The Journey to Digitalization: The story of Nursing and Midwifery Training Colleges in Ghana

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Abstract:

The study aimed to investigate how nursing and midwifery education, in Ghana has transitioned into the digital era looking at the background, motivations, procedures, participants and content involved. It utilized a historical analysis method by referencing implementation documents and other relevant literature. The results indicated that Ghana's shift towards digitalization was motivated by the desire to improve standards meeting standard benchmarks and to tackle existing challenges with manual-based systems. The transformation process encompassed groundwork activities, regulatory adjustments and practical implementation with the involvement of stakeholders. Despite encountering obstacles along the way Ghana's experience demonstrated integration of technologies and platforms offering valuable insights for other nations. Suggestions include monitoring, partnerships among stakeholders and investments in infrastructure. This study contributes to policy decision making in enhancing our understanding, in the realms of digital health and healthcare education.

Keywords: Digital health, nursing education, midwifery education, e-learning, Ghana

Introduction:

The advancement of incorporating technology into healthcare education has become a necessity, in the 21st century aiming to improve the quality, accessibility and effectiveness of training for healthcare professionals [5]. In Ghana there have been changes in the nursing and midwifery education sector recently with the integration of resources and platforms to facilitate teaching, learning and evaluation processes [3][13]. This examination is crucial for reasons. Firstly as Nyante et al. [3] pointed out there have been reforms in the regulatory framework governing nursing and midwifery education in Ghana, such as the Health Institutions and Facilities Act 2011 (Act 829) which aimed to address issues related to medical negligence risks. Understanding how these reforms have influenced the digitalization journey can offer insights into the supporting factors and obstacles to implementation. Secondly the COVID 19 pandemic has hastened the demand for tools in healthcare education due to disruptions in face to face teaching methods. Asamoah-

Atakorah et al. [2] stressed the significance of supervision in enhancing skill development for health trainees, in Ghana.

Studying how technology has been used to support supervision during the pandemic can provide lessons for improving education systems that are resilient and adaptable. Additionally this analysis adds to the existing knowledge base, on health and healthcare education in countries with resources. According to Agyepong et al. [17] achieving longer and healthier lives for all Africans by 2030 necessitates strengthening healthcare systems, including the workforce. By examining the context reasons, process, stakeholders and content involved in Ghana's digitalization efforts this research provides insights into the factors that either aid or impede the implementation of digital projects in settings, with limited resources.

The aim of this study is to offer an insight into the integration of technology, in nursing and midwifery education in Ghana utilizing the CRuPAC framework (Context, Rule, Policy/Principles, Application, Conclusion) and historical analysis methodology. The specific goals outlined in this study include;

1. Examining the background and status of nursing and midwifery education in Ghana before digitalization initiatives drawing insights from Nyante et al. [1, 4] and Asamoah Atakorah et al. [2].

2. Identifying the motivations and factors driving the adoption of tools in nursing and midwifery education within the wider context of Ghana's digital transformation agenda [9].

3. Tracing the milestones and phases involved in digitizing education emphasizing accomplishments and hurdles like the successful implementation of digital assessment reforms despite initial skepticism [3].

4. Analyzing the roles played by stakeholders such as government bodies, educational institutions, professional organizations and partners in development, throughout the process of digitalization [1, 3 4 12 13,15,16, 17, 18, 19].

5. To evaluate the tools, platforms and content utilized in nursing and midwifery education comparing them with similar initiatives, in different countries.

6. Additionally to offer suggestions for the monitoring, enhancement and sustainability of the digitalized nursing and midwifery education system in Ghana.

This analysis aims to enhance the knowledge base on health and healthcare education, influence policies and practices and encourage exploration and discussions on this significant subject. The lessons learned from Ghana's journey can assist policymakers, educators and other stakeholders in crafting and executing strategies to reinforce nursing and midwifery education ultimately leading to better health outcomes, for the populace.

Significance

The examination of how Ghana has incorporated technology into nursing and midwifery education carries implications, for policy making adding valuable insights to the existing knowledge base in healthcare education and digital health.

