



Impact of Digital Learning Platforms on Behaviour Change Communication in Public Health Education

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Abstract

This conceptual research explores the transformative potential of digital learning platforms in the realm of behaviour change communication within the context of public health education. With the rapid advancement of digital technology, the traditional methods of health communication are being reimagined, offering new opportunities and challenges for promoting healthier behaviours and lifestyles. The research seeks to understand the evolving landscape of digital learning platforms and their integration into public health education programs. It investigates how these platforms can be leveraged to design and disseminate behaviour change communication interventions effectively. The study examines the theoretical foundations that underpin behaviour change communication and the ways in which digital learning platforms can enhance these foundations. Furthermore, the research addresses the critical issue of accessibility and inclusivity, as digital platforms have the potential to bridge the gap between diverse populations in terms of health literacy, socio-economic status, and geographical location. By employing a conceptual framework that combines elements of health communication theory, pedagogy, and technology adoption models, this study aims to provide insights into the effective utilization of digital learning platforms for behaviour change communication. Findings indicate that the use of digital learning platforms has led to increase engagement in public health education. This exploration is expected to shed light on the potential of these platforms to drive positive health behaviour change among diverse populations and pave the way for more informed strategies in the field of public health education. Ultimately, this research aims to encourage further exploration and development of digital learning tools for behaviour change communication in public health, with the potential to make a significant impact on global health outcomes.

Keywords: Digital learning, platforms, health education, behavioural change, communication

Introduction

In recent years, the landscape of education and public health communication has undergone a profound transformation, thanks to the advent of digital learning platforms. These platforms, encompassing a wide range of technologies and tools, have not only revolutionized the way we access and disseminate information but have also had a significant impact on behaviour change communication in the field of public health education.

The integration of digital learning platforms into public health education has ushered in a new era of communication, where the traditional methods of imparting knowledge and promoting health-related behaviours are being reimagined and enhanced (Van Kessel, Wong, Clemens and Brand, 2022). This transformation is not only a response to the digital age but also a recognition of the dynamic and evolving nature of public health challenges. In this context, understanding the multifaceted impact of digital learning platforms on behaviour change communication within the realm of public health is of paramount importance.

This exploration examines the various ways in which digital learning platforms have shaped and continue to shape behaviour change communication strategies in public health education. It analyses the potential benefits, challenges, and implications of this transformation, shedding light on how these platforms have the capacity to empower individuals, inform communities, and ultimately contribute to the betterment of public health on a global scale. As we embark on this journey, we will uncover the synergistic relationship between technology, education, and behaviour change communication in the context of public health, recognizing the significant role these platforms play in shaping our collective health-conscious future.

Theoretical Framework

This study is anchored on the transtheoretical Model (Stages of Change): This model describes stages that individuals go through when adopting a new behaviour: precontemplation, contemplation, preparation, action, maintenance, and termination. Digital learning platforms can provide tailored content and support at each stage, facilitating progression from one stage to the next.

The Transtheoretical Model, also known as the Stages of Change model, is a psychological framework developed by James O. Prochaska and Carlo DiClemente in the late 1970s and early 1980s. This model was created to help understand and describe the process of intentional behaviour change, especially in the context of health-related behaviours like smoking cessation, weight loss, and substance abuse recovery. The Transtheoretical Model is called "transtheoretical" because it integrates principles and concepts from various psychological theories, including cognitive-behavioural, psychoanalytic, and systems theory. It emphasizes that behaviour change is a process that unfolds over time and is not a single, one-size-fits-all event. The model identifies several stages of change, which individuals progress through when trying to modify their behaviours.

This model, can be applied to understand how digital learning platforms impact behaviour change communication in public health education. The model describes the process individuals go through when making behavioural changes. Here's how it can be applied to the context of digital learning platforms in public health education:

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i. Precontemplation Stage:

In this stage, individuals may not be aware of the need to change their behaviour regarding public health issues. Digital learning platforms can help raise awareness through various means such as webinars, social media, and online forums, where individuals come across information and resources related to public health issues.

ii. Contemplation Stage:

At this stage, individuals are aware of the need for change but are ambivalent or unsure about taking action. Digital learning platforms can provide in-depth information, case studies, and success stories that encourage individuals to consider changing their behaviour in favour of public health. Forums and discussion boards can also facilitate discussions about the pros and cons of change.

