The Global State of Design for Health Education: Reflections on an International Student Competition

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Introduction: The International Union of Architects (UIA) designated 2022 as "the Year of Design for Health," which emphasized the significance of health in architectural practice. As a signature event, UIA organized an international student competition, inviting college students to present innovative designs for a 30-bed rehabilitation center. One hundred seventy-five teams from 40 nations submitted their works, with five winners and seven honorable mentions awarded. This study amis to examine the current state of global Design for Health education, identify the strengths and weaknesses of student designs, and provide guidance for GUPHA and the UIA Public Health Group to develop evidence-based strategies that facilitate education in this field worldwide. **Research Methods:** Interviews with four jurors were conducted, and the jury's evaluation notes, and competition report were analyzed. Two researchers employed a 29-question rating system across 11 categories to assess each entry. **Results:** Jurors noted that most entries displayed strong architectural design and graphic skills. Contrarily, the researchers observed that only a few teams undertook a literature review and conducted research like surveys, interviews, and observations. Many entries missed articulating a compelling narrative about the users and how their designs could provide a good user experience. Although the competition didn't explicitly demand sustainability, its integration is vital, especially considering the pressing climate crisis. Furthermore, one juror expressed concern over many teams' insufficient program analysis and development efforts. These observations from the jurors resonated with the rating system's findings. **Conclusion:** This competition provides insights into the current state of architectural education with a health focus. It underscores potential pathways for pedagogical advancement, setting the stage for nurturing the next generation of architects with essential skills and mindsets to enhance human health.

INTRODUCTION

The World Health Organization (WHO) defines health as "a state of complete physical, mental, and social well-being, not just the absence of disease or infirmity."[1] Furthermore, the WHO maintains that every individual, regardless of race, religion, political belief, or socioeconomic status, is entitled to the highest possible standard of health.[1] In light of this global stance, as well as recent public health challenges such as the COVID-19 pandemic, the International Union of Architects (UIA) General Assembly declared 2022 as the UIA Year of Design for Health in July 2021. This proclamation urges all UIA member sections to motivate architects and their clients to embrace evidence-based design strategies and prioritize health in buildings and urban environments.[2] It encourages designs that protect, develop, and restore health and claims that Design for Health should be fundamental to every architectural project and practice, regardless of its scope or scale.[2]

To achieve the objectives of the UIA Year of Design for Health and boost the interest in Design for Health among students and institutions, the UIA and its Public Health Group partnered with the NOVELL (Neuroscience Optimised Virtual Environments Living Lab) Redesign Team to organize an international student competition. This competition tasked participants with designing the next generation of stroke rehabilitation centers.[3] NOVELL, led by the Florey Institute of Neuroscience and Mental Health in Melbourne, Australia, created an evidence-based platform to revolutionize the design of stroke rehabilitation facilities and to innovate new care models that redevelop and protect patients' health and well-being. For this competition, NOVELL contributed expertise in developing the design program and providing educational resources, including a webinar and evidence-based design recommendations for spaces tailored to stroke survivors, called Stroke Survivor Space.[4]

The competition's design brief required that participants envision spaces for 30 stroke survivors at various recovery phases. This includes survivors' suites (bedrooms), a gymnasium, therapy rooms, a dining facility, a lounge, a multidisciplinary hub, storage, and more, with a total area of 1,600 square meters. Such spaces are vital for a stroke rehabilitation center. The competition committee encouraged participants to choose a local site, evaluate regional needs, and refine the program in terms of cultural, traditional, and medical practices.[5]

Evaluation criteria for the competition emphasized architectural design quality, innovative strategies for enhancing stroke survivors' experiences in the built environment, proposal/program

Figure 1. A World Map of Particiapting Nations

adequacy, feasibility, and functionality.[5] Also, participants were expected to consider fundamental architectural principles such as health, safety, well-being, and sustainability.

Commencing in August 2022, the competition was open to full-time university students from all academic tiers (undergraduate, graduate, and doctoral). From over 700 registered teams, 175 teams composed of 533 participants (including mentors) from 40 nations, representing 110 universities, joined the competition. Five winning teams and seven hornorable mentions were awarded in July 2023 at the UIA Congress. Figure 1 displays the participating nations on a world map, with the size of each red dot representing the number of entries from that nation. Five top-prize winners and seven honorable mentions were chosen. The winning projects are showcased in the jury's report, which is available on the UIA-Public Health Group website (www.uia-phg.org).[6] Figure 2 showcases the top five winning projects.