Policy Implications;

1. Shaping strategies for healthcare; The analysis offers key learning's on effectively integrating digital tools and platforms into nursing and midwifery education. These insights can guide policymakers in formulating and improving strategies for healthcare assisting them in making informed decisions about resource allocation and prioritizing digital initiatives in educational settings [41].

2. Enhancing frameworks; The analysis emphasizes the necessity of legal and regulatory structures to support the digitization of nursing and midwifery education. Policymakers can use these findings to assess and

enhance regulations ensuring they facilitate the adoption of technologies while upholding educational quality standards and patient safety [42].

3. Fostering collaboration across sectors; The analysis underscores the importance of cooperation among stakeholders such as government entities, educational institutions, professional bodies and businesses. Policymakers can apply these insights to encourage partnerships across sectors and create an environment to development and implementation of digital solutions, in healthcare education [43].

Addressing the issue of inequalities; The study indicates the difficulties concerning internet access and digital skills which can worsen the existing disparities, in accessing quality education. Policymakers can utilize this information to create interventions and invest in infrastructure and skill building programs especially in underserved areas to narrow the digital gap and ensure fair access to digital nursing and midwifery education.

Contribution to Literature and Knowledge;

1. Enhancing the knowledge base; The study adds to the increasing body of work on integrating technology into healthcare education in countries with incomes. By presenting an examination of Ghana's experiences the study provides insights into the unique challenges, achievements and lessons that can guide future research and policy making in similar contexts.

2. Identifying methods; The study showcases strategies used in Ghana's adoption of digital tools in nursing and midwifery education, such as e learning platforms, virtual simulations and digital assessment resources. These approaches can serve as models, for nations and institutions aiming to modernize their healthcare education systems.

3. The study examines the effects of transformation, on nursing and midwifery education discussing the advantages and obstacles it brings such as access to education improved learning outcomes and the essential need for ongoing digital literacy training. These findings help us understand how digital technologies influence healthcare education and can shape research on assessing the effectiveness of interventions.

4. Additionally the analysis incorporates viewpoints from fields like healthcare, education, technology and policy. By merging these perspectives it encourages discussions and promotes collaboration across sectors to tackle the complex challenges linked to digitizing healthcare education.

In summary analyzing Ghana's efforts in digitizing nursing and midwifery education has policy implications that enrich existing literature in this area. The insights gathered can support evidence based policymaking reinforce frameworks, facilitate collaboration across sectors, address disparities identify best practices, in this domain. Furthermore this analysis expands our knowledge base by examining the impact of digitization and fostering discussions and ultimately contributing to advancing health and healthcare education not in Ghana but also globally.

Methods

The analysis, in this study follows the CRuPAC (Context, Rule, Policy/Principles, Application, Conclusion) framework along with a historical analysis method. This approach enables an investigation into the digitization of nursing and midwifery education in Ghana taking into account the factors and individuals involved in the process.

The CRuPAC framework has been utilized in research studies to assess policy implementation and change processes. In their works Nyante et al. [1, 3, 4] applied the CRuPAC framework to explore the regulatory dimensions of nursing and midwifery education in Ghana. For example they used this framework to assess the implications of the Health Institutions and Facilities Act 2011 (Act 829) on medical negligence risks [1].

Likewise they applied CRuPAC to analyze the Nursing and Midwifery Council Act, 2013 (Act 857) and its impact on oversight [4].

Other research endeavors have also employed the CRuPAC framework across contexts. For instance Oduro Mensah et al. [49] utilized this framework to investigate the implementation of a community based health planning and services (CHPS) policy, in Ghana. They discovered that employing the CRuPAC approach offered insights into understanding the dynamics influencing policy implementation.

The method of analysis complements the CRuPAC framework by examining how digitalization has evolved over time. This approach has been utilized in studies to explore the progression and execution of policies and interventions, in the fields of healthcare and education. For example Agyepong et al. [50] applied historical analysis to scrutinize the establishment of Ghana's health insurance scheme emphasizing milestones and obstacles faced.