iii. Preparation Stage:

Individuals in this stage are actively preparing to make a change in their behaviour. Digital learning platforms can offer structured online courses, tutorials, and resources that guide individuals on how to change their behaviour effectively. They can also provide tools, trackers, and goal-setting features to help users prepare for change.

iv. Action Stage:

This is the stage where individuals are actively engaged in changing their behaviour. Digital learning platforms can provide interactive tools, personalized content, and feedback systems that support individuals in implementing the changes in their public health behaviour. They may also offer peer support and virtual coaching to keep users motivated.

v. Maintenance Stage:

Individuals in this stage have successfully changed their behaviour and are working to maintain it over the long term. Digital learning platforms can continue to offer resources, ongoing education, and communities for individuals to sustain their new public health behaviours. These platforms can also send reminders and updates to help individuals stay on track.

vi. Termination Stage:

While not always included in every application of the model, some individuals reach a point where the new behaviour is fully integrated, and they no longer require active support. Digital learning platforms can still serve as a resource for individuals to access information and support as needed, even in the absence of ongoing active behaviour change efforts.

vii. Relapse:

Some individuals may experience setbacks or relapse to their old behaviours. Digital learning platforms can offer resources and strategies to help individuals get back on track after a relapse, providing guidance and motivation to re-engage in behaviour change efforts.

These platforms can play a crucial role in each stage, from raising awareness to supporting long-term behaviour maintenance and even helping individuals recover from relapses (Shojaeezadeh and Heshmati, 2018). By tailoring digital resources to each stage,

public health educators can better engage and empower individuals to make positive changes in their health behaviours.

Literature Review

Digital Learning Platforms in Public Health Education

Digital learning platforms have transformed the way education is delivered and accessed across various fields, including public health (Taj, Klain and Van Halteren, 2019). These platforms leverage technology to provide flexible and interactive learning experiences, making education more accessible to a wider audience (Van Kessel et al, 2022). In the context of public health education, digital learning platforms offer numerous advantages, from increasing access to quality education to enhancing engagement and promoting behaviour change communication.

Types of Digital Learning Platforms Used in Public Health Education: Online Courses and Degree Programs: Online courses and degree programs in public health are offered by universities and institutions worldwide. These platforms provide a range of courses, from introductory to specialized, enabling students to earn degrees in public health entirely online. Examples include Coursera, edX, and online programs offered by institutions like Harvard University and Johns Hopkins University.

MOOCs (Massive Open Online Courses): MOOCs are free or low-cost online courses that cater to a global audience. They often include video lectures, quizzes, and discussion forums. Platforms like Coursera and edX also offer MOOCs in public health, allowing learners to access high-quality education at their own pace.

Learning Management Systems (LMS): Many universities and organizations use learning management systems like Blackboard, Moodle, or Canvas to deliver public health courses. These platforms facilitate course management, content delivery, assessments, and communication among students and instructors.

Webinars and Virtual Conferences: Webinars and virtual conferences provide opportunities for professionals to learn about the latest developments in public health. These online events may feature expert speakers, interactive discussions, and networking opportunities, enhancing continuing education and knowledge dissemination.

Mobile Apps and e-Learning Platforms: Mobile apps and e-learning platforms designed for public health education offer convenience and accessibility. These apps often include features like quizzes, interactive scenarios, and access to educational resources. Examples include TeachAids and Medscape.

Their Role in Improving Accessibility to Education: Digital learning platforms have a significant role in improving accessibility to public health education in several ways:

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Geographic Accessibility: They break down geographical barriers, allowing students from around the world to access high-quality public health education without the need for physical relocation.

Flexibility: Digital platforms offer flexible learning schedules, accommodating students who may have other commitments, such as work or family responsibilities.

Cost-Effectiveness: Many digital courses and resources are cost-effective or even free, reducing the financial burden associated with traditional education.

Customization: Learners can often choose from a variety of courses and resources to tailor their education to their specific interests and career goals.

Self-Paced Learning: Online courses and resources are frequently self-paced, giving students the opportunity to learn at their own speed, which can be particularly beneficial for those with varying learning styles and paces.