Design for Health Education. Beginning around 1960, architectural education with a health specialization focused primarily on health facility design. Initial programs of this kind were introduced at Texas A&M University and Clemson University in the USA, KU Leuven University in Belgium, Tokyo University in Japan, and the University of Florence in Italy. In 2000, the Global University Program in Healthcare Architecture (GUPHA) emerged to champion higher education in architecture for health and to disseminate research in the health design industry.[7] Originally consisting of 25 universities worldwide, GUPHA later became an educational branch of the UIA Public Health Group. As reported by Cola et al., by 2020, nine universities in the US, nine in Europe, and one in Australia provided either degree programs or certificates in healthcare design.[8] An unpublished document from the American Institute of Architects—Academy of Architecture for Health Summer Leadership Educators Summit notes that 15 US universities offer graduate degrees in health design, with another 11 offering related courses.[9] In the early 2010s, the American Institute of Architects and the Association of Collegiate Schools of Architecture formed the Design & Health Research Consortium to encourage university-led research in design and health. This consortium, consisting of experts and researchers from 19 universities, worked on research linking physical environment design to health outcomes.[10] Since 2016, Pentecost has been a proponent of the three-pillar Design for Health concept at Texas A&M University. As the director of the Center for Health Systems & Design, Pentecost introduced this concept to the UIA Public Health Group in 2019 during his tenure as that group's director.[2] In 2021, UIA Public Health Group members unanimously agreed to replace "healthcare" with "health" in GUPHA, renaming it the Global University Program in Health Architecture. This critical decision signaled a shift for GUPHA and the UIA Public Health Group from a limited healthcare focus to a broader emphasis on health. Health design education has existed for over 50 years. However, there has been a noticeable lack of research to identify students' strengths and weaknesses in this field. This research was conducted to address and bridge this knowledge gap.

Research Aim. This paper assesses the present state of global Design for Health education by examining the competition entries. The objective is to identify the strengths and weaknesses of student designs and to provide guidance for GUPHA and the UIA Public Health Group to develop evidence-based strategies to facilitate education in this field worldwide.

THEORETICAL FRAMEWORK AND EVALUATION

CRITERIA

Our evaluative framework draws from Pentecost's Design for Health Concept, Hamilton's Evidence-Based Design Approach, Lawton's Person-Environment Fit Theory, and the UIA's design quality assessment criteria.

Design for Health. Originating from Hippocrates' statement, "The function of protecting and developing health must rank even above that of restoring it when it is impaired," the Design for Health concept, as articulated by Pentecost, encompasses three primary elements: (1) design to protect health, which advocates for shielding individuals from environmental threats such as toxic substances, fall risks, and natural hazards like flooding; (2) design to develop health, emphasizing creating spaces that encourage healthy behaviors, such as environments that promote physical activities and social connections, and supportive school settings that enhance intellectual growth; and (3) design to restore health, which pertains to healthcare facility design that offers a conducive environment for efficient healthcare delivery to patients.[2]

Evidence-Based Design (EBD). Comparing EBD to evidence-based medicine, Hamilton asserted that, like medical doctors, designers should consciously base their critical decisions on the most credible scientific evidence available. He identified four EBD practitioner tiers: (1) Level 1: staying current with scientific research literature and applying pertinent research findings to projects; (2) Level 2: hypothesizing expected outcomes and measuring the results; (3) Level 3: publicly presenting design outcomes and results; and (4) Level 4: publishing findings in peer-reviewed academic journals.[11] EBD has been implemented across various building types, particularly within healthcare design.

Person-Environment Fit Theory. Lawton's Person-Environment Fit Theory proposes that an individual's adaptive behavior correlates with the alignment between their competence and the environmental pressure they face. An overwhelming environmental challenge can lead to maladaptive behaviors or diminished well-being, whereas an inadequately stimulating environment can lead to feelings of monotony and boredom.[12]

UIA Design Evaluation Criteria. In 2020, UIA released the UIA Competition Guide to provide guidelines for design competitions in architecture and affiliated domains. This guide outlines the following general design assessment criteria: (1) project integration within the site, (2) functionality, (3) clarity in organizing the programmed elements, (4) architectural concept quality, (5) quality of proposed spaces, (6) aesthetic and architectural expression quality, (7) appropriateness of proposed materials and construction, (8) sustainability, and (9) project coherence.[13]

METHODS

The research team employed mixed methods in this study. First, the team examined the jury's notes and documented perspectives shared during their deliberations. Second, interviews were conducted with the jurors. The team then assessed each entry using rating scales they developed based on the theoretical framework and UIA design evaluation criteria.