Researchers have the option to replicate or adjust this combined CRuPAC and historical analysis method when studying digitalization initiatives in regions or countries. The framework can be customized to fit settings and research inquiries focusing on elements of the CRuPAC dimensions as required. For instance researchers might choose to give attention to the individuals involved or the motivations driving digitalization efforts based on their research goals.

To adapt these approach researchers could think about integrating data collection techniques like conducting interviews with stakeholders or conducting surveys with students and educators. This could offer insights into the perspectives and experiences of those closely engaged in the digitalization process.

Additionally researchers can expand their analysis to encompass advancements or compare digitalization experiences across different countries. This comparative approach can provide insights. Assist in recognizing best practices as well as common challenges, within varying contexts.

In summary the method of combining CRuPAC with analysis employed in this research provides an adaptable way to study the integration of technology, in healthcare education. By adjusting and refining this method scholars can uncover findings about endeavors in different contexts adding to the expanding realm of information, on digital health and healthcare education.

Results & Analysis

The paper's findings and analysis offer a look, into how Ghana has integrated technology, into nursing and midwifery education utilizing the CRuPAC framework and historical analysis. The results illuminate the background, motivations, procedures, individuals involved and subject matter covered providing perspectives for policymakers, educators and researchers.

The context and the state of nursing/midwifery education in Ghana prior to digitalization efforts

Before the shift, to digitalization in nursing and midwifery education in Ghana there were challenges facing the sector. The legal framework governing the training and practice of nurses and midwives was not fully developed, which posed risks and uncertainties. While the Health Institutions and Facilities Act 2011 (Act 829) aimed to tackle some of these issues concerns lingered regarding the risks of negligence for both health trainees and professional health workers.

In Ghana clinical supervision played a role in helping health trainees acquire skills. However the effectiveness of this supervision and its impact on the quality of nursing and midwifery education before digitalization was not entirely clear. The traditional training methods heavily relied on face to face interactions and paper based systems, which had limitations in terms of efficiency, standardization and data management.

4

The Nursing and Midwifery Council of Ghana established under the Nursing and Midwifery Council Act 2013 (Act 857) was tasked with overseeing the training and practice standards for nurses and midwives, in the country.The Council faced difficulties, in implementing and enforcing oversight in the healthcare sector, which is constantly changing. Despite these obstacles Ghana showed its dedication to improving nursing and midwifery education. The country decided to modernize aspects of training and evaluation by going digital with the goal of enhancing system quality, efficiency and transparency. While some had doubts about this initiative Ghana remained committed to its transformation efforts [3].

Before embracing digitalization, nursing and midwifery education, in Ghana was seen as outdated and in need of reform. There were gaps in the regulatory framework clinical supervision was lacking and traditional training methods had limitations. Recognizing the benefits of going digital to address these issues Ghana embarked on a journey to revamp its nursing and midwifery education system [1, 3, 4, 2].

The reasons and drivers behind the push

The drive, towards digitalization in Ghana's nursing and midwifery education stemmed from reasons and factors. One key motivation was the aim to improve the quality and efficiency of training and assessment processes [3]. The traditional methods involving paper based systems and in person interactions had limitations in terms of standardization, data management and scalability. Embracing digitalization presented an opportunity to streamline these procedures minimize errors and enhance the experience for nursing and midwifery students.

Another crucial factor was the aspiration to align Ghana's nursing and midwifery education with standards and best practices. The World Health Organization (WHO) has underscored the significance of health technologies in fortifying health system in enhancing health outcomes [6]. By embracing transformation Ghana aimed to position itself as a leader in nursing education within the region while ensuring that its graduates possessed the skills to navigate a rapidly evolving healthcare landscape.

Furthermore responding to the challenges brought about by the COVID 19 pandemic also played a role in driving digitalization efforts. The pandemic also disrupted face to face teaching methods, prompting institutions worldwide to adapt by leveraging digital technologies [6].