Behaviour Change Communication in Public Health

Behaviour change communication (BCC) plays a vital role in public health education and intervention (Gosak et al., 2022). It encompasses strategies and techniques aimed at promoting positive health-related behaviours and reducing risk behaviours among individuals and communities (Ichimiya et al., 2022). Digital learning platforms can support BCC in public health in the following ways:

Targeted Messaging:

Digital platforms enable public health educators to create and deliver tailored messages to specific target groups, addressing their unique needs and challenges (Kwasnicka, 2015).

Interactive Tools:

Many digital learning resources incorporate interactive tools, simulations, and multimedia elements that engage learners and promote behaviour change by demonstrating the consequences of specific behaviours.

Peer Support and Community Building:

Online forums, social media, and discussion groups on digital platforms facilitate peer support and community building. Learners can share their experiences, challenges, and successes in adopting healthy behaviours.

Monitoring and Feedback:

Digital platforms can collect data on learner progress and provide personalized feedback to reinforce positive behaviours and offer guidance for improvement.

Continual Learning:

Public health professionals can use digital platforms for continual education and skills enhancement, staying up-to-date with the latest research and best practices in BCC. Digital

learning platforms have revolutionized public health education, making it more accessible, flexible, and engaging (Evans et al., 2022). These platforms are integral in promoting behaviour change communication by offering targeted messaging, interactive tools, and opportunities for peer support and feedback, ultimately contributing to improved public health outcomes.

Understanding behaviour change communication

Behaviour Change Communication (BCC) is a systematic process used in public health and other fields to influence individual behaviours and social norms that contribute to better health outcomes (Berryman, Ferguson and Negy, 2017). It is rooted in various theories of behaviour change, including the Health Belief Model, Social Cognitive Theory, and the Theory of Planned Behaviour, among others. BCC strategies are designed to inform, educate, and motivate people to adopt healthier behaviours and practices.

The Importance of Behaviour Change in Public Health

Behaviour change is crucial in public health for several reasons:

Prevention and Control: Many public health issues, such as chronic diseases, infectious diseases, and substance abuse, are closely linked to behavioural choices (Cantrell et al., 2022). Changing these behaviours can prevent or mitigate these health problems. *Cost-Effectiveness:* Promoting behaviour change is often more cost-effective than treating diseases. Preventing illness through behaviour change can save healthcare costs and resources (Direito et al., 2017). *Community Well-Being:* Behaviour change can improve overall community well-being by reducing health disparities and improving the quality of life for individuals. *Long-Term Impact:* Sustainable behaviour change leads to long-term improvements in health outcomes, reducing the burden on healthcare systems.

Traditional Methods of Behaviour Change Communication:

Mass Media Campaigns: These include TV and radio advertisements, billboards, and print media to reach a wide audience with health messages.

Health Education: In-person or group education sessions that provide information and skills to promote behaviour change.

Social Marketing: Using marketing techniques to influence behaviour, such as promoting healthy behaviours like exercising or quitting smoking.

Community Engagement: Involving local communities and stakeholders in the design and implementation of programs that target specific behaviours.

Interpersonal Communication: Face-to-face or one-on-one communication between healthcare providers and individuals to discuss behaviour change options.

Integration of Digital Learning Platforms and Behaviour Change Communication:

Digital learning platforms offer new opportunities to enhance behaviour change communication in several ways:

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Accessibility: Digital platforms make information and support readily accessible to a wide range of individuals, overcoming geographical and time constraints. *Tailored Content:* Digital platforms can provide personalized content and recommendations based on the user's behaviour, preferences, and progress. *Gamification:* Gamified elements can make behaviour change more engaging and enjoyable, increasing motivation and adherence (White and Shellenbarger, 2018). *Social Support:* Digital platforms can facilitate connections with peers and experts, providing a sense of community and social support (Gu et al., 2022). *Data Collection:* Digital platforms can collect data on user interactions and behaviour change progress, allowing for more effective tracking and evaluation of interventions. *Behaviour Tracking:* Wearable devices and apps can monitor and provide feedback on specific behaviours, such as physical activity or dietary habits.

Interactive Learning: Interactive content, videos, quizzes, and simulations can make learning more engaging and effective in promoting behaviour change. *Reminder Systems:* Digital platforms can send reminders and notifications to encourage users to adhere to their behaviour change goals. The integration of digital learning platforms and behaviour change communication can help reach a broader audience, provide personalized support, and offer innovative ways to facilitate behaviour change in public health and other domains.

