wellbeing. To assess the impact of the wellbeing room on the dimension of social wellbeing, the potential effect of the wellbeing room on the SoB is measured. The SoB scale from Bollen and Hoyle (1990) was used. The scale comprises three items rated on a scale from *strongly disagree* (0) to *neutral* (5) to *strongly agree* (10). A mean score is computed, with higher scores reflecting a greater SoB. Kelders et al. (2019) report good reliability with Cronbach Alpha being .91. An example item is “In this room I feel a sense of belonging to the UvA/UT”.

Psychological wellbeing. To measure the impact on psychological wellbeing, items from the psychological wellbeing scale by Ryff (1989) are used. Each item was reformulated by adding the phrases “This room would help me...” or “In this room,...” to make it easier for participants to remember the context of the questions (see Appendix C). A single item per subdimension was presented. An exception was made for the subdimension *Positive relations with others* from the psychological wellbeing dimension, where an item that assessed whether students could build connections with others in this room was added (e.g. “This room could help me connect with students outside my own faculty”). The items were piloted using the think-aloud technique with three test participants, which showed that the items were understandable. Participants were instructed to indicate on a 6-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (6) how much they agree with the given statements.

In addition, the following questions were asked in the survey as well; however, they were not considered in the analysis of this study.

Intended Usage. Students were asked what they would use the wellbeing room for, these questions were based on a questionnaire used at another higher education institution. They could indicate whether they would use the room for a specific purpose or not (“Meeting fellow students (e.g., playing a game together, catching up)”). Then, they could indicate what else they would like to use the room for.

Contribution. Students were asked what factors they think the wellbeing room could contribute to. They were asked on a four-point Likert scale ranging from *not at all or almost not* (1), to *very much* (4). An example item is “To what extent do you think a living room could contribute to whether you feel at home with your education?”.

Awareness of wellbeing room. Participants at the UT were asked whether they knew that there was a first version of a wellbeing room already implemented at the university and whether they had already visited it. They were further asked what they expected from such a

room. Participants at the UvA were asked if they were aware of the common room and if they had visited it.

Comments and further interest. Lastly, participants were provided with the opportunity to give any further comments they had and were asked whether they were interested in participating in focus groups. If so, they could click a different link to fill in their contact information to ensure anonymity.

Statistical Analysis

For the statistical analysis of the survey results, the statistical software program R Version 4.4.0 was used. To protect against experimental-wise error, the sample size of approximately 200 to 300 with equal-sized groups was estimated beforehand. The commonly accepted level of significance with $\alpha = 5\%$ is applied in this thesis to determine if a test was significant. This thesis used an experimental design. Only complete data were included in the analysis.

To test hypotheses 1, 2, 3, and 4 and see whether the different functionalities particularly benefit their respective dimension of wellbeing, the mean values of the scales in the different scenarios were compared. An ANOVA was performed to determine whether the differences between groups were significant. This analysis was followed by a mixed methods approach to assess whether the wellbeing values differed significantly before and after reading the scenarios. If the assumptions for the mixed methods approach were not met, the Wilcoxon test, a non-parametric test, was used. Standardized values are compared as different scales were used in the pre- and post-measurement. To assess if international and non-internationals differed in their potential benefit from the wellbeing rooms, and to test hypothesis 5, a mixed methods approach was used, and if requirements were not fit for this method, the Wilcoxon test was carried out.

In order to identify student groups with similar needs the cluster analysis was performed separately for each scenario. The variables included in determining the clusters were the items related to the different wellbeing dimensions after reading the scenario. We included these variables because we are interested in examining whether different groups of students perceive the scenarios differently, specifically in terms of their impact on various wellbeing dimensions. Euclidean distance was used to measure the similarity. Initially, a hierarchical cluster analysis was conducted to determine the cluster centroids. These centroids were then used as the starting point for the K-means analysis, following the recommendation by Milligan (1980). The number of clusters was determined by examining the dendrogram produced in the hierarchical cluster analysis and applying the elbow method (Nainggolan et al., 2019; Thorndike, 1953).

Psychometrics

Basic psychometric properties were investigated for the used scales. Cronbach's alpha was calculated to evaluate internal consistency and a value of around .70 was considered good (Nunnally & Bernstein, 1994). The intercorrelations within the scales was investigated as a sign for construct validity (Krabbe, 2017). The MHC-SF items were positively intercorrelated, with higher correlations within the subscales than between the subscales. Also, Cronbach's alpha showed good results ranging between .72 and .82 for the subscales and .89 for the total scale. The three items on the SoB scale were strongly positively intercorrelated and showed a Cronbach's alpha of .92. These results indicated appropriate internal and construct validity for both scales and the scales can be used for analysis.

The adapted psychological wellbeing scale was further investigated, to ensure that rephrasing the items still provided useful results. All the items had significant moderate to high intercorrelations depicted in Table 2, Cronbach's alpha was .84. This indicates good internal and construct validity. All items can be included in further analysis. Other item

characteristics are shown in Appendix C. While the distribution did not seem skewed, the kurtosis showed a platykurtic distribution, indicating a non-normal distribution. However, the tests that were used are robust in the assumption of normal distribution or do not require it, therefore, the analysis could be carried out as planned. The item-total correlation was above the threshold of 0.4 (Moosbrugger & Kelava, 2021), thus indicating reliable values.

