International Journal of Advanced Engineering Research and Science (IJAERS)
Peer-Reviewed Journal
ISSN: 2349-6495(P) | 2456-1908(O)
Vol-13, Issue-11; Jan, 2026
Journal Home Page Available: https://ijaers.com/
Article DOI: https://dx.doi.org/10.22161/ijaers.131.2

Care Hub Educational App: A Review of User Experience Gaps and Potential Innovations for Adolescent Learning

Cao Diem Phan

Nguyen Sieu High School, Hanoi, Vietnam.

Received: 29 Nov 2025,

Received in revised form: 30 Dec 2025,

Accepted: 03 Jan 2026,

Available online: 08 Jan 2026

Keywords*— *Care Hub, Mobile Application, User Experience, Interactive Learning, Personalization, Interactive Learning.

***Abstract*—** *Care Hub is an educational mobile application created to support interactive learning through structured modules, playful activities, and brief daily insights designed to build foundational awareness in self-care and general wellbeing. The present research focuses on reviewing user experience gaps while also considering how previously envisioned development directions, such as broader accessibility, deeper personalization, and community-linked engagement, can be incorporated into a unified enhancement pathway. Core limitations identified within the current design relate to language accessibility, the absence of instructor-oriented support features, and limited avenues for collaborative or peer-driven interaction. These aspects are integrated with forward-looking design intentions to understand how functional improvements can reinforce the app's educational purpose. The findings indicate that Care Hub already contributes to sustained learner engagement and supports gradual cognitive development, yet several interaction points require strengthening to meet the diverse needs of minority adolescent users. Emerging directions include the addition of localized language interfaces, an educator-accessible progress environment, structured peer challenges, adaptive feedback mechanisms, and analytic tools capable of offering more detailed learning insights. The combined consideration of existing gaps and prospective features positions Care Hub for stronger continuity between its present capabilities and its long-term role in adolescent education.*

I. INTRODUCTION

Mobile technology has changed access to health-related and skill-based among adolescents. Smartphones and tablets facilitate the acquisition of methods, exercise routines, health ideas, and performance plans outside the classrooms. Mobile apps permit learning flexibly and at a pace that the individual finds comfortable, with the addition of videos, interactive drills, performance monitoring, and a sense of constant exercise and moods of personal fitness trends [1]. Digital learning is greatly dependent on user experience. Adolescents react to visual design, interactivity and real time feedback. A user-friendly interface minimizes cognitive load and enhances motivation. Development of personal dashboards, progress displays and interactive activities will increase attention, encourage interest in sports activities and retain learned concepts [2]. Health-care education has a direct influence on physical health, mental strength and self-care awareness in adolescents. The habits that are developed in early life have a profound impact on health practices that will last throughout a lifetime. Covering the areas of symptom identification, drug safety, regular check-ups, hydration, nutrition, and stress management assists young students in developing long-term health literacy. Digital platforms with these learning functions will support informed decision-making and improve preventive behavior and maintain long-term engagement with personal health management [3].

The material is often not user-scaffolded and relatively generic rather than adaptable to the needs of development, health situations, and various learning speeds of the user. The feedback systems fail to provide much direction and introduce less clarity and confidence in executing self-care tasks. It is also constrained in terms of usability and inaccessibility. Instead of promoting education, adaptive pathways, inclusive design, and learner-cantered instruction features are needed to improve digital health-education outcomes because social media apps, promoted at the expense of formal learning, benefit more forms of entertainment than education [4]. More intelligent learning is enabled by the development of artificial intelligence and interactive technologies. The tracking of motions, gamification, adaptive training plans and real time feedback enhance motivation and performance. Individuated systems cover the fitness and progress trend levels, which leads to quality involvement and greater skill development of sport learning [5]. The reviews are designed to assess the gaps in user experience of the Care Hub app and align them with the desired design changes to make the app closer to being effective with a broad group of adolescent learners in self-care and wellbeing education.

II. USER EXPERIENCE ASSESSMENT

The user experience evaluation is meant to understand the interface, features as well as learning paths to follow in Care Hub. It will measure usability, accessibility, engagement, and feedback functions that will show how well the app assists in the learning process, motivation, and self-care awareness, and highlight areas of design strength and improvement.

