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Digital Competencies for Health Service Managers: Educating for Transformation

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Abstract. Healthcare in the 21st century is experiencing tumultuous times of turbulent and tortuous change, characterised by an aging population, an increasing chronic disease burden, and inadequate workforce capacity to meet this burgeoning demand. The development of digital capabilities for health service managers of today and tomorrow requires an approach that transcends traditional adult learning education and training trajectories. A five-step process for developing an andragogical approach to health service management competency development in the digital context is proposed. This process includes qualifying the capabilities required of health service managers in the digital age and expediating digital transformation within the Australian healthcare environment, informed by empirical research; linking teaching approaches for digital health using the five tenets of adult learning; and coalescing the competencies needed to contextualise knowledge and skills development requirements for the 5th Industrial Revolution. Importantly, formal and informal education and training for health service managers should focus on competency transferability, which requires trainers and educators to understand the transforming context and challenges facing health service managers in the healthcare industry. It is incumbent on the digital health community to build capacity and enable workforce development to inculcate sustainable influence for lasting change in the healthcare system.

Keywords. digital health, healthcare management, workforce development, digital transformation, adult learning, competency transferability

1. Introduction

Healthcare in the 21st century is experiencing tumultuous times of turbulent and tortuous change, characterised by an aging population, an increasing chronic disease burden, and inadequate workforce capacity to meet this burgeoning demand [1, 2]. Compounded by sustainability challenges across healthcare systems, an improving focus on the quintuple aim, and the dawning of the 5th Industrial Revolution, the health manager of today and tomorrow needs to develop digital capabilities with an approach that transcends traditional education and training trajectories, and are complementary with and cognisant of transformational capabilities that are required to manage and lead in the digital age [3-5].

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Using a three-step process including an Australian health service management (HSM) postgraduate program competency mapping analysis, digital health policy analysis, and synthesising evidence on changing health management competency requirements in the digital age, Brommeyer and Liang (2022) proposed a framework for health management workforce development in the digital health context [6]. The framework clearly indicates the importance of partnership between research and tertiary education institutions to generate empirical understanding of changing competency requirements to inform the revision of curriculum for formal HSM education. The framework further champions the adoption of work-based learning, supporting a capacity building approach to providing in-house training and support.

Considering the key steps in developing core components of the framework and relevant evidence emerging from recent research findings, this paper discusses a comprehensive process in developing andragogy in educating for digital health transformation, as applied in the Australian healthcare management context, cognisant of the rapidly evolving 5th Industrial Revolution.

2. Methods

Combining the three-step process adopted by Brommeyer and Liang (2022) [6], two additional steps have been taken to generate evidence that enriches understanding of the framework for developing health managers' digital competencies. This includes conducting focus group discussions with managers working in the Australian healthcare system to understand the best approaches in HSM development, as part of a PhD research study [7], and andragogical considerations for applying digital competencies in HSM education and training.

This five-step process was guided by empirical research to qualify the capabilities required of health service managers in the digital age, and expediating digital transformation within the Australian healthcare environment [8], linking teaching approaches for digital health using the five tenets of adult learning [9], and coalescing the competencies needed to contextualise knowledge and skills development requirements for the 5th Industrial Revolution.

Figure 1 illustrates the five-step process in developing an andragogical approach to HSM competency development in the digital context.

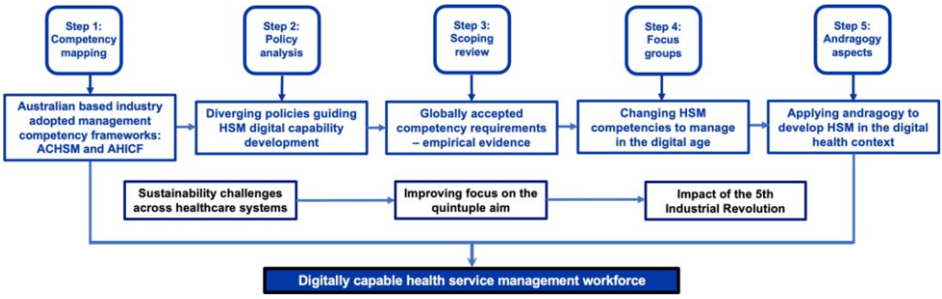

Figure 1. Five-step process in developing an andragogical approach for HSM in the digital context.

3. Results

3.1. Step 1: Competency Mapping – Confirming Competency Gaps

Outcomes from the health informatics competency mapping against the 21 postgraduate healthcare management programs offered domestically in Australia showed that less than half of the competencies were somewhat addressed, and 50% of the AHICF competencies [10] were not addressed at all. This highlights the need for digital competency development across health service management education and training, including postgraduate curriculum.

3.2. Step 2: Analysis of Australian Digital Health Policy

Findings from the analysis of Australian digital health policies across twelve national organisations, illuminated the disjointed, disaggregated and diverging requirements currently guiding the development of digital health capabilities for a competent, consummate and certified HSM workforce. This illustrates the need for discipline-specific competencies to be developed for managing in the digitally transforming context [6].

3.3. Step 3: Learning From International Literature – Confirming New Competency Development Requirements

Evidence identified from the international scoping review supported three key deliberations for proffering formal and detailed HSM development: 1) incorporating digital health competencies into the HSM teaching curriculum; 2) integrating necessary digital health curriculum content with theory to increase translation into practice; and 3) providing knowledge articulation with system, organisational, sectorial, and institutional level development requirements [11].