To ensure comparability of participants recruited at the UvA and UT the answers of the participants were compared. The groups only differed significantly in the relaxation scenario in regard to the potential impact of the imagined wellbeing room on SoB ($t(35.25) = -2.73, p = 0.009$) and psychological wellbeing ($t(36.55) = -2.56, p = 0.01$). In both wellbeing dimensions the participants from the UT expressed a higher potential positive impact on SoB (UT: $M=6.28, SD=1.92$; UvA: $M=5.61, SD=1.76$) and psychological wellbeing (UT: $M=4.23, SD=0.76$; UvA: $M=3.86, SD=0.75$). Analysis concerning hypothesis 1 was therefore conducted for both groups separately.

Table 2

Intercorrelations of adapted psychological wellbeing scale

Variable	1	2	3	4	5	6	7
1. Autonomy	-						
2. Environmental Mastery	.45***						
3. Personal Growth	.30***	.58***					
4. Positive Relations with Others_1	.33***	.46***	.40***				
5. Positive Relations with Others_2	.30***	.30***	.37***	.46***			
6. Purpose in Life	.38***	.51***	.53***	.44***	.28***		
7. Self-Acceptance	.47***	.47***	.44***	.42***	.30***	.40***	-

Note. $N=272$, * $p < .05$, ** $p < .01$, *** $p < .001$

Results

Participants were randomly assigned to one of the three scenarios: 89 participants read the description focusing on relaxation, 93 the one focused on socialization, and 90 read about the combination of both.

First, the current mental health of students was assessed. Based on the MHC-SF, 140 participants are classified as flourishing, 14 as languishing, and 118 as moderately mentally healthy. More than half of the flourishing participants were non-international ($n=80$). Out of those classified as moderately mentally healthy, 60 students were non-international and 58 international. Out of the 14 participants who were languishing, 10 were international students. The mean score of all wellbeing dimensions of the MHC-SF is 3.61 ($SD=0.67$), which is above the middle of the scale ranging from 1 to 6. The mean score for international students ($M=3.49$, $SD=0.73$) is lower than for non-international students ($M=3.73$, $SD=0.59$). An independent t-test was used to determine whether the wellbeing dimensions of the MHC-SF differed significantly depending on whether students were international. There was a statistically significant effect on psychological wellbeing ($t(242.6) = 2.55$, $p = .01$), emotional wellbeing ($t(241) = 4.28$, $p < .001$) and the total mean score ($t(245.71) = 2.95$, $p = .003$). The mean scores were significantly lower for international participants, as seen in Table 3. The difference between social wellbeing was not statistically significant ($t(261.61) = 1.59$, $p = 0.11$).

Table 3

Mean values and standard deviation for the MHC-SF for international and non-international participants before reading a scenario

	Emotional	Social	Psychological	Total
Internationals	3.94 (0.83)	2.96 (0.81)	3.71 (0.83)	3.49 (0.73)
Non-internationals	4.33 (0.65)	3.12 (0.77)	3.94 (0.66)	3.73 (0.59)

To investigate the potential impact the wellbeing room functions could have on the respective wellbeing dimensions the mean values after reading the scenarios were investigated. The mean values, as depicted in Table 4, showed that the highest mean value on psychological wellbeing for UT participants was in the relaxation function and in the combined function for UvA participants. The mean values in the socialization scenario were the lowest for the combined group. The mean values of all scenarios were similar. The scenario where both functions are combined in the wellbeing room resulted in the highest average reported wellbeing except for psychological wellbeing. For UvA participants it consistently led to the highest mean values, for UT participants the relaxation function had higher mean values in SoB and psychological wellbeing. To address hypothesis 1,2 and 3 and see if the different functions benefit the respective wellbeing dimensions an ANOVA was carried out and showed that the differences are not significant, see Table 4. A Wilcoxon test was conducted to determine if the differences before and after reading the scenarios were significant. However, the results showed that the differences were not significant.

Table 4

Mean values and standard deviation of the wellbeing dimensions per scenario

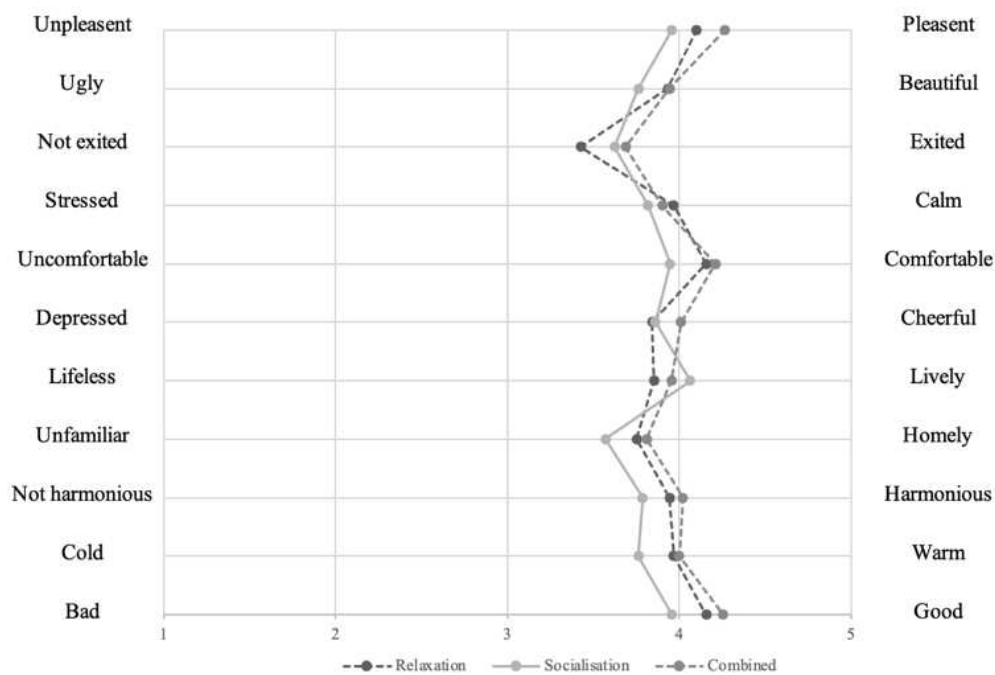
	Relaxation	Socialization	Combination	F value
Total				
Emotional	3.92 (0.63)	3.83 (0.62)	4.01 (0.51)	$F(1,270)=0.007$
SoB	6.18 (1.90)	5.96 (2.01)	6.20 (1.79)	$F(1,270)=0.01$
Psychological	4.19 (0.82)	4.06 (0.74)	4.18 (0.76)	$F(1,270)=0.975$
UvA				
SoB	5.30 (1.92)	5.60 (1.50)	5.96 (1.86)	$F(1,68)=1.59$
Psychological	3.78 (0.85)	3.82 (0.78)	4.02 (0.61)	$F(1,68)=1.18$
UT				
SoB	6.48 (1.81)	6.09 (2.16)	6.29 (1.77)	$F(1,200)=0.323$
Psychological	4.33 (0.77)	4.15 (0.72)	4.23 (0.80)	$F(1,200)=0.544$