2.1. Care Hub Mobile App Interface

Care Hub provides a number of applications, such as CAREUP, an integrated care platform that supports older persons' healthy aging by continuously monitoring and forecasting Intrinsic Capacity (IC), a comprehensive metric developed by the World Health Organization (WHO). The platform uses information from wearable sensors, medical devices, questionnaires, and cognitive games to assess individuals in five IC domains: locomotion, psychology, cognition, vitality, and sensory capability. It uses machine learning models to forecast how users' IC may evolve over the following two to four years, enabling early treatments to reduce decline, and it offers individualized care plans and recommendations based on the data gathered. Figure 1 display the CAREUP platform's user interfaces for data entry and health evaluations, which are made with interactive features and easy-to-use navigation to make data collecting easier for senior citizens[6].

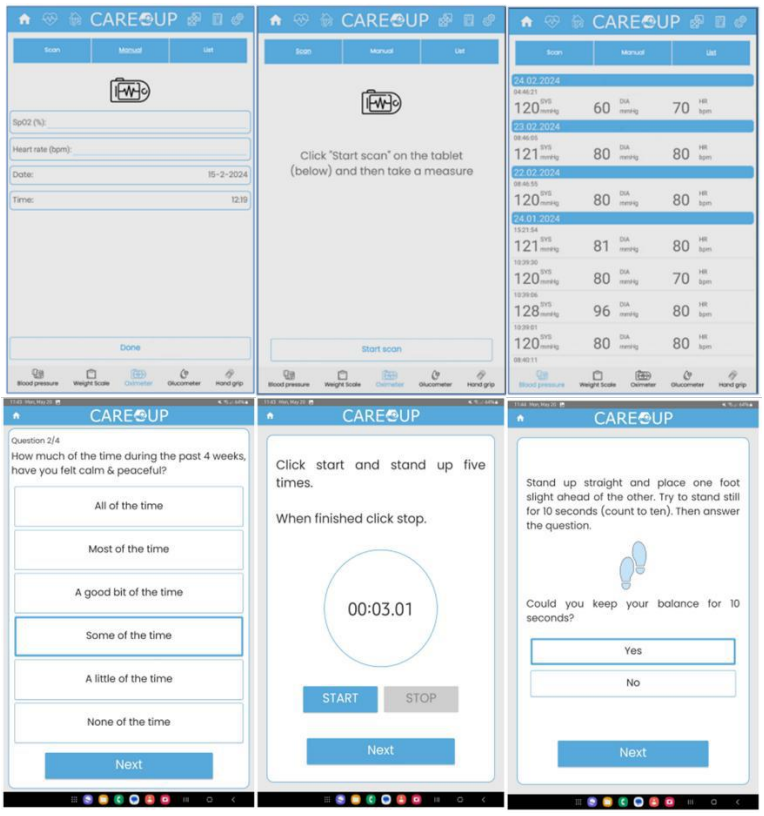

Fig. 1: Interface of the care plan mobile application, showcasing data acquisition methods including manual entry, automatic bluetooth download, and the saved health measurements list [6].

The platform was tested in a variety of settings and co-designed with older individuals and caregivers using a user-centered methodology. It has an easy-to-use tablet interface, a safe cloud-based architecture, and a variety of linked health gadgets. CAREUP sets itself apart by fusing predictive analytics with real-time IC assessment, providing an affordable and scalable way to encourage independent living and lessen the burden of caring for older individuals.

2.2. Usability and Accessibility Evaluation

The sports-learning platforms used by adolescents presented several usability challenges. Navigation structures had often appeared complex for younger users, especially for those with limited digital literacy. Significant features were stored in non-intuitive places, which added cognitive load and diminished the efficiency. Accessibility to language had also continued to be low, with most platforms having mostly been dependent on the dominant languages, and hence content was not easily accessible to minorities or the regional language speakers. There was also inconsistent compatibility with devices, and platforms were not always compatible with cheap smartphone hardware or unreliable internet access. These aspects had limited the universal accessibility and diminished the general inclusivity of the digital physical-education resources. The constraints of accessibility may also be traced in Care Hub, which justifies the localized interface and the simplified patterns of navigation.