Analysis of Jury Sessions Notes. The competition's jury consisted of five main jurors and two alternate jurors, each representing different UIA Regions. In May 2023, the jury convened on five occasions via Zoom teleconferences, with each meeting ranging from one to three hours.[6] The researchers accessed the notes from these jury sessions and the project feedback documented in the jury report. They then highlighted the key points the jurors discussed and emphasized.

Jurors' Interviews. The researchers interviewed three main jurors and one alternate juror via Zoom teleconferencing in the summer of 2023. The alternate juror who participated in the interview attended all evaluation sessions and voted in one instance due to the absence of a main juror. Each interview lasted around 30 minutes, addressing jurors' views on the competition with questions about their expectations, evaluation criteria, general observations, perceived patterns across entries, and recommendations for future Design for Health education. Researchers took notes throughout the interviews and revisited the Zoom recordings to ensure all critical remarks were captured. Summaries were subsequently generated for each question.

Evaluation of the Entries. The Competition Entry Evaluation Rating System was developed based on the theoretical framework and UIA design evaluation criteria. It consisted of 29 items across 11 categories: (1) design for health, (2) evidence-based design, (3) analysis, (4) design quality, (5) graphic/drawing quality, (6) functionality, (7) economics, (8) ecology, (9) sustainability, (10) context, and (11) innovations. A comprehensive breakdown of these evaluation items is provided in Table 1. Two items within the evidence-based design were assessed through actual counts. Entries that performed scientific literature reviews were documented under "identifying relevant scientific evidence," and entries that carried out surveys, interviews, or observations fell under "conducting design research to collect evidence." The remaining items employed a 5-point Likert scale, with 1 representing "strongly disagree," 2, "disagree," 3, "neutral," 4, "agree," and 5, "strongly agree." Except for the two evidence-based design items, which are conveyed as actual counts, all other items are presented using means, standard deviations, and the percentage of entries within each average rating range. Initially, two researchers independently evaluated three entries using an Excel spreadsheet. They then compared their ratings, discussing differences to reach a mutual conclusion about each item's intent. Following this, the researchers independently assessed the remaining entries, subsequently merging both sets of ratings to calculate means and standard deviations.

RESULTS

Summary of Jury Evaluation Session Notes

Figure 2. Top-5 prize winning projects

A significant portion of the jury session notes covered the selection methodology and voting outcomes. Several discussions highlighted crucial points raised by the jurors in their comments on specific entries. These discussions are summarized below.

Sustainability. The jurors expressed disappointment that only a handful of submissions directly addressed sustainability and climate change concerns, both deemed vital in the current era. Such entries, predominantly those with project sites in resource-limited developing nations, presented sustainable methods incorporating natural ventilation, rainwater harvesting, natural lighting, and solar power.

Design quality. The jurors conveyed satisfaction with the overall design quality of the entries. They particularly lauded entries that incorporated local cultural elements and traditions, embedding their designs within distinctive contexts.

Visual presentations. There was consensus among jurors that the majority of the entries showcased students' extraordinary graphic and drawing skills. However, a few submissions inundated their presentation boards with excessive information, which obfuscated their core design rationales and strategies. One juror remarked that the designers of such entries struggled with effective storytelling. Supplementary feedback targeted the drawings, with emphasis on floor plans. Though many looked visually attractive, they were often challenging to read, with wall shadows and different types of hatching and colors.

Considerations for the users. A notable portion of the entries recognized the different stages of recovery and proposed design solutions accordingly. Yet, certain entries overlooked the specific physical and mental needs of stroke survivors. Extended hallways and ramps, continuous ramps, and elevation changes outdoors and indoors made it difficult for stroke survivors to move around. Moreover, many stroke survivors face cognitive challenges that can hinder navigation and wayfinding.

Operational and management considerations. The jurors highlighted that most submissions overlooked the operational and managerial aspects of the designed facilities. This oversight often resulted in solutions that demanded extensive staffing and incurred high operational and maintenance costs.

Innovations. Although some entries employed cutting-edge technologies and new strategies such as artificial intelligence, mobile applications, and modular construction, the jurors expected to see greater application of innovative approaches pertinent to both caregiving and design aspects.