Note. Emotional: scale from 1 (*negative valence*) to 5 (*positive valence*); SoB: scale from 1 (*strongly disagree*) to 10 (*strongly agree*); Psychological: scale from 1 (*strongly disagree*) to 6 (*strongly agree*).

Addressing hypothesis 4 and looking on the impact of the wellbeing rooms on emotional wellbeing it can be seen in the semantic differential in Figure 1, that all rooms elicited positive emotions above the middle of the scale. The socialization scenario had the lowest mean values except for the category of liveliness, where it exceeded the others. Also, in the excitement category, it is in the middle, as the combined scenario elicited the least excitement in participants

Figure 1

Semantic differential of emotional states for the three scenarios



To address the final hypothesis regarding differences between international and non-international students, the mean values of the wellbeing dimensions were compared and presented in Table 5. The mean values suggest that international students consistently reported a higher potential positive impact than non-international students. An independent t-test was employed to determine if the differences in potential positive impact were significantly different based on whether the student was international or non-international. Statistically

significant effects were observed only for the psychological dimension in the relaxation scenario, $t(86.99) = -1.99, p = .04$, and the SoB dimension, $t(86.87) = -1.97, p = .05$, but not for the emotional dimension, $t(86.79) = -1.37, p = 0.17$.

Table 5

Mean values and standard deviation per scenario of international and non-international students

	International (N=128)			Non-international (N=144)		
	Emotional	SoB	Psychological	Emotional	SoB	Psychological
Relaxation	4.01 (0.65)	6.56 (1.85)*	4.35 (0.81)*	3.82 (0.61)	5.78 (1.88)*	4.01 (0.80)*
Socializing	3.84 (0.59)	6.25 (2.07)	4.13 (0.69)	3.81 (0.66)	5.70 (1.94)	4.00 (0.79)
Combination	4.03 (0.56)	6.30 (2.11)	4.31 (0.84)	3.98 (0.46)	6.12 (1.52)	4.07 (0.68)

Note. Emotional: scale from 1 (negative valence) to 5 (positive valence); SoB: scale from 1 (strongly disagree) to 10 (strongly agree); Psychological: scale from 1 (strongly disagree) to 6 (strongly agree);

* $p < .05$, ** $p < .01$, *** $p < .001$

Lastly, a cluster analysis was conducted to determine which demographic variables influence the potential impact of the wellbeing rooms.

For the socialization scenario, two clusters were extracted based on the elbow method (Appendix D). Mean values of the wellbeing dimensions for the different clusters are displayed in Table 6. Cluster 1 ($n=65$) had higher mean values than Cluster 2 ($n=28$). The quadratic discriminant function analysis demonstrated a clear separation between the two clusters based on the mean values of the wellbeing scales after reading the scenario, accurately classifying 98.87% of the cases. Age, gender, degree, study program and study year did not show any distinguishable patterns in the clusters.

Table 6*Mean values of different clusters in the socialization scenario*

Cluster	N	Emotional	SoB	Psychological
1	65	4.15 (0.39)	6.73 (1.55)	4.38 (0.55)
2	28	3.08 (0.41)	4.18 (1.84)	3.32 (0.60)

In the relaxation scenario, four clusters were extracted based on the elbow method (Appendix E). Mean values of the wellbeing dimensions for the different clusters are presented in Table 7. Cluster 1 (n=15) and Cluster 4 (n=15) exhibited the lowest mean values on the wellbeing dimensions, while Cluster 3 (n=25) had the highest mean values, and Cluster 2 (n=34) was located in the middle. The quadratic discriminant function analysis demonstrated a clear separation between the four clusters based on the mean values of the wellbeing scales after reading the scenario, accurately classifying 94.38% of the cases. The frequency table indicated a balanced gender distribution except for Cluster 4, with 11 female and 4 male participants. In Cluster 4, most participants (n=10) were non-international students, and only 33% were internationals. In Cluster 3, more international students (n=17) than non-internationals (n=8) were represented. International and non-international students were reasonably balanced in the other clusters. Age, gender, degree, study program, study year, and if the participant was from the UvA or UT did not show any distinguishable patterns in the clusters.