Research Method

This study adopted an exploratory research methodology, employing it to collect, evaluate, and scrutinize pre-existing data and information gathered from diverse sources, including books, academic journals, existing literature, search engines, digital platforms, digital libraries, newspapers, magazines, online databases, reports, official gazettes, and other reference materials. This departure from the conventional survey research approach, which typically involves the collection of primary data via questionnaires, underscores a unique methodological choice.

Results

The results of this conceptual research study indicate that digital learning platforms have a substantial and multifaceted impact on behaviour change communication in public health education. The study examined various dimensions and aspects of this impact, including accessibility, engagement, effectiveness, and challenges. The findings showed:

Increased Accessibility:

Digital learning platforms have significantly improved the accessibility of public health education. Data reveal that these platforms allow learners to access educational content at their convenience, overcoming geographical barriers and time constraints. As a result, a wider and more diverse audience can engage with public health information.

Enhanced Engagement:

The use of digital learning platforms has led to increased engagement in public health education. Interactive features such as quizzes, discussion forums, and multimedia content were found to enhance learner participation and motivation. People expressed a greater interest in the subject matter due to these interactive elements.

Improved Effectiveness:

Digital learning platforms were identified as effective tools for behaviour change communication in public health education. The ability to track progress and provide personalized feedback was reported as a significant advantage. Learners could monitor their own progress and receive tailored recommendations for improving their health-related behaviours.

Challenges and Limitations:

Despite the positive impact, several challenges were identified. Technical issues, such as poor internet connectivity and device limitations, were barriers to some individuals. Additionally, the overwhelming amount of information available on digital platforms could lead to information overload, making it difficult for learners to discern credible sources from misinformation.

Social Interaction:

The study also found that social interaction on digital platforms, such as peer-to-peer discussions and collaborative projects, plays a vital role in promoting behaviour change communication. Learners who interacted with their peers reported a better understanding of the material and an increased willingness to adopt healthier behaviours.

Customization and Personalization:

Customization and personalization features on digital platforms were highlighted as essential for tailoring public health education to individual needs and preferences. Study indicated that content that aligns with learners' interests and needs is more likely to lead to behaviour change.

Learner Empowerment:

Digital platforms were seen as tools that empower learners to take control of their health and well-being. Access to self-assessment tools and resources for independent research encouraged learners to proactively seek health information and make informed decisions.

Professional Development:

Public health professionals using digital platforms for continuing education reported improved job performance. The ease of access to the latest research and updates in the field allowed them to stay current with best practices and guidelines.

Ultimately, the findings of this study suggest that digital learning platforms have a positive impact on behaviour change communication in public health education. While challenges and limitations exist, the advantages of increased accessibility, engagement,

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effectiveness, and learner empowerment outweigh these obstacles. The study highlights the importance of designing and implementing digital learning platforms with a focus on user-centred, interactive, and personalized content to maximize their impact on public health education and behaviour change communication.

Cases Studied

The following are some case studies and examples that showcase the impact of digital learning in changing behaviours, measuring its effectiveness, comparing digital platforms with traditional methods, and highlighting engagement and motivation.

Case Study 1: Duolingo Language Learning App

Impact: Duolingo, a popular language learning app, has effectively changed language learning behaviours. It offers gamified lessons and encourages users to learn for short periods daily. This approach has attracted millions of users and improved their language skills.

Example: Khan Academy

Measuring Effectiveness: Khan Academy, an online education platform, tracks students' progress through assessments, quizzes, and analytics. Research has shown that students who use Khan Academy regularly demonstrate significant learning gains in subjects like math.

Case Study 2: IBM's Digital Badge Programme

Comparing Digital Platforms with Traditional Methods: IBM introduced digital badges to recognize and validate skills acquired through online courses and training. This has proven to be a more effective and scalable method compared to traditional paper-based certifications.

Example: Coursera's "Learning How to Learn" Course

Engagement and Motivation: Coursera's course, "Learning How to Learn," incorporates insights from cognitive psychology and neuroscience to engage learners more effectively. It has attracted millions of students who find the content engaging and motivational.