2.3. Social and Collaborative Features

Physical-education sites online have not been much supportive of meaningful social interaction. The collaboration tools like team challenges, discussion areas, or shared goals had been missing or inadequately incorporated by peers. The interaction between the instructor and the student was also at a minimum level, and the possibilities of guided feedback or mentoring were limited. In the absence of community features, the feeling of belonging, collaboration, and mutual development, the key elements of sports education, were undermined [7]. This seclusion had diminished peer-mediated learning and team development of skills.

2.4. Engagement and Motivation Review

There were interactive features like drills, tracking of performances and progress indicators that had been integrated into certain applications, but sustained engagement was not always realized. There had been a lack of variety in the types of activities performed repeatedly and little variation in the content. Despite the introduction of gamified elements in specific situations, reward and feedback systems were not as dynamic as they needed to be to sustain long-term motivation. A large population of the users had moved to the passive usage patterns by using less of the training modules. Consequently, the issue of motivational decline was now evident in the long-term app-based sports learning applications. These problems are analogous to the reduction of engagement during the usage of Care Hub, as can be seen in the current trends.

III. GAP ANALYSIS

Gap analysis is used to identify discrepancies between the real functionality of Care Hub and the requirements of the adolescent users. It determines access barriers, engagement barriers, personalization barriers, and collaborations, and provides a systemic perspective on what the platform is not doing and establishes the basis on what areas it will concentrate on improvement and future development.

3.1. Core Usability and Accessibility Gaps

There was a significant issue that had been identified to be language inclusiveness, and limited platforms existed, providing localized or multilingual support. Adolescent-centred design principles had not been the focus of user interface layouts because of confusion and lower adoption. Learners with various abilities had also received little in terms of accessibility [8]. The restrictions have not allowed wide and fair access to the digital sports learning platforms. As Care Hub proves, it shares the types of gaps, which makes the need to design UX structures oriented to adolescents and culturally adaptable.

3.2. Engagement and Motivation Deficiencies

Although physical-education applications had been used by users initially, they had not maintained a high level of engagement in the long-term. This had led activities to either be too repetitive or hard because of the absence of levels of adaptive difficulty and individualized learning trajectories [9]. In addition, feedback had mostly been general as opposed to being specific to performance, thus creating lowered levels of emotional and motivational attachment towards the learning process.

3.3. Social and Community Gaps

The absence of strong collaborative frameworks had represented a significant limitation. Most platforms had focused on individual performance without encouraging peer support or group-based achievements. The lack of structured interaction with instructors had further limited guidance and accountability. Without community-based motivation, learners had experienced decreased participation and reduced consistency in practice routines. The lack of collaborative features might be directly addressed by incorporating them into Care Hub and enhancing retention in the long term.

IV. POTENTIAL INNOVATIONS AND DESIGN DIRECTIONS

Possible innovations and design trends describe the improvements that can empower the educational contribution of Care Hub. This section presents a description of gamification, community features, and analytics with future-oriented strategies to make the learning experience based on wellbeing education of adolescents inclusive, engaging, and data-driven.

4.1. Gamification and Real-Time Feedback

The integration of advanced gamification has offered an effective solution to motivational decline. Real-time performance feedback, visual progress indicators, point-based rewards, and achievement badges could have strengthened engagement. Interactive challenges and milestone achievements have been capable of transforming routine practice into an enjoyable, goal-oriented activity. This would have supported regular attendance and self-regulated discipline.

4.2. Community Integration and Analytics Tools

The community-based aspects in the application are peer challenges, virtual teams and instructor dashboards to facilitate social interaction in sports education. Structured committees, or educator-managed groups, serve as a source of standards of content and interaction, and the response is outlined by analytics tools, enabling a response to be customized and data-driven [10]. These qualities promote collaboration, good competition and mutual growth, and this builds an inclusive, heavily attended learning environment that makes the engagement and the overall learning performance of the adolescents more enhanced.

V. DISCUSSION

The Care Hub application makes it easier to learn among adolescents but reveals serious flaws in usability, engagement, and personalization. Findings show that structured modules and interactive tasks are good motivators to learn, but low adaptability and motivation variables reduce subsequent use. These gaps should be addressed with user-friendly design, better analysis, and novel interaction schemes, which can significantly support the effectiveness of the learning process and permanent platform use.