Table 7*Mean values of different clusters in the relaxation scenario*

Cluster	N	Emotional	SoB	Psychological
1	15	2.90 (0.39)	4.62 (1.52)	3.66 (0.65)
2	25	3.86 (0.28)	6.54 (1.02)	4.32 (0.40)
3	34	4.58 (0.29)	7.95 (1.27)	4.95 (0.54)
4	15	3.98 (0.39)	3.96 (1.18)	3.14 (0.64)

For the combined scenario, four clusters were extracted based on the elbow method (Appendix F). Mean values of the wellbeing dimensions for the different clusters are displayed in Table 8. Cluster 1 (n=11) had the lowest mean values for all wellbeing dimensions, while cluster 4 (n=27) had the highest. Cluster 2 (n=37) had the second highest mean values except for emotional wellbeing, where cluster 3 (n=15) had the second highest mean values. The quadratic discriminant function analysis demonstrated a clear separation between the two clusters based on the mean values of the wellbeing scales after reading the scenario, accurately classifying 97.82% of the cases. Cluster 2 and 4 are predominately female. With 23 females compared to 14 others in cluster 2, and 18 females to 9 males in cluster 4. International and non-international students were balanced in the clusters 1 and 4, cluster 2 and 3 had around 34% international students. Age, gender, degree, study program and study year did not show any distinguishable patterns in the clusters.

Table 8

Mean values of different clusters in the combined scenario

Cluster	N	Emotional	SoB	Psychological
1	11	3.31 (0.40)	4.48 (1.62)	3.14 (0.74)
2	37	3.71 (0.22)	6.24 (1.14)	4.31 (0.49)
3	15	4.36 (0.23)	5.29 (1.61)	3.50 (0.41)
4	27	4.50 (0.27)	7.36 (1.91)	4.79 0.46)

Discussion

The primary aim of this study was to investigate whether the various functionalities of imagined wellbeing rooms could serve the different dimensions of wellbeing and to explore the differences in the potential positive impact on wellbeing between various student groups. As part of an ongoing research cycle, these findings will shape future design decisions for actual wellbeing rooms. The findings indicate that all imagined functions contributed

positively to emotional wellbeing. However, imagining the combined function had the highest potential positive benefit on mental wellbeing, while imagining the relaxation function resulted in the highest mean values on psychological wellbeing but only for participants from the UT. Notably, this potential positive impact was higher for international students compared to non-international students.

Results showed that while half of the participants are flourishing, among the few participants who are languishing, most are international students. A significant portion of participants is classified as neither flourishing nor languishing, indicating room for improvement in their wellbeing. The scores of the MHC-SF are comparable with other findings in Dutch research. Kelders et al. (2019) found a mean score of 2.92 for UT students and the Caring Universities (2023) consortium published a mean score of 2.57 for the UvA. The mean score in this sample is above this with 3.61. However, for international participants, the mean score was lower than for non-international students, which is in line with the findings of Kelders et al. (2019) and Caring Universities (2023) research.

The data analysis showed that while many differences were in the direction as hypothesized with the function resulting in an above the middle of the scale mean value on the respective wellbeing dimension, few were significant. Participants from the UT in the relaxation scenario scored highest on the psychological wellbeing scale after imagining such a wellbeing room. The difference is consistent with other findings, showing that factors like being away and being able to detach from stress can benefit psychological wellbeing (Girang et al., 2022; Yusli et al., 2021), which the description of the relaxation room highlighted. And participants from UvA reported the highest average of psychological wellbeing in the combined scenario. Indicating that the socialization function can also contribute to psychological wellbeing. However, the differences between the scenarios were not significant.

Interestingly, the socialization scenario led to the lowest average on the SoB scale, indicating that the imagined socializing function does not contribute to SoB as much as the

relaxation or combined function. This is in contrast to other findings, in which the possibility to build positive relationships contributed to the SoB (Johnson et al., 2007; O’Keeffe, 2013). Participants potentially did not associate interacting with others with an increased SoB. The positive effect of positive relationships on campus on SoB might only be established over time, whereas participants may have focused on the short-term effects while reading the socialization scenario, this could possibly explain the low mean value for SoB. For instance, Jose (2015) found that peer connectedness predicts an increase in positive affect after one year, showing that while social connection can increase dimensions of wellbeing its effect might take some time to appear. Also considering the design of the study, it has been shown that individuals tend to think in the short-term rather than the long-term and as a result, focus on immediate consequences (Hallford & D’Argembeau, 2022). Even though there was no evidence in this study that facilitating social interactions in an imagined scenario increases the SoB, other studies have shown that friendships can increase the SoB (Delgado et al., 2016).

While the combined scenario has the highest mean values on emotional wellbeing and the SoB, it is below the mean value of the relaxation scenario in psychological wellbeing for UT students. The findings are not significantly different from each other, which might be a result of scenarios. Since, the combined scenario might be better suited to the diverse preferences and requirements of a varied student body. Some students might prioritize emotional support and relaxation, while others might seek social interactions to combat loneliness or build friendships. Some students might require both at different times. By integrating both aspects, the combined room can serve as a versatile space that adapts to the immediate and varied needs of students, making it more universally beneficial and positively potential. The difference in the potential positive impact for UvA and UT participants indicates that at the UT the students at the current time desire a relaxation spot more than a socialization spot.