Evaluation Items	Mean	SD*	Average rating frequencies (%)				
			1.0–1.5	2.0–2.5	3.0	3.5–4.0	4.5–5.0
Design for health							
1. Proposal of design strategies to protect health (indoor air quality, healthy building materials, safety)	2.7	0.9	17.8	27.6	25.9	27.6	1.1
2. Proposal of design strategies to develop health (promote social interaction, physical activities, and physical and psychological well-being)	2.8	1.0	17.2	28.7	16.1	32.2	5.7
3. Proposal of design strategies to restore health (healthcare)	3.5	0.9	2.3	16.1	14.9	44.8	21.8
Evidence-based design							
4. Identification of relevant scientific evidence	17 entries conducted literature review						
5. Inclusion of design research to collect evidence	20 entries conducted survey; 2 conducted interview; 0 conducted users' observations						
6. Application of research evidence to the project	1.4	0.9	78.2	12.1	4.0	2.3	3.4
Analysis							
7. High quality precedent studies	1.2	0.6	90.2	5.7	1.7	1.7	0.6
8. High quality site analysis	2.6	1.1	22.4	33.3	10.9	27.6	5.7
9. High quality program analysis	2.5	1.1	30.5	26.4	19.0	17.2	6.9
Design quality							
10. High quality aesthetic and architectural expression	3.3	1.1	8.0	19.5	16.1	33.3	23.0
11. Good integration of the project in the site (quality of site planning)	2.7	1.1	19.0	33.3	19.5	21.8	6.3
12. Clarity in organization of program elements	3.3	0.8	2.3	19.0	27.6	42.0	9.2
13. High quality architectural concept	3.3	1.0	10.9	16.1	16.1	38.5	18.4
14. High quality of proposed spaces	3.0	0.9	9.2	23.6	25.9	32.2	9.2
15. Project coherence	3.1	1.0	8.0	25.9	20.7	35.6	9.8
Graphic/drawing quality							
16. Accurate drawings and graphics	3.6	0.9	2.9	12.1	13.2	52.3	19.5
17. Drawings and graphics effectively convey design intents, concepts, and ideas	3.1	1.0	11.5	20.7	17.2	42.0	8.6
18. Aesthetically appealing graphics and drawings	3.0	1.1	17.2	20.7	15.5	31.0	15.5
Functionality							
19. Well-arranged interior functions that fit the competence, needs and behaviors of the users, including stroke survivors, caregivers, and family members	3.1	0.9	4.0	25.3	25.3	37.4	8.0
20. Well-arranged outdoor functions that fit the competence, needs and behaviors of the users, including stroke survivors, caregivers, and family members	2.7	1.0	18.4	37.4	16.7	19.5	8.0
21. Implementation of human-centered design strategies	3.0	1.0	6.3	29.9	20.1	33.3	10.3
Economics							
22. Economic feasibility for construction and maintenance of the building(s)	2.8	1.0	8.0	46.0	16.1	22.4	7.5
23. Consideration for the life cycle costs of the building, including costs for construction, maintenance, and operation	1.6	0.6	69.0	25.3	4.6	1.1	0
Ecology							
24. Promoting the protection of the ecosystem and biodiversity	1.1	0.4	87.9	11.5	0.6	0	0
Sustainability							
25. Use of local materials	2.7	0.9	8.0	54.0	16.7	14.4	6.9
26. Promotion of environmental sustainability (energy, materials, water, etc.)	1.7	1.0	60.9	25.3	5.2	4.6	4.0
Context							
27. Consideration for the context, traditions, and culture	2.6	1.3	29.3	25.9	13.2	20.1	11.5
Innovations							
28. Consideration for using advanced technologies	1.2	0.7	89.7	4.0	4.0	0.6	1.7
29. Implementation of innovative approaches to support the care of stroke survivors	2.1	1.0	43.7	34.5	8.6	10.3	2.9

Table 1. Competition Entry Evaluation Rating System and Evaluation Results

Further deliberations by the jurors covered areas such as the care flow within facilities, the merits of centralized versus decentralized services, and the balance between institutional and homelike design elements. Notably, multiple subjects sparked disagreements among the jurors during the sessions. Such divergences were anticipated given the jurors' various educational, professional, and cultural backgrounds.