Case Study 3: Google's "20% Time" Program

Changing Behaviours: Google encourages its employees to spend 20% of their time on projects of personal interest. Digital resources and learning materials play a crucial role in enabling employees to acquire new skills, fostering a culture of innovation and continuous learning.

Example: LinkedIn Learning

Measuring Effectiveness: LinkedIn Learning provides a variety of courses on professional skills. It tracks users' progress, course completion rates, and post-course job changes, demonstrating the effectiveness of digital learning in career development.

Case Study 4: EdX and MIT's MicroMasters Programme

Comparing Digital Platforms with Traditional Methods: EdX and MIT offer MicroMasters programmes that can be completed online. These programmes are recognized by traditional universities and have led to both skill acquisition and behaviour change for learners looking to advance their careers.

Example: Codecademy

Engagement and Motivation: Codecademy uses interactive coding exercises and real-world projects to keep learners engaged and motivated. Gamification elements, such as earning badges and completing coding challenges, contribute to sustained engagement.

Case Study 5: Amazon's Fulfillment Centre Training

Changing Behaviours: Amazon employs digital learning tools and simulations to train employees in their fulfilment centres. This has improved efficiency, safety, and overall job performance, leading to changed behaviours in a high-stress environment.

These examples and case studies demonstrate the significant impact of digital learning on behaviour change, effectiveness measurement, comparison with traditional methods, and enhancing engagement and motivation in various contexts, from language learning to corporate training and career development.

Discussion

What are the benefits and advantages of using digital platforms?

Benefits and advantages of using digital platforms in education are numerous and have become increasingly prominent in recent years (Whiteley et al., 2020). One of the key advantages is accessibility. Digital platforms provide an opportunity for learners to access educational content from virtually anywhere (Whiteman et al., 2022), breaking down geographical barriers and enabling individuals to learn at their own pace. This flexibility in learning is particularly beneficial for those with busy schedules or physical limitations. Additionally, digital platforms often offer a wide range of resources, including multimedia materials, interactive quizzes, and discussion forums, enhancing engagement and making learning more enjoyable and effective.

However, when it comes to integrating digital learning with behaviour change communication, several challenges emerge. Behaviour change communication aims to influence people's attitudes, beliefs, and behaviours, and it often relies on interpersonal interactions and tailored interventions (Karim et al., 2020). In a digital context, the challenge lies in maintaining the personal touch and connection that is essential for effective behaviour change. The absence of face-to-face interaction can make it difficult to address individual needs, which are crucial for behaviour modification. Moreover, some learners may struggle with digital literacy and access to necessary technology, which can exacerbate existing disparities.

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Effectiveness and efficacy are critical considerations when implementing digital platforms for behaviour change communication. While digital tools can provide vast amounts of data and analytics, indicating learner progress and engagement, it's essential to translate this data into actionable insights for behaviour change. In some cases, the effectiveness of digital platforms may be hindered by a lack of human support and guidance, as learners may feel isolated or disconnected from the learning process. Balancing the use of technology with human interaction is a key factor in determining the efficacy of digital platforms for behaviour change.

Evidently, digital platforms offer significant benefits in terms of accessibility, flexibility, and engagement in education. However, when integrating them into behaviour change communication, it's crucial to address challenges related to personalization and technology access. As Seila et al., (2022) note, the effectiveness and efficacy of digital platforms in behaviour change depend on finding the right balance between technology-driven learning and personalized, human-centred support. Achieving this balance will be essential in harnessing the full potential of digital platforms for effective behaviour change communication.

What are the strategies to engage learners in behaviour change communication?

Strategies to engage learners in behaviour change communication are essential for driving meaningful change and learning outcomes. To effectively engage learners, educators and communicators can employ a combination of strategies. Firstly, gamification and interactive elements can be invaluable tools. Gamification introduces game-like elements into the learning process, such as leaderboards, rewards, and challenges (White and Shellenbarger, 2018). These elements tap into our innate competitive and achievement-driven instincts, making the learning experience more engaging and enjoyable. Interactive elements, such as quizzes, simulations, and discussions, promote active participation and critical thinking, enabling learners to apply new knowledge in practical scenarios. This not only enhances engagement but also reinforces the learning objectives.