All imagined scenarios elicited positive emotions in the participants. This result aligns with findings from Jameel and Agiel (2023), who found that students mentioned privacy and multifunctional communal spaces, as factors they perceive to affect their emotional wellbeing. These two factors also relate back to the findings of Girang et al. (2022) and Vollenbroek et al. (2024). Privacy connects to the students' wishes for a place where they can withdraw and relax and thus relieve stress, while the multifunctional communal spaces offer social interactions. In Jameel and Agiel's (2023) study, both of these factors were related to emotional wellbeing. This supports the notion that all three scenarios have the potential to satisfy students' wishes, lead to positive emotional states, and in turn, increase emotional wellbeing.

The analysis comparing international and non-international students provided insights into the differences in how beneficial the wellbeing room is perceived by either group. International students in the relaxation scenario had a significantly higher potential positive impact on their SoB and psychological wellbeing compared to non-international students when imagining a wellbeing room focusing on relaxation. While the cluster analysis of participants showed distinguishable clusters for all scenarios, variables like age, gender or study program did not allow for a precise characterization of participants. Cluster 3 and 4 in the relaxation scenario, however, revealed that international students indicated a higher potential positive impact of the wellbeing rooms on all wellbeing dimensions in contrast to non-international students. International students experience more stress in everyday life as they face additional challenges compared to non-international students (Caring Universities consortium, 2023; Newton et al., 2021). The factors described in the relaxation scenario are aimed to alleviate stress and in turn increase psychological wellbeing (Girang et al., 2022; Yusli et al., 2021). It is likely that participants who experience high stress levels perceive a greater positive impact when imagining a wellbeing room offering a relaxation function with features intended to reduce stress compared to participants who experience lower stress

levels. Moreover, international students score lower on the MHC-SF which could be a sign of stress, explaining why international students perceive a room that focuses on relieving stress as more beneficial.

For international students imagining the interaction with a wellbeing room that focuses on socialization results in a higher mean value on the SoB scale than for non-international students. This aligns with Gieg and Al's (2016) findings, which showed that participating in a student organization can increase the SoB for international students by enhancing social integration and providing a meaningful activity contributing to a community both aspects of SoB (Hagerty et al., 1992; Rienties et al., 2012). The international students may have seen the opportunity to join a community offered by such a room, without the aforementioned fear of being unable to integrate into formal study associations (Vollenbroek et al., 2024). Other research has shown that involvement with student organizations is related to positive perceptions of relationships with others (Abrahamowicz, 1988). So, non-international students, who are more likely to already participate in a student organization and in theory should have a higher SoB, therefore, do not see an additional value in a wellbeing room providing a socialization function.

The findings showed that imagining a wellbeing room combining relaxation and socialization functions has the highest potential positive impact. This shows that students need more spaces to relax and rest from the stress of student life as well as places where they can interact with others. Imagining a wellbeing room regardless of their function showed especially potential positive impact on wellbeing for international students, universities could potentially increase wellbeing by offering such a room, thereby relieving international students' everyday struggles.

Implications for Practice

The findings show that imagining interacting with wellbeing rooms is perceived as positive by participants. The combined and relaxation scenarios resulted in higher mean values and thus, when implementing the rooms the focus should be placed on elements described in these situations. For instance, by using comfortable furniture as mentioned in the description of the relaxation and combined scenario. This is supported by Muhammad et al.'s (2014) findings that comfort is an important factor for students, one that they perceive influences their wellbeing.

In addition, providing a sense of control and contribution can also positively influence wellbeing (Muhammad et al., 2014). This is related to the subdimension of environmental mastery in the psychological wellbeing dimension (Keyes, 2002). Environmental mastery means having the ability to select and create environments that meet one's personal needs (Ryff, 1989). Choosing to use a wellbeing room that is designed to meet the student's wellbeing deficits can thus be a context that helps students feel environmental mastery.

A sense of control can be achieved among other things by allowing students to decorate the rooms. Within the decoration, it can be very beneficial to include plants as this was mentioned often by students in research concerning restorative areas and was mentioned as something they perceive as beneficial. It has also been shown to be related to psychological wellbeing (Girang et al., 2022; Muhammad et al., 2014; Yusli et al., 2021). Yusli et al. (2021) found that spaces overlooking the landscape can increase psychological wellbeing. Therefore, universities should carefully consider the location of the wellbeing room. Rather than converting just any room, possibly a windowless room with limited functionality, universities need to invest in finding a suitable location that is both aesthetically pleasing, offers a great view, and is conveniently located on campus. Together with suitable outdoor spaces and a well-maintained landscape this can contribute to students' wellbeing.

Providing tools, like board games can help foster interaction between students in the room (Noda et al., 2019). This could benefit international students, whose social wellbeing is low and who indicated a higher potential positive impact from a room focused on socialization, which mentioned providing board games.

Lastly, also the operating hours of the room require careful consideration. On the one hand, longer opening hours would be beneficial as students then are more flexible to use the room in line with their schedule which creates a positive sense of control (Muhammad et al., 2014). On the other hand, universities might require limitations to the opening hours due to general guidelines as well as to be able to provide the required support as some activities and functionalities are dependent on staff. Universities might consider a hybrid model where the operating hour of the room are more flexible but not fully covered by staff and staff hours might alternate to offer different time windows that align with various students' schedules and rhythms.