Summary of Jurors' Interviews

All interviewed jurors were registered architects with esteemed reputations in healthcare design globally. Two held doctorate degrees and had prior engagements in teaching and conducting research on healthcare design at universities. One had served as an adjunct professor in healthcare design, whereas another provided lectures and mentored university students in the same field. They voiced appreciation and enjoyment of discussions with peers who offered diverse perspectives during the evaluation process.

Expectations before reviewing the entries. Three jurors anticipated the entries would showcase exceptional design quality, graphics, and innovation. One juror began the review process without preconceived expectations.

Jurors' evaluation criteria. The criteria set by jurors encompassed design quality, a well-organized site plan, comprehensive considerations for users (inclusive of stroke survivors, medical personnel, and families), optimal circulation for care and services, adherence to design and drawing requirements, and sustainability.

General observations of the entries. The jurors concurred that the overall design and graphic quality of the entries aligned with their expectations for a top-tier international competition. Nonetheless, one juror noted that non-adherence to competition requirements, such as drawing scales, was unacceptable. This juror also voiced discontent over the lack of program analysis and development in a majority of submissions. The organizing committee provided a space program detailing core rehabilitation center elements, expecting participants to refine the program to tailor it to local conditions and project-specific needs (e.g., standalone facilities or integration with existing hospitals). Regrettably, most entries did not detail their program analysis or rationales.

Consistent patterns across all entries. The prevalent "international style" characterized a significant proportion of entries. However, one juror appreciated the few entries that seamlessly weaved local cultural nuances into their designs. Overall, teams appeared to have studied NOVELL Redesign's Stroke Survivor Space and viewed the webinar provided by the UIA Public Health Group and NOVELL, translating their learnings into their designs. Some showcased proficiency in healthcare design, implementing Biophilia and Supportive Design Theory. The jurors identified pronounced disparities in entries from diverse geographical locations regarding design processes, functional layouts, stylistic choices, methodologies, ideologies, and construction techniques.

Suggestions for Design for Health education. Jurors expressed satisfaction with the competition's outcomes and its role in elevating architectural students' global awareness of Design for Health. They advocated for regular hosting of such competitions, with exhibitions and publications spotlighting exemplary entries and winning designs. Such initiatives could inspire more students and academic institutions to design healthy places. Regarding future competition themes, one juror proposed focusing on pro bono health projects for underserved communities in developing regions. Developing a Design for Health program is challenging and requires time, human resources, and financial support, which may not be feasible at many universities. The jurors suggested GUPHA take the lead in promoting education in this field in a systematic way, via different venues such as webinars, podcasts, and online or in-person meetings and conferences. One juror was concerned that students at lower levels, such as those in the second-and third-year undergraduate studies, may not feel confident enough to compete with graduate students, which may discourage them from participating. This juror urged the UIA Public Health Group to devise a strategy to make the competition more inclusive to students at all levels who are interested in health.

Analysis of the Entries

Table 1 details 29 evaluation items across 11 categories, including the means and standard deviations of corresponding ratings. The table also presents the percentages of entries that fit into various rating brackets. Because two researchers used 5-point Likert scales to assess the entries, there were nine possible "average ratings": 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, and 5.0. We categorized ratings of 1.0–1.5 as "strongly disagree" with the statements displayed in the table's first column. Similarly, ratings 2.0–2.5 signified "disagree," 3.0, "neutral," 3.5–4.0, "agree," and 4.5–5.0, "strongly agree." A total of 175 entries were assessed in this analysis.

Entries received relatively higher mean ratings in the design quality, graphic/drawing quality, and functionality categories. All mean scores but two were 3.0 or above. Both site planning quality and outdoor environment design had a mean of 2.7, with standard deviations (SD) of 1.1 and 1.0, respectively.

In the design for health domain, restoring health scored a high mean of 3.5 (SD=0.9), whereas protecting health (mean=2.7, SD=0.9) and developing health (mean=2.8, SD=1.0) had relatively lower ratings.

Regarding evidence-based design, a mere 17 entries undertook literature reviews for scientific evidence, 20 executed surveys, only two conducted interviews, and none implemented behavioral observations. Few entries described how designers incorporated scientific evidence into their concepts (mean=1.4, SD=0.9).

For analysis, the majority of entries lacked comprehensive precedent studies (mean=1.4, SD=0.6). Scores for site analysis (mean=2.6, SD=1.1) and program analysis (mean=2.5, SD=1.1) indicated room for improvement.

