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Advancing Digital Health Equity: An Interdisciplinary Educational Approach to Digital Health Access and Inclusivity

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Abstract. The innovatively structured BCIT Digital Health program is designed to build digital-care capacity within the healthcare workforce to improve outcomes across healthcare communities and optimize clinical transformation. An equity-oriented focus and an active commitment to reducing health disparities puts the patient voice at the centre of the program. To improve accessibility in digital health, the program focuses on inclusivity strategies such as capacity building, Indigenous perspectives, equity-oriented care and providing training to build an effective digital healthcare system. By combining clinical expertise with technological competencies and anchoring it all in a commitment to equity, this program will help reshape the future of innovative and equitable healthcare delivery.

Keywords. Digital Health Equity, Digital Health Education, Inclusivity, Accessibility

1. Introduction

The evolution of healthcare and technology requires care delivery that is both equitable and accessible. In response, the British Columbia Institute of Technology (BCIT) School of Health Sciences is pioneering an interdisciplinary Digital Health Advanced Certificate (DHAC) to augment the capabilities of healthcare professionals, clinicians and healthcare employees in the domain of digital health and health informatics to ensure that healthcare delivery is equitable and accessible to all. The DHAC is delivered online, with a flexible, part-time structure ranging from 1 to 5 years to meet the needs of working professionals. The hallmark of the curriculum is its Capstone Project, a symbiotic integration of industry and academia, where students collaborate with industry partners on real-world digital health projects. This project allows students to engage in practical digital health initiatives, bridging the gap between theoretical knowledge and real-world application. This program reflects a growing recognition of the need for equitable accessible approaches in healthcare, particularly in the realm of digital health.

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2.   Case Study Description and Relevance

While advancements in technology and artificial intelligence have been integrated into the health systems of developed countries, a considerable portion of these countries as well as significant parts of the global population remain excluded due to affordability, lack of steady internet supply, and absence of devices to utilize these technologies. Cultural factors and health literacy also contribute significantly to this divide.

Digital health technologies raise ethical concerns, particularly regarding privacy, autonomy, and social discrimination. The ability to identify, monitor, and trace individuals, while beneficial in managing public health crises like the COVID-19 pandemic, can lead to invasions of privacy and social discrimination. This dual aspect of digital health technology necessitates a careful balance between public safety and individual rights.

To improve accessibility in digital health, the DHAC focuses on inclusivity strategies such as capacity building, Indigenous perspectives, equity-oriented care and providing training to build an effective digital healthcare system. This involves not only technological advancements but also educational initiatives to ensure that all segments of the population, regardless of age, income, or education level, can benefit from digital health resources.

Designing user-friendly digital health technologies that cater to diverse populations, including the elderly and those with limited digital skills, is essential. This requires a deep understanding of the specific needs and challenges faced by different user groups. By focusing on universal design principles and easy-to-navigate interfaces, digital health technologies can become more accessible and beneficial to a broader range of users.

Data visualization is critical for the effective communication of complex data. It provides visual representations that are often more intuitive and engaging than textual or numerical data. Inaccessible visualizations can lead to the exclusion of individuals with disabilities, resulting in unequal access to information. This is particularly critical in healthcare and academic settings where data-informed decisions can have profound implications on patient care, policy formulation, and scientific advancements. The DHAC provides curricular content and application opportunities for students related to user-centered design, universal design principles, and visualization.

3.   Project Design

The quintessential aim of the DHAC is to empower the healthcare workforce with digital-care proficiency. This empowerment is projected to usher in transformative improvements in patient outcomes and catalyze clinical transformation. The program focuses on equipping its graduates with competencies that span from the translation of clinical standards across systems to leveraging data for enhanced patient outcomes and becoming change leaders in digital health landscapes.

Some salient goals of the program related to equity include producing students who will:

- Develop and implement digital health solutions that are universally accessible, ensuring that no individual is disadvantaged due to lack of access to technology or digital literacy.

- Cultivate an understanding of the diverse needs of various populations, including underrepresented and marginalized groups, and integrate this understanding into the design and deployment of digital health technologies.
- Promote digital health literacy among patients and healthcare providers, ensuring that both groups are equipped to utilize digital health tools effectively.
- Advocate for policies and practices that support equitable access to digital health resources, thereby reducing health disparities and improving overall health outcomes.
- Engage in continuous dialogue with stakeholders from diverse backgrounds to ensure that digital health initiatives are responsive to the evolving needs of a diverse population.
- Implement strategies to evaluate the impact of digital health interventions on different demographic groups, ensuring that these interventions do not inadvertently exacerbate existing health inequities.
- Champion patient-centric information systems that are reflective of their unique needs and empower patients in their healthcare decisions.

4. Execution and Analysis

Recognizing the disparities that persist in healthcare, the program is curated with an equity lens, ensuring that digital health innovations are inclusive and cater to marginalized and vulnerable populations. By centering the patient voice, the DHAC ensures that technology, while disruptive, remains equitable. This is further underscored by overarching themes of project management and change leadership, with an emphasis on Appreciative Inquiry (AI)[1] equipping students to spearhead large-scale digital health transformations. This approach equips students with the skills necessary to lead significant digital health transformations.

Barriers and strategies for improving equitable access to digital health services are categorized according to the Framework for Digital Health Equity ('FDHE') [2] and the four levels of influence: individual, interpersonal, community and societal. The Framework highlights that Determinants of Digital Health are not meant to be exhaustive and do not exist in isolation, functioning in ways that are cumulative or interactive. The FDHE positions the digital environment as one of six domains that impacts health outcomes, in addition to biological mechanisms, behavioral factors, physical/built environment, sociocultural environment, and the healthcare system.

5. Impact and lessons learned

The DHAC program at BCIT is at the forefront of shaping the future of healthcare delivery. Its emphasis on combining clinical expertise with technological skills, grounded in a commitment to equity, positions it as a critical player in the evolving landscape of digital health. The program has demonstrated that an interdisciplinary approach is not only beneficial but essential in training healthcare professionals for the future. Key lessons learned include the importance of flexibility in educational delivery, the value of industry-academic partnerships, and the need for continuous

adaptation to emerging technologies and evolving healthcare needs. As digital health continues to advance, programs like the DHAC will play a vital role in ensuring that healthcare delivery remains innovative, equitable, and responsive to the needs of diverse populations.

As digital health continues its trajectory of rapid evolution, programs like the DHAC are pivotal. By combining clinical expertise with technological competencies and anchoring it all in a commitment to equity, BCIT's Digital Health program promises not just to train professionals but to reshape the future of innovative and equitable healthcare delivery.

References

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