3.4. Step 4: Seeking Inputs From Health Service Managers – Focus Group Discussions

Initial outcomes from focus group discussions with more than 40 managers working in the Australian health sector, as part of the recent digital health management research [7], confirm that changes in the skills and knowledge required to perform health service management work in a digital health context focus on six main themes including 1) data and information management; 2) system knowledge; 3) change management; 4) educating staff; 5) vendor management and negotiating; and 6) governance and security.

3.5. Step 5: Andragogical Considerations for Digital Competencies in the 5th I.R.

Andragogy, the theory of adult learning, as posited by Knowles [9], describes the key characteristics of adult learners that support their motivation and responsibility for the learning process. The five key principles of andragogy are 1) self-concept of the learner, where adults need recognition of autonomy and are self-directed; 2) the role of experience: adults have a richness of experiences to acknowledge and apply to new learning; 3) readiness to learn: adults need for new knowledge is driven by context changes in real-life situations; 4) orientation to learning: adults engage in learning that is

contextual and problem-centred, reflecting their own needs and preferences; and 5) motivation to learn: adults are intrinsically motivated by various values, with personal satisfaction being a key driver [12]. These adult learning principles must be applied in teaching postgraduate digital health management students, including engaging health sector expertise to contextualise theories and solutions.

4. Discussion

4.1. Value of the 5-step Process in Updating an Andragogical Approach to HSM Competency Development in the Digital Context

"By incorporating Industry 5.0 principles into digital health education, we believe students can gain a deeper understanding of the industry and develop skills that will enable them to deliver a more efficient, effective, and sustainable healthcare system" [4]. To this end, the proposed five-step process in developing an andragogical approach to HSM competency development in the digital context can assist in guiding required education and training reform. This will further inform the roles required of agencies involving government, professional and tertiary institutions, and healthcare organisations in achieving HSM competency development in the digital context.

Application of andragogical principles can coalesce the competencies and capacity augmentation needed to contextualise HSM knowledge and skills development requirements for the 5th Industrial Revolution. The empirically validated HSM competency and capacity strategies as proposed by Brommeyer & Liang (2022) include: 1) embedding competency assessment into management development processes; 2) creating a competency model to guide developing competent managers; 3) providing formal, digital development opportunities to managers; 4) providing short-term training programs targeting specific competency areas; and 5) adopting a work-based learning and capacity-building approach for training and support across the organisation [6].

4.2. Transformational, Contextual Digital Competencies

Competencies required for HSMs to work with and manage in the digital health context are context-sensitive – context signifying the circumstances, tasks and environments in which the competence is used. Competence is the successful demonstration of consistent performance, within the specified domain [13]. Hence, building health managers' management capability must include both competency development and the development of their ability to apply competencies to management practices.

Initial findings from recent research [7] confirm that changes in the skills and knowledge required to perform HSM work in a digital health context focus on six main themes as described earlier. This identified need for digital transformation and contextualisation of competencies is of growing importance and priority for digital health management education in the 5th Industrial Revolution.

4.3. Andragogical Considerations for the Application of Competencies in the Digital Age

With the accelerating rate of change evidenced in the digital age and acknowledging the compressed time-frames for technological advancement in society, the 5th Industrial Revolution is radically changing healthcare [4]. This rapid transformation in the way healthcare is delivered and managed requires capabilities across the healthcare sector – including competence, which is essential in digital transformation. Accordingly, the way to prepare HSMs now and in the future in developing competencies for digitally-enabled healthcare can be empowered through andragogical approaches to learning and teaching digital health management.

More importantly, formal and informal education and training for HSMs should focus on competency transferability, which requires trainers and educators to have an in-depth understanding of the changing context and challenges facing HSMs in the healthcare industry. Therefore, education and training should be repositioned from traditional classroom teaching by emphasising and reinforcing a guiding role that facilitates learning, stimulates critical thinking, and enables application of the developed competencies in the management role (4, 5, 14, 15).

Therefore, the five key principles of andragogy for health management education in the digital context can be addressed by:

1. enhancing the role of *self-concept* in enabling mastery in use of digital tools to lead and manage healthcare, including a focus on digitally-enabled, data-informed, evidence-based decision-making;
2. *valuing the role of experience* to contiguously link with the digital competencies required (ACHSM, AHICF) for increasing capability in a context and informing capacity and resourcing requirements in a disruptive and dynamic environment;
3. the *readiness to learn* for postgraduate students working full-time in advancing digital capabilities essential for career development and progression;
4. digital *competencies that are essential* for health service managers in a transforming environment, including application of risk, resourcing, ethics, change and governance; and
5. the *motivation to learn*: HSM's intrinsic motivation is to demonstrate capability in safely using and managing digital health systems for the benefit of patients, practitioners, providers and the public.

5. Conclusions

In the rapidly transforming digital health environment, education and training to build health managers' management capability requires an approach responsive to the changing healthcare context. The proposed five-step process combining the identification of empirical evidence on changing health management competency requirements, policy direction, and contextualising the strengths and gaps between the current training curriculum and competency development needs of health managers in the specific health system, provides an innovative process for inculcating andragogy in the 5th Industrial Revolution. Andragogical considerations for developing HSM competencies in the dynamic and rapidly transforming digital age need a focus on competence in digital transformation to contextualise knowledge and skills development

requirements, enabled by addressing the five tenets of adult learning as discussed in the paper.

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