Ghana acknowledged the importance of establishing an infrastructure to ensure the continuous progress of nursing and midwifery education during and, after the pandemic. Examples from countries highlighted how embracing tools in these fields can boost student engagement enhance learning outcomes and offer more flexibility in training delivery. The digital transformation in Ghana's nursing and midwifery education aligns with the country's efforts to leverage technology for growth better public services and social advancement. This shift towards digitalization is viewed as a step, in nurturing a healthcare workforce equipped with modern technological skills. The rising demand, for nursing and midwifery services in Ghana along with the goal of producing healthcare professionals played a significant role in driving the adoption of digital technologies. These advancements were seen as a way to improve access to education in these fields in areas where resources are limited [7, 8, 9, 10].

Various factors motivated the move towards digitalization in nursing and midwifery education in Ghana. These included the desire to enhance quality and efficiency stay aligned with standards, address challenges posed by pandemics and contribute to the country's digital transformation efforts. The decision to embrace tools was well supported by evidence, from studies and literature [3, 5, 6, 7, 8, 9, 10].

Timeline of the major milestones and phases of the digitalization process

The transition, to technologies in the field of nursing and midwifery education in Ghana has been a step, by step and evolving process, characterized by significant achievements and stages.

Phase 1: Early Initiatives and Groundwork (2010-2015)

In this era Ghana initiated the process of modernizing its nursing and midwifery education. The passing of the Health Institutions and Facilities Act 2011 (Act 829) marked a step forward focusing on overseeing healthcare institutions and safeguarding rights [1]. This law paved the way, for changes in the healthcare field such, as digitizing nursing and midwifery education.

Phase 2: Regulatory Reforms and Capacity Building (2015-2020)

In the stage of the digitalization process there were changes, in regulations and efforts to enhance capabilities. A pivotal moment was marked by the enactment of the Nursing and Midwifery Council Act, 2013 (Act 857) which laid down the groundwork for overseeing nursing and midwifery practices in Ghana. This legislation granted authority to the Nursing and Midwifery Council to supervise the education, enrollment and professional behavior of nurses and midwives [4].

During this period Ghana concentrated on strengthening its nursing and midwifery workforce through training schemes. One notable initiative was the introduction of the Ghana Health Service Leadership and Management Development Program (LMDP) by the Ministry of Health, in 2016. The program aimed to bolster leadership and management skills among healthcare professionals, including nurses and midwives [11].

Phase 3: Digital Transformation and Implementation (2020-2024)

During the stage of the digitalization process, in nursing and midwifery education actual implementation of technologies and platforms took place. This phase was fast tracked by the impact of the COVID 19 leading to a transition to online learning and digital tools [3]. A significant achievement in this phase was the launch of the Nursing and Midwifery Councils registration and licensing system in 2021 [12] simplifying the registration process for nurses and midwives while reducing paperwork and enhancing efficiency. Another important development was the introduction of the National E Learning Platform for Nursing and Midwifery Education in 2022 [13] offering access to learning resources, interactive modules and virtual simulation tools to improve nursing education nationwide. Additionally successful digital assessment reforms were implemented as noted by Nyante et al. [3] marking an achievement as Ghana digitized its nursing and midwifery assessment processes despite challenges resulting in a more efficient system, with enhanced integrity.

Phase 4: Consolidation and Continuous Improvement (2024 and beyond)

As Ghana continues its journey, towards digitalization the main focus will be on building upon the progress achieved far and constantly enhancing the infrastructure and capabilities of the nursing and midwifery education system. This will include providing training and support for teachers and students ensuring updates to digital platforms and content as well as incorporating new technologies like artificial intelligence and virtual reality [Agyepong et al.; 14]. The timeline of Ghana's transformation in nursing and midwifery education underscores the country's dedication to leveraging technology for enhancing its healthcare workforce. Despite facing challenges the strides taken up to now have established a groundwork, for advancements in the coming years [1, 3 4 11 12 13 14].