Secondly, the motivational aspects of digital learning play a crucial role in behaviour change communication. Digital platforms offer opportunities to tailor content to individual needs, allowing learners to set personal goals and track their progress. This self-directed approach empowers learners and increases their sense of ownership over their learning journey. Additionally, providing real-world examples, success stories, and testimonials can inspire and motivate learners by showing them the positive impact of behaviour change. Furthermore, offering timely feedback and recognition for achievements can boost motivation and foster a sense of accomplishment, reinforcing the commitment to change.

Accessibility and reach are also key considerations in behaviour change communication. Ensuring that learning materials are accessible to a diverse audience is essential. This involves designing content that accommodates various learning styles, languages, and abilities, as well as considering different devices and internet connectivity levels. The broader the reach, the more significant the potential impact. Digital learning platforms, with their global accessibility, can reach learners in remote or underserved areas,

democratizing education and behaviour change campaigns. Additionally, designing content that is culturally sensitive and relatable to the target audience helps foster a deeper connection, increasing the likelihood of behaviour change. Ultimately, combining these strategies and elements can create a powerful synergy for effective behaviour change communication, motivating learners and expanding its accessibility and reach.

How can digital platforms address disparities in access to public health education?

Digital platforms have the potential to reach diverse populations in several ways. First, they offer a cost-effective means of disseminating information to a wide audience. Through social media, websites, and mobile apps, public health organizations can deliver culturally sensitive content tailored to different demographic groups (Krishnan, Gu and Abroms, 2020). Additionally, digital platforms enable real-time communication and engagement, allowing for interactive discussions and feedback mechanisms that can address specific concerns and questions from diverse populations. These platforms can also leverage data analytics to target and personalize content to better reach underserved communities, thereby helping bridge the information gap.

However, several challenges and limitations must be addressed to effectively reach diverse populations through digital platforms. Not everyone has equal access to the internet, and disparities in digital literacy and technology access persist, particularly among marginalized groups. Efforts must be made to ensure that underserved populations have access to the necessary technology and training. Moreover, privacy concerns, misinformation, and digital divide-related issues can hinder the effectiveness of digital platforms in reaching diverse populations. It's essential to address these barriers, engage community leaders, and employ culturally competent strategies to ensure that public health information reaches everyone, regardless of their socio-economic status or background. To truly overcome disparities in public health education, a combination of digital and offline strategies may be necessary to ensure inclusivity and equity in health information dissemination.

What are the emerging technologies in public health education?

In the realm of public health education, emerging technologies have ushered in a wave of innovation that promises to enhance the effectiveness of health communication and education. Virtual reality (VR) and augmented reality (AR) are increasingly used to create immersive and interactive educational experiences. These technologies allow students and the public to explore complex health topics in a more engaging and memorable way (Nesi, Telzer and Prinstein, 2020). Furthermore, mobile apps and online platforms have made health information more accessible, enabling individuals to track their health metrics, receive personalized recommendations, and connect with healthcare professionals. Artificial intelligence (AI) has also been applied to public health education to analyse vast amounts of health data, identify trends, and provide targeted recommendations. In the future, we can expect even more sophisticated applications of AI, VR, and AR in public health education, making it easier for people to understand and manage their health.

As for the future of behaviour change communication, predictions point towards increasingly personalized and data-driven approaches. With the proliferation of wearable

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devices and health apps, individuals will have real-time access to their health data, enabling tailored interventions and nudges. Social media and online communities will continue to play a significant role in shaping health behaviours, with influencers and peer support networks promoting healthy lifestyles. Additionally, the use of AI and machine learning will allow for more precise identification of the factors that influence behaviour change, leading to more effective interventions. Furthermore, the integration of behavioural economics principles into public health strategies will continue to gain prominence, making use of incentives, defaults, and choice architecture to encourage healthier choices.

Effective policy and implementation will be crucial to harness the potential of these emerging technologies and behaviour change strategies in public health. Policymakers will need to adapt regulations to ensure the ethical use of personal health data, protect privacy, and promote equitable access to technology. Collaboration between governments, healthcare institutions, and technology companies will be essential to bridge the digital divide and ensure that underserved populations can benefit from these innovations. Implementation strategies will need to consider cultural and socioeconomic factors to ensure that behaviour change communication is culturally sensitive and accessible to all. Moreover, continuous evaluation and adaptation of public health policies and programs will be necessary to keep pace with the rapid evolution of technology and our understanding of effective behaviour change strategies. Overall, the future of public health education and behaviour change communication will be shaped by a dynamic interplay of technology, policy, and societal factors.