From an economic standpoint, more than half the submissions addressed the economic feasibility of construction and maintenance (mean=2.8, SD=1.0). Only a handful contemplated the facility's life cycle costs (mean=1.6, SD=0.6).

Considering ecology and sustainability, certain entries highlighted the utilization of local materials (mean=2.7, SD=0.9). Conversely, the majority did not suggest measures for protecting ecosystems and biodiversity (mean=1.1, SD=0.4) or addressing environmental sustainability issues (mean=1.7, SD=1.0).

In terms of context, some entries considered local cultural, historical, lifestyle, and urban elements, embedding these within their designs (mean=2.6, SD=1.3).

For innovations, the researchers concurred that a subset of entries showcased design tactics supportive of stroke survivors' care (mean=2.1, SD=1.0). However, the integration of cutting-edge technologies, such as artificial intelligence, virtual and augmented realities, and mobile apps, was scarcely evident.

DISCUSSION

This study examined notes from competition jury sessions, conducted interviews with jurors, and assessed 175 competition entries. Consistency was found across the results from all three analyses. The findings could provide insights into the present state of Design for Health education worldwide. In this discussion, we distinguish between strengths, areas needing improvement, and weaknesses. Here, areas needing improvement sit between strengths and weaknesses, with weaknesses interpreted as areas requiring significant improvement.

Strengths

Design quality. The entries indicated that students had received high-quality design training. They demonstrated expertise in developing robust architectural concepts, designing aesthetically appealing buildings and spaces, and managing complex design programs.

Graphic and drawing quality. Students displayed excellent graphic skills, manifesting the capacity to produce precise drawings and graphics that effectively communicate design notions.

Interior function arrangement and human-centered design. Entries showcased adeptness in interior function organization and a good understanding and implementation of human-centered design strategies.

Design for health—restoring health. A majority of students displayed competence in developing therapeutic environments for stroke survivors and efficient facilities for healthcare delivery.

Areas needing improvement

Design for health—developing and protecting health. Students must recognize the importance of protecting users from harmful materials, environmental threats, and potential dangers. Designs should facilitate physical activity and social interactions that promote physical and psychological well-being.

Program analysis and development. Despite the competition providing an initial program, thorough analysis and subsequent development are essential to cater to user and client needs and address design challenges.

Site planning and outdoor design. Architectural students often overlook site planning and outdoor environment design. Yet, outdoor features such as nature, daylighting, and fresh air significantly enhance health.

Site and context analysis. Comprehensive site and context analysis can guide designers regarding their target clients, facility location, and culturally appropriate design strategies.

Visual presentations. There is a need for students to adeptly "tell a story" through methodically organized visual content.

Weaknesses

Evidence-based design. There was a noticeable gap in students' evidence-based design training. In Design for Health, it is crucial to teach students how to conduct literature reviews for scientific evidence and perform design research when evidence is not available.

Sustainability. Although sustainability was not part of the competition's official evaluation criteria, it is imperative for every project. Many teams, however, overlooked it.

Facility operation, management, and maintenance. Entries frequently revealed a lack of understanding regarding facility operation, management, and associated costs.

Innovative technologies. Despite the increasing role of advanced technologies in health promotion and healthcare delivery, most students did not incorporate this trend into their designs. Health designs ought to be forward-looking and adaptable to emerging technologies.

Our research team expects this list of strengths, weaknesses, and areas for improvement can offer evidence-based guidance for universities to develop Design for Health programs, courses, and design studios. Moreover, it can inform decision-making within the UIA Public Health Group and GUPHA regarding strategies for both Design for Health education at the global level and future international student competitions.

Study Limitations

This research solely analyzed entries from a single international student competition and conducted interviews with only four jurors. Various factors could, therefore, bias the findings. For instance, the students who competed might possess superior design and graphic skills to those of nonparticipants. Furthermore, both researchers used the Competition Entry Evaluation Rating System. However, given the subjective nature of these ratings, different evaluators might have alternate conclusions.

CONCLUSION

This UIA International student competition offered insights into the current state of design for health education. While students displayed strong design and graphic skills, their works revealed gaps in design research, programming, and understanding of wider issues such as sustainability, climate change, and facility operation and management. COVID-19 has amplified global awareness of the vital link between health and the environment. Therefore, there is an urgent demand for designers equipped not only with design capabilities but also a holistic understanding of these interconnected challenges. This study underscores the pressing need to evolve and strengthen health design education, preparing future designers to address the multifaceted requirements of the field and create a healthier world.

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