The central actors and stakeholders involved in planning and implementation

The transition, to digital tools in nursing and midwifery education, in Ghana included a variety of individuals and groups all contributing significantly to the development and execution phases. **Government Ministries and Agencies:**

The Ministry of Health (MoH) and the Ministry of Education (MoE) played roles in the process of digitalization. The MoH, represented by bodies, like the Ghana Health Service (GHS) and the Nursing and Midwifery Council (NMC) provided guidance and direction for digitalization efforts [1, 4]. Meanwhile the MoE focused on incorporating technologies into nursing and midwifery curricula along, with creating elearning resources [13].

Nursing and Midwifery Council (NMC):

The Nursing and Midwifery Council (NMC) as outlined in the Nursing and Midwifery Council Act of 2013 (Act 857) has been actively involved in overseeing nursing and midwifery education and practice in Ghana according to Nyante et al. [4] the NMC has played a role, in introducing advancements, including the online registration and licensing platform, for nurses and midwives as highlighted by the Nursing and Midwifery Council of Ghana in 2021 [12].

Training Institutions and Educators:

Nursing and midwifery training institutions, such, as universities, colleges and schools played a role in the process of transformation. These institutions worked together with government agencies and professional organizations to create and introduce platforms online learning resources and virtual simulation tools [3][13]. Additionally educators like professors teaching assistants and clinical instructors were instrumental in promoting the use of technologies, for teaching and learning purposes [15].

Professional Associations:

Professional groups, like the Ghana Registered Nurses and Midwives Association (GRNMA) and the Ghana Nurse Midwife Trainees Association (GNMTA) have been crucial in supporting nurses and midwives needs contributing to the shift, towards digitalization [16]. They have also helped members enhance their skills through platforms and e learning materials.

International Organizations and Development Partners:

International groups and supporters of progress, like the World Health Organization (WHO) the United Nations Childrens Fund (UNICEF) and the United States Agency for International Development (USAID) offered expertise and financial aid to help Ghana advance its digitalization initiatives, in nursing and education [17]. Working together with government bodies and educational centers these partners executed health plans and initiatives.

Private Sector and Technology Providers:

Private companies and tech firms played a role in the digitalization journey collaborating with government bodies and educational institutions to create and launch platforms, software solutions and online learning resources [18]. Their technical know-how and creative ideas greatly contributed to the success and expansion of these initiatives.

Students and Trainees:

Nursing and midwifery students and trainees played a role in the process of digitalization benefiting significantly from the changes. They actively engaged in incorporating and utilizing technologies offering input and recommendations, for enhancements [3][19]. The successful integration of tools into nursing and midwifery education, in Ghana was achieved through the efforts of these key individuals and involved parties.

Each group brought their perspectives, skills and resources to the discussion contributing to the development and execution of transformations [1, 3, 4, 12, 13, 15, 16, 17, 18, 19].

Specific digital tools, platforms and content

The incorporation of technology, into nursing and midwifery education in Ghana involved introducing a variety of tools, platforms and content. These efforts were aimed at improving the quality, accessibility and effectiveness of teaching, learning and evaluation processes. In Ghana some of the tools and platforms that were put into place include;

1. Online learning platforms; In 2022 Ghana launched a National E Learning Platform for Nursing and Midwifery Education [13]. This platform granted students access to materials, interactive modules and virtual simulation tools to facilitate self-paced learning and skill enhancement. Similar online learning platforms have also been implemented in nations, like Kenya's AfyaElimu platform [20] and Nigeria's Nursing and Midwifery e-Learning Platform [21].

2. Web based registration and licensing systems; The Nursing and Midwifery Council of Ghana introduced a registration and licensing system in 2021 [12]. This system streamlined the process of registering nurses and midwives while enhancing efficiency by reducing paperwork procedures.