Introducing a timetable has other practical benefits, too. While the combined function overall resulted in the highest potential positive impact, the practical implementation of it can be problematic. Introducing a timetable to determine when which function of the room has priority can help navigate the problematic. For instance, although rooms of silence are usually used individually, there are specific times when masses are held, or religious groups can meet in the room. However, these need to be clearly communicated, so that all students perceive them as fair (Christensen et al., 2019). For instance, on evening of the week could be determined as a social night where social interactions are encouraged and prioritized over relaxation. On other days a mindfulness day can be introduced, where there could be a workshop on meditation to introduce students to the practice with a followed silence time, where socialization and talking is discouraged.

Results also showed that more international students than non-international students were languishing. This emphasizes the importance for universities to support this large

vulnerable group and pursue measures to increase their wellbeing. As international students also indicated a higher potential positive effect, the room could be a measure to support international students. This should be considered when marketing the wellbeing room at universities and planning specific activities.

Limitations and Future Research

It must be noted that only a few differences in this study were significant. This could be because the rooms all have similar potential positive impacts or that the study design, where participants must imagine the described wellbeing room, was too abstract to manifest in actual differences. However, this study is necessary preliminary research to understand how wellbeing rooms could contribute to different wellbeing dimensions in order to address deficits in student wellbeing. The results from this study can be used to inform design decisions when implementing the wellbeing rooms. Once these rooms are well-established, the real impact on the wellbeing dimensions can be assessed.

Participants in this survey showed higher scores on wellbeing than in other research (Caring Universities consortium, 2023; Kelders et al., 2019). This might be because students were randomly selected by the researcher, reducing the chance that only those who felt they need to improve their wellbeing chose to participate in the study. However, this led to a different influence as students were approached mainly in public places during lunchtime and on sunny days. Sun can positively influence individuals' wellbeing (Beecher et al., 2016). Following that wellbeing rooms might be more beneficial in wintertime when communal spaces are limited to indoors and general wellbeing decreases. This should be further considered when researching the impact of wellbeing rooms. Even though students were approached in situations where a high temporary wellbeing is likely, they were given a QR code to do the survey and asked to finish them in their own time pace. So, many participants had exited the situation before filling out the survey. Furthermore, the MHC-SF asks about the

mental wellbeing in the past weeks not in the moment. A higher wellbeing score just because of a momentary state of higher wellbeing is therefore unlikely.

While imagining the combined scenario yielded the highest mean values for UvA participants, the relaxation scenario had higher mean values for UT participants. These findings show that an initial assessment of wellbeing deficits at the institution and analyzing which function should be prioritized is necessary. Understanding the specific needs and preferences of students is crucial to determine whether to implement both relaxation and socialization functions or to focus solely on relaxation in the wellbeing rooms. That the cluster analysis did not show clear patterns regarding variables like age, gender, study program highlights that there is no universal approach universities can follow when implementing wellbeing rooms, but that they must carefully consider what their current students need. Also, qualitative research focusing on the design of the rooms and what students associate with them could be beneficial to get a deeper understanding of which elements of the described rooms are essentially perceived as beneficial before implementation of a room.

Another noteworthy factor is that the measure in this survey for social wellbeing after reading the scenario focused on the SoB, which does not address every subdimension of social wellbeing. For instance, many students have reported feeling lonely (Caring Universities consortium, 2023). The wellbeing room focusing on socialization is intended to bring students together and thereby, reducing experiences of loneliness. However, this was not captured with the SoB scale which measured how integrated into the community the participant felt. Therefore, it is likely that not all effects on social wellbeing have been captured by the survey, and some insights are missing, this could be further investigated with qualitative research as well.

Conclusion

This study investigated if different scenarios of functions of a wellbeing room can contribute to emotional, social, and psychological wellbeing. It further examined demographic characteristics, especially focusing on internationality, that could account for the variations in how participants perceived and evaluated the scenarios. Therefore, this study contributes to a broader understanding of how wellbeing rooms can potentially enhance students emotional, social, and psychological wellbeing. Implementation and effects of wellbeing rooms have, to our knowledge, not been empirically studied before. Despite limitations in generalizability of the results, due to the study's imaginative design, this research provides important practical insights for practitioners interested in implementing wellbeing rooms. By using imaginative scenarios with varying functionalities of these wellbeing rooms, it is possible to investigate the different potential benefits on wellbeing without having to invest resources. It offers insights into how students perceive them and the potential positive impact they can have on their wellbeing.

The findings showed that all imagined scenarios, a room focusing on relaxation, one on socialization and one combining both functions were perceived as positive by participants. A wellbeing room combining both functions and the one focusing on relaxation resulted in the potentially highest average level of wellbeing. Although no clear demographic variables could explain the variations in potential positive impacts from the wellbeing rooms, international students indicated a higher potential positive impact from these spaces. In general, wellbeing rooms seem to be a valuable addition to the existing common spaces at universities. The combined scenario seems to be the most beneficial arrangement regarding mental wellbeing. However, further research is advised to identify which specific elements contribute most to the potential positive impact. In the combined scenario, every student imagined aspects that appealed to their preferences, whereas in the socialization and relaxation scenario, fewer

aspects were universally appealing. Therefore, it is likely that integrating both functions is necessary to effectively address various wellbeing deficits. This highlights the importance of a well-thought-out design for wellbeing rooms and the implementation of practical solutions that allow for both relaxation and socialization functions to fully benefit students without undermining each other.