What are the government and institutional support for digital learning?

Government and institutional support for digital learning has become increasingly essential in today's rapidly evolving educational landscape. To ensure the effective integration of digital learning tools and platforms, governments and institutions must first focus on developing robust policies and guidelines. These policies should address issues such as accessibility, data privacy, and content quality. Furthermore, they should provide a framework for the evaluation and approval of digital learning materials, taking into account the specific needs and goals of public health education. By establishing clear guidelines, educational authorities can ensure a standardized approach to digital learning, promoting consistency and quality across public health education programs.

Best practices for implementing digital learning platforms in public health education involve a multifaceted approach. This includes fostering collaboration among educators and technology experts, providing adequate training and support for instructors, and conducting ongoing assessments of the effectiveness of digital tools. It is crucial to customize the learning experience to cater to diverse learners, promote interactivity, and leverage data analytics to continuously improve the learning process. Additionally, establishing channels for feedback and incorporating it into the refinement of digital learning strategies is paramount. In conclusion, it is essential for governments and institutions to support digital learning in public health education through well-defined policies and best practices that prioritize accessibility, quality, and effectiveness. By doing so, they can ensure that the workforce in this critical field is adequately prepared to address the health challenges of the 21st century.

Conclusion

The integration of digital learning platforms into public health education has undeniably brought about a transformative shift in the realm of behaviour change communication. These platforms have not only expanded the reach and accessibility of crucial public health information but have also revolutionized the way this information is disseminated, received, and acted upon.

One of the most significant impacts of digital learning platforms in behaviour change communication is the personalized and interactive approach they offer. Learners can access information at their own pace, tailor their learning experiences, and engage with content through various multimedia formats. This adaptability empowers individuals to take control of their education, making it more likely for them to absorb and apply the knowledge effectively to bring about behavioural changes in their lives.

Furthermore, the real-time tracking and analytics provided by digital platforms allow educators and health professionals to gain valuable insights into learner progress and engagement. This data-driven approach enables the fine-tuning of educational content and strategies, ensuring that behaviour change communication is more effective and efficient. It also facilitates timely interventions and support for learners who may be struggling to adapt their behaviours.

Moreover, the collaborative nature of digital learning platforms enables the exchange of ideas, experiences, and peer support, fostering a sense of community among learners. This sense of belonging can be a powerful motivator for individuals striving to make positive changes in their lives, as they can share successes, challenges, and strategies with others facing similar issues.

However, while the impact of digital learning platforms in behaviour change communication is undeniable, it is not without challenges. Barriers such as the digital divide, privacy concerns, and information overload need to be addressed to ensure equitable access and effective learning. Additionally, the quality of the content and the credibility of sources must be rigorously maintained to safeguard the accuracy and reliability of public health information.

References

- Berryman, C., Ferguson, C.J., & Negy, C. (2017). Social Media Use and Mental Health among Young Adults. *Psychiatric Quarterly*, 89, 307–314. <https://doi.org/10.1007/s11126-017-9535-6>
- Cantrell, J., Bingenheimer, J., Tulsiani, S., & Hair, E.C., et al. (2022). Design and pilot evaluation of a virtual experimental protocol to assess anti-tobacco digital campaign advertising exposure. *Digital Health*, in press.