In African nations similar systems have been put in place like the Online Registration System, for Nurses and Midwives in Nigeria by the Nursing and Midwifery Council of Nigeria (2021). Ghana successfully implemented digital assessment reforms as mentioned by Nyante et al. [3]. This included the adoption of computer based testing and online assessment platforms enhancing the integrity and efficiency of assessments. Comparable digital assessment tools have been utilized in countries such as South Africa [23] and Rwanda [24]. Virtual simulation technologies, like reality (VR) and augmented reality (AR) were introduced in Ghana to offer nursing and midwifery students learning experiences allowing them to practice clinical skills and decision making in realistic virtual settings [25]. Egypt [26] and South Africa [27] have also incorporated virtual simulation technologies into nursing education.

Comparative analysis with Liberia and Gambia:

Liberia and Gambia similar, to Ghana have taken steps to modernize their nursing and midwifery education systems. In 2019 Liberia's Ministry of Health collaborated with partners to launch the Nursing and Midwifery eLearning Platform [28] with the goal of enhancing access for nurses and midwives in rural areas. Likewise in 2020 Gambia introduced an eLearning platform for nursing and midwifery education to enhance healthcare professionals skills and knowledge [29].

However Ghana seems to have a digital infrastructure implementation compared to Liberia and Gambia. Ghana's efforts include tools like elearning platforms, online registration systems, digital assessments and virtual simulation technologies [3, 12 13 25]. This suggests that Ghana's digital setup for nursing and midwifery education is more advanced and standardized, than that of Liberia and Gambia.

Weaknesses and challenges:

Despite the advancements, in incorporating technology into nursing and midwifery education in Ghana, shortcomings and obstacles were encountered throughout the process. These challenges encompassed;

1. Connectivity and infrastructure limitations; Certain areas, regions in Ghana encountered difficulties due to inadequate internet connectivity and digital infrastructure [30]. This hindered the implementation and utilization of tools and platforms.

2. Literacy and skills gap; Some educators and students lacked the digital literacy and skills required to

effectively utilize the introduced digital technologies [15]. This necessitated additional support to bridge this skills gap.

3. Resistance to change; The integration of technologies into nursing and midwifery education met resistance from educators and students who were more inclined towards teaching methods [31]. Overcoming this resistance called for change management strategies along, with awareness building efforts.

4. Financial constraints; The deployment and upkeep of infrastructure demanded financial investments [32]. Limited financial resources coupled with competing priorities sometimes impeded the achievement of digitalization objectives.

To overcome these limitations and obstacles Ghana implemented strategies, including enhancing infrastructure offering digital literacy training, for teachers and students initiating change management efforts and collaborating with international organizations and the private sector to secure financial support and technical assistance. This approach was documented by Asamoah Gyadu [15] and others [30, 31, 32].

In summary, Ghana's integration of technology in nursing and midwifery education involved the introduction of digital resources, platforms and content that was at par with initiatives in other African nations. Despite having a digital infrastructure compared to Liberia and Gambia Ghana still encountered obstacles related to internet connectivity issues, limited digital proficiency among users, resistance to change and financial limitations. Overcoming these challenges necessitated a strategy that encompassed investments in infrastructure improvement projects educational programs for capacity building purposes change management efforts well as forging partnerships, with relevant stakeholders [3,12 13,15,25,30,31 32].

Conclusion

In summary the journey of digitalizing nursing and midwifery education, in Ghana has been one, marked by milestones, obstacles and successes. This analysis offers a look at the background, motivations, process, participants and materials involved in Ghana's efforts to go digital.

Before the shift to digitalization, nursing and midwifery education in Ghana faced challenges such as lacking legal and regulatory frameworks, limited clinical supervision opportunities and the need for modernization. The decision to go digital was fueled by the aim of improving education quality and efficiency aligning with standards addressing disruptions caused by pandemics and contributing to Ghana's digital transformation goals.

The transition, to digitalization occurred in stages; starting with steps and groundwork activities followed by changes and capacity development efforts before finally introducing digital tools, platforms and content. The success of this process depended on the combined efforts of groups, such, as government departments, the Nursing and Midwifery Council, educational institutions, professional organizations, international bodies and businesses [1, 3, 4 12 13 15 16, 17 18 19].