VI. CONCLUSION

The Care Hub educational application can positively assist with learning about the issue of adolescent wellbeing by offering well-organized and interactive learning modules; however, it requires a lot of modifications to meet the needs of users. The gap analysis and user experience analysis indicate that there can be no personal experiences, engagement, usability as well as adaptive learning flow. The evidence-based approach of designing the products and the innovative digital capabilities will help enhance the continuity of the learning and the level of user satisfaction to a higher degree. The direction of the proposed design suggests the direction towards a more participative, interactive, and data-driven platform. Altogether, the review indicates that the user-based enhancements are crucial to enhance the effectiveness and sustainability of Care Hub as an educational resource.

REFERENCES

[1] Rezaee, R., Ghaffari, M., Rabiei, R., Kavousi, A., & Rakhshanderou, S. (2024). Design and usability evaluation of a mobile application for self-care among Iranian adolescents. *BMC public health*, *24*(1), 892. https://doi.org/10.1186/s12889-024-18341-z

[2] Tong, H. L., Quiroz, J. C., Kocaballi, A. B., Ijaz, K., Coiera, E., Chow, C. K., & Laranjo, L. (2022). A personalized mobile app for physical activity: An experimental mixed-methods study. *Digital Health*, *8*, 20552076221115017. https://doi.org/10.1177/20552076221115017

[3] Pérez-Jorge, D., Martínez-Murciano, M. C., Contreras-Madrid, A. I., & Alonso-Rodríguez, I. (2024, January). The relationship between gamified physical exercise and mental health in adolescence: An example of open innovation in gamified learning. In *Healthcare* (Vol. 12, No. 2, p. 124). MDPI. https://doi.org/10.3390/healthcare12020124

[4] Gómez-Cuesta, N., Mateo-Orcajada, A., Meroño, L., Abenza-Cano, L., & Vaquero-Cristóbal, R. (2025). Adolescents' Assessment of Several Step Tracker Mobile Applications Based on Their Previous Level of Physical Activity. *Children*, *12*(5), 554. https://doi.org/10.3390/children12050554

[5] Hu, Z., Liu, Z., & Su, Y. (2024). AI-driven smart transformation in physical education: Current trends and future research directions. *Applied Sciences*, *14*(22), 10616. https://doi.org/10.3390/app142210616

[6] Kolakowski, M., Lupica, A., Ben Bader, S., Djaja-Josko, V., Kolakowski, J., Cichocki, J., ... & Stara, V. (2025). CAREUP: an integrated care platform with intrinsic capacity monitoring and prediction capabilities. *Sensors*, *25*(3), 916. https://doi.org/10.3390/s25030916

[7] Shen, Y., Wang, S., Shen, Y., Tan, S., Dong, Y., Qin, W., & Zhuang, Y. (2024, June). Evaluating the Usability of MHealth Apps: An evaluation model based on task analysis methods and eye movement data. In *Healthcare* (Vol. 12, No. 13, p. 1310). MDPI. https://doi.org/10.3390/healthcare12131310

[8] Bonetti, R., Rod, B., Sabourin, C., & Hauw, D. (2025). Quality of Mobile Apps for Psychological Skills Training in Sport: a MARS-based Study. *Computers in Human Behavior Reports*, 100635. https://doi.org/10.1016/j.chbr.2025.100635

[9] Wang, J., Qin, Y., Wu, Q., Zeng, D., Gao, X., Wang, Q., ... & Li, H. (2025). An adaptive AI-based virtual reality sports system for adolescents with excess body weight: a randomized controlled trial. *Nature Medicine*, 1-14. https://doi.org/10.1038/s41591-025-03724-5

[10] O'Flynn, E., Tolani, M. A., Joos, E., O'Sullivan, J., Sharma, D., Wren, S. M., ... & Ibbotson, G. (2025). Advancing Open-Access Education for the Surgical Team Worldwide: The Development and Rollout of the United Nations Global Surgery Learning Hub (SURGhub). *World Journal of Surgery, 2025; 49:*1700–1707. https://doi.org/10.1002/wjs.12661