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- Direito, A., Carraça, E., Rawstorn, J., Whittaker, R., & Maddison, R. (2017). mHealth technologies to influence physical activity and sedentary behaviours: Behaviour change techniques, systematic review and meta-analysis of randomized controlled trials. *Annals of Behavioural Medicine*, 51(2), 226–239. <https://doi.org/10.1007/s12160-016-9846-0>
- Evans, W.D., Abrams, L.C., Broniatowski, D., Napolitano, M., Arnold, J., Ichimiya, M., & Agha, S. (2022a). Digital Media for Behaviour Change: Review of an Emerging Field of Study. *International Journal of Environmental Research and Public Health*, 19(15), 9129. <https://doi.org/10.3390/ijerph19159129>
- Gosak, L., Štiglic, G., Budler, L.C., Félix, I.B., & Braam, K., et al. (2022). Digital Tools in Behaviour Change Support Education in Health and Other Students: A Systematic Review. *Healthcare*, 10, 1. <https://doi.org/10.3390/healthcare10010001>
- Gu, J., Dor, A., Li, K., Broniatowski, D.A., Hatheway, M., Fritz, L., & Abrams, L.C. (2022). The impact of Facebook's vaccine misinformation policy on user endorsements of vaccine content: An interrupted time series analysis. *Vaccine*, 40, 2209–2214. <https://doi.org/10.1016/j.vaccine.2022.02.062>
- Ichimiya, M., Gerard, R., Mills, S., Brodsky, A., & Evans, W.D. (2022). Measurement of Dose and Response for Smoking Behaviour Change Interventions in the Digital Age: A Systematic Review. *Journal of Medical Internet Research*. <https://doi.org/10.2196/38470>
- Karim, F., Oyewande, A., Abdalla, L.F., & Ehsanullah, R.C., Khan, S. (2020). Social Media Use and Its Connection to Mental Health: A Systematic Review. *Cureus*, 12, e8627. <https://doi.org/10.7759/cureus.8627>
- Krishnan, N., Gu, J., & Abrams, L.C. (2020). Mobile phone-based messaging for tobacco cessation in low and middle-income countries: A systematic review. *Addictive Behaviours*, 113, 106676. <https://doi.org/10.1016/j.addbeh.2020.106676>
- Kwasnicka, D., Dombrowski, S.U., White, M., & Sniehotka, F.F. (2015). Theoretical explanations for maintenance of behaviour change: A systematic review of behaviour theories. *Health Psychology Review*, 10, 277–296. <https://doi.org/10.1080/17437199.2016.1151372>
- Levy, M., Gentry, D., & Klesges, L. (2015). Innovations in public health education: Promoting professional development and a culture of health. *American Journal of Public Health*, 105, S44–S45.
- Nesi, J., Telzer, E.H., & Prinstein, M.J. (2020). Adolescent Development in the Digital Media Context. *Psychological Inquiry*, 31, 229–234. <https://doi.org/10.1080/1047840X.2020.1820219>
- Seiler, J., Libby, T., Jackson, E., Lingappa, J., Agha, S., & Evans, W.D. (2022). Effectiveness of Social Media-based Behavioural Interventions in Low and Middle-Income Countries: A Systematic Review. *Journal of Medical Internet Research*, in press.
- Shojaeezadeh, D., & Heshmati, H. (2018). Integration of Health Education and Promotion Models for Designing Health Education Course for Promotion of Student's Capabilities in Related to Health Education. *Iranian Journal of Public Health*, 47, 1432–1433.

- Taj, F., Klein, M.C.A., & van Halteren, A. (2019). Digital Health Behavior Change Technology: Bibliometric and Scoping Review of Two Decades of Research. *JMIR mHealth and uHealth*, 7(12), e13311. <https://doi.org/10.2196/13311>
- Thrul, J., Tormohlen, K.N., & Meacham, M.C. (2019). Social media for tobacco smoking cessation intervention: A review of the literature. *Current Addiction Reports*, 6, 126–138. <https://doi.org/10.1007/s40429-019-00246-2>
- Van Kessel, R., Wong, B.L.H., Clemens, T., & Brand, H. (2022). Digital health literacy as a super determinant of health: More than simply the sum of its parts. *Internet Interventions*, 27, 100500. <https://doi.org/10.1016/j.invent.2022.100500>
- White, M., & Shellenbarger, T. (2018). Gamification of Nursing Education with Digital Badges. *Nurse Education*, 43, 78–82.
- Whiteley, J.A., Faro, J.M., Mavredes, M., Hayman, L.L., & Napolitano, M.A. (2020). Application of social marketing to recruitment for a digital weight management intervention for young adults. *Translational Behavioral Medicine*, 11, 484–494. <https://doi.org/10.1093/tbm/ibaa032>
- Whiteley, J.A., Tjaden, A.H., Bailey, C.P., Faro, J., DiPietro, L., Hayman, L.L., & Napolitano, M.A. (2022). Engagement with Digital Weight Loss Intervention Components and Weight Outcomes. Manuscript under review.