Even though few participants were languishing at both universities, it seems that the wellbeing of international students is lower compared to non-international students. Simultaneously, the potential positive impact of imagining a wellbeing room is higher for internationals. Thus, in the marketing of the rooms, special attention should be paid to attract international students.

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Appendix A

Mental Health Continuum Short Form

Items of the MHC-SF

Theoretical dimension	MHC-SF item In the past month, how often did you feel...
<i>Emotional wellbeing</i>	
Happiness	01. Happy
Interest	02. Interested in life
Life satisfaction	03. Satisfied
<i>Social wellbeing</i>	
Social contribution	04. That you had something important to contribute to society
Social integration	05. That you belonged to a community (like a social group, your neighborhood, your city)
Social actualization	06. That our society is becoming a better place for people
Social acceptance	07. That people are basically good
Social coherence	08. That the way our society works makes sense to you
<i>Psychological wellbeing</i>	
Self-acceptance	09. That you liked most parts of your personality
Mastery	10. Good at managing the responsibilities of your daily life
Positive relations	11. That you had warm and trusting relationships with others
Personal growth	12. That you have experiences that challenge you to grow and become a better person.
Autonomy	13. Confident to think or express your own ideas and opinions.
Purpose in life	14. That your life has a sense of direction or meaning to it

Appendix B

Description of Wellbeing Rooms

Relaxing function:

The UT is considering implementing a "living room" aimed at enhancing students' mental wellbeing. The space is designed as a "safe space," offering opportunities for rest, reflection, or even meditation if desired. Comfortable furnishings encourage relaxation and lingering.

Think of it as a midday nap spot, but also as a place for quiet contemplation or lying in a hammock to recharge for the rest of the day. The room is overseen by a responsible person who is always close by and easily accessible in case of any problems.

Furthermore, the room can serve as a first point of contact for issues, as it will provide an overview of the support services available at UT.

Imagine incorporating this room into your daily study routine.

Socializing function:

The UT is considering implementing a "living room" aimed at enhancing students' mental wellbeing. The room is designed as a hub for social interaction, where you can play games, chat with others, and meet new people. You can also distract yourself by trying out arts and crafts or whatever helps you detach from the struggles of studying. Additionally, you can join one of the various workshops offered in the room covering various activities.

Furthermore, the room can serve as a first point of contact for any issues, as it will provide an overview of the support services available at UT.

Please imagine incorporating this room into your daily study routine.

Combined function:

The UT is considering implementing a "living room" aimed at enhancing students' mental wellbeing. The room is designed to be a place of social interaction and relaxation.

The room is divided by soundproof dividers that also offer a visual barrier.

In the social part of the room, you can play games, chat with others, and meet new people.

You can also distract yourself by trying out arts and crafts or whatever helps you detach from the struggles of studying. Additionally, you can join one of the various workshops offered in the room covering various activities.

The retreat part is designed as a "safe space," offering opportunities for rest, reflection, or even meditation if desired. Comfortable furnishings encourage relaxation and lingering. Think of it as a midday nap spot, but also as a place for quiet contemplation or lying in a hammock to recharge for the rest of the day. The room is overseen by a responsible person who is always close by and easily accessible in case of any problems.

Furthermore, the room can serve as a first point of contact for issues, as it will provide an overview of the support services available at UT.

Imagine incorporating this room into your daily study routine.

Appendix C

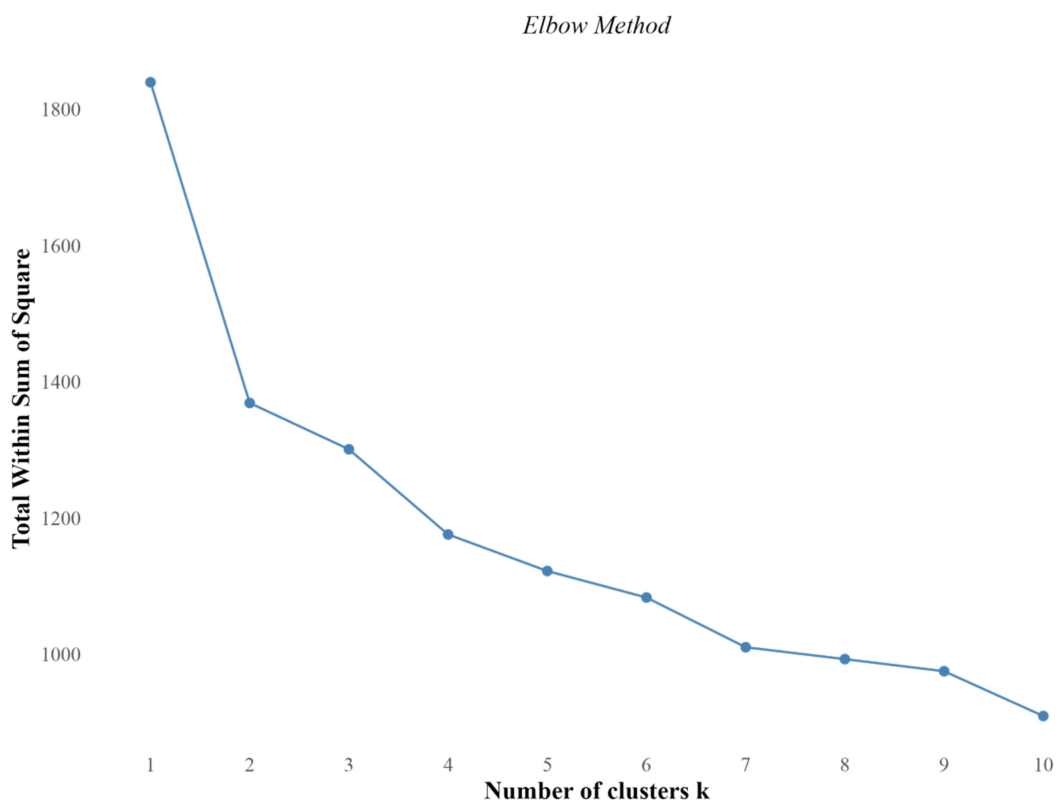
Statistical Characteristics of Adapted Psychological Wellbeing Scale