The digital solutions put in place – like e learning platforms, online registration systems, digital assessment tools and virtual simulation technologies – were similar to those used in nations [13, 20-27]. However Ghana's digital infrastructure seemed extensive compared to countries like Liberia and Gambia [28, 29].

Despite progress achieved far in Ghana's digitalization efforts for nursing and midwifery education system faced challenges such, as internet access, digital literacy gaps, resistance to change and financial issues[15,30 31 32]. Resolving these challenges called for an approach involving investments, training programs, culture change and collaborations.

In summary Ghana's journey towards digitizing nursing and midwifery education has been transformational

paving the way for an easily accessible and high quality educational system.

The experiences, achievements and obstacles faced by the country offer insights, for nations starting similar digitalization initiatives in healthcare education. Ghana's progress in digitalizing nursing and midwifery education is praiseworthy although there is always room for improvement and adaptation to technologies. The country's dedication to using tools to enhance the skills and knowledge of its healthcare workforce is clear. The positive impact of these efforts will undoubtedly lead to better health outcomes for its people. To maintain its leadership role, in healthcare education Ghana must continue navigating the landscape nurturing collaborations and addressing challenges along the way.

Recommendations

To ensure the monitoring and enhancement of Ghana's digitalized nursing and midwifery education system it is crucial for different stakeholders to take actions to maintain the systems strength. Following an analysis and assessment practical recommendations are as follows;

1. Establishing a unit, for monitoring and evaluation;

The Ministry of Health in partnership with the Nursing and Midwifery Council and the Ministry of Education should create an unit for monitoring and evaluation. This unit would be responsible for assessing the performance, usage and impact of tools, platforms and content implemented. It should define performance indicators (KPIs) gather data to monitor progress identify areas for improvement and support decision making.

2. Conducting surveys to gather feedback from stakeholders;

Institutions collaborating with professional associations should conduct periodic feedback surveys involving educators, students and healthcare professionals. These surveys aim to collect input, on user experiences, satisfaction levels and perceived advantages of solutions. The feedback received should be analyzed to enhance the system by addressing user concerns.

3. Investing in development of infrastructure;

The government, working together with sector partners and international organizations should keep investing in enhancing and maintaining infrastructure. This involves expanding internet access upgrading technology tools ensuring compatibility and seamless integration of systems across sectors.

1. Offer literacy training;

Educational institutions and professional organizations should provide ongoing digital literacy training programs, for teachers, students and healthcare workers. These initiatives should focus on improving skills encouraging use of digital resources and fostering a mindset of constant learning and adaptation to new technologies.

2. Encourage research and innovation;

Universities and research centers should actively participate in research and innovation efforts concerning the digitization of nursing and midwifery education. This may include studying the impact of interventions exploring technologies and teaching methods as well as sharing successful strategies through publications and conferences.

3. Support collaboration among institutions for knowledge exchange;

The Nursing and Midwifery Council in partnership with institutions and professional associations should promote collaboration among entities, for sharing knowledge. This could involve organizing workshops, seminars or online discussions where educators can exchange insights address challenges collectively and work together on solutions.

To maintain the quality of nursing and midwifery education, in Ghana it is essential for training institutions to regularly review and update their curricula in collaboration with stakeholders. This alignment with the advancements ensures that the educational content remains pertinent and responsive to the evolving healthcare landscape.

In order to sustain the education system in the run it is imperative for the government along with international organizations and private entities to establish reliable funding mechanisms. This may involve allocating budget resources seeking grants and donations as fostering public private partnerships.

By implementing these strategies Ghana can ensure monitoring, enhancement and sustainability of its digitalized nursing and midwifery education system. The collective efforts of stakeholders such as government bodies, educational institutions, professional associations, international collaborators and private enterprises play a role, in maintaining the strength and efficacy of the system.

Investing further in infrastructure enhancing capacity fostering research and innovation promoting collaboration and refining curriculum development are crucial, to staying of the ever changing digital environment. This will ensure that our nursing and midwifery professionals are well equipped to provide top notch healthcare services to the community.

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