Dimension of Item	Item	Mean	Standard Deviation	Max	Min	Skewness	Kurtosis	Item-total correlation
Autonomy	In this room I would not be afraid to voice my opinions, even when they are in opposition to the opinions of most people.	3.72	1.30	1	6	-0.05	-0.84	0.52
Environmental Mastery	This room could help me build a living environment and a lifestyle for myself that is much to my liking.	3.39	1.17	1	6	-0.59	-0.09	0.66
Personal Growth	Being in this room could help me develop as a person over time.	3.39	1.16	1	6	-0.58	0.16	0.62
Positive Relations with Others_1	This room could help me enjoy personal and mutual conversations with other students and friends.	4.62	0.96	1	6	-0.88	1.51	0.59
Positive Relations with Others_2	This room could help me connect with students outside my own faculty.	4.57	1.05	1	6	-0.82	0.86	0.45
Purpose in Life	In this room, I could enjoy making plans for the future and working to make them a reality.	3.93	1.17	1	6	-0.36	-0.26	0.60
Self-Acceptance	In this room, I could generally feel confident and positive about myself.	4.29	0.94	1	6	-0.25	0.02	0.59

Appendix D

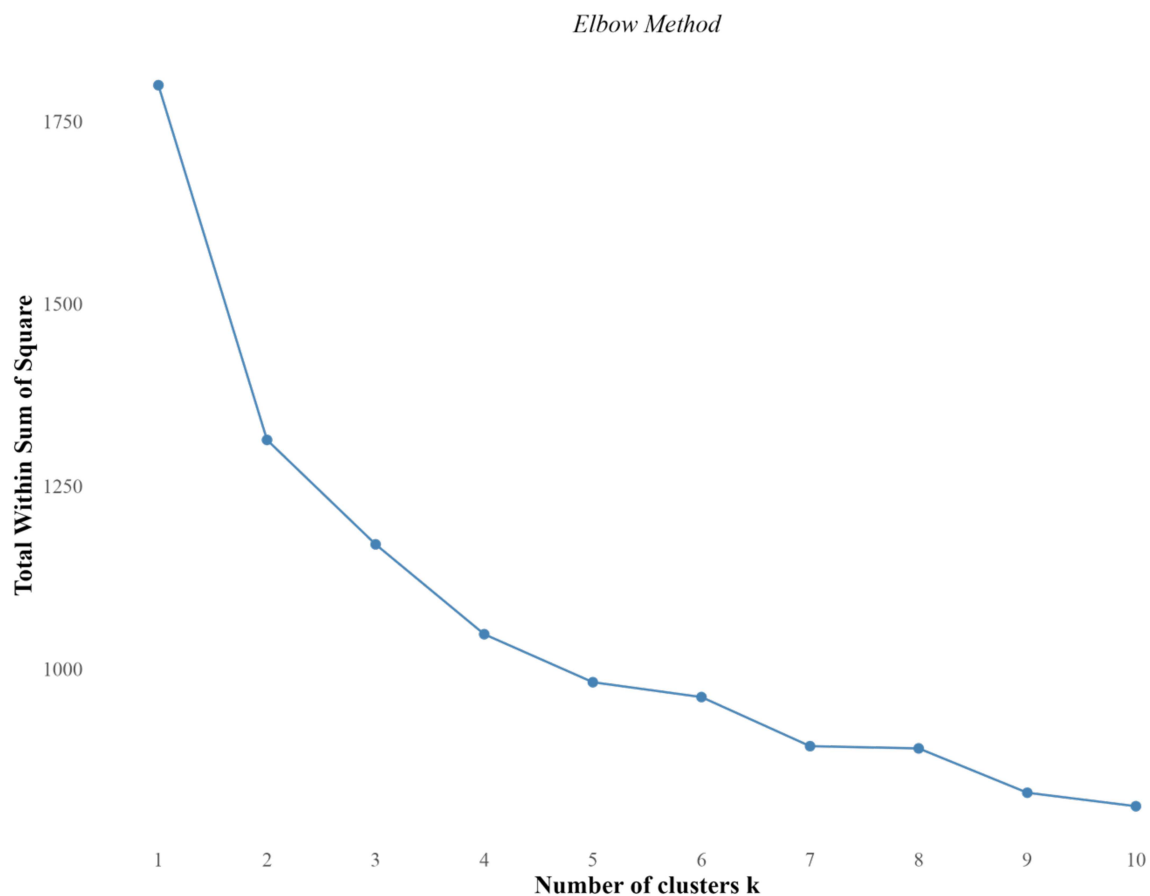
Optimal Number of Clusters for Socialization

Scenario



Appendix E

Optimal Number of Clusters for Relaxation Scenario



Appendix F

Optimal Number of Clusters for Combined Scenario

