

Developing competencies in health informatics: Blended teaching method

Entwicklung von Kompetenzen in Gesundheitsinformatik: Methode des Blended Teaching

Abstract

The rapid development in health informatics has improved health outcomes but also poses challenges. Healthcare professionals need health information technology competencies for effective decision-making. This study aims to identify key health informatics competencies and proposes an educational structure to develop these competencies. A convergent design was used as a method for the interpretation of data from a scoping review and a focus group interview. The findings highlight challenges in health informatics pivots in management, interoperability, and patient care. A blended learning method including hands-on skills is suggested to develop health informatics competencies.

Keywords: education, health informatics competencies, healthcare

Zusammenfassung

Die rasante Entwicklung in der Gesundheitsinformatik hat zwar zu besseren Ergebnissen der Gesundheitsversorgung geführt, bringt aber auch Herausforderungen mit sich. Fachkräfte im Gesundheitswesen benötigen Gesundheitsinformatik-Kompetenzen, um effektive Entscheidungen treffen zu können. Diese Studie zielt darauf ab, wichtige Kompetenzen in der Gesundheitsinformatik zu identifizieren und einen Rahmen zur Entwicklung dieser Kompetenzen vorzuschlagen. Als Methode zur Interpretation der Ergebnisse aus einem Scoping-Review und einer Fokusgruppenbefragung wurde ein konvergentes Design verwendet. Die Ergebnisse zeigen Herausforderungen in der Gesundheitsinformatik in den Bereichen Management, Interoperabilität und Patientenversorgung auf. Zur Entwicklung von Kompetenzen in der Gesundheitsinformatik wird eine Blended-Learning-Methode einschließlich praktischer Fertigkeiten vorgeschlagen.

Schlüsselwörter: Bildung, Kompetenzen in der Gesundheitsinformatik, Gesundheitswesen

Introduction

The rapid growth of health information technology (HIT) has improved outcomes, services, and patient education in healthcare [1], but also introduced challenges for healthcare professionals. Limited information technology (IT) hinders effective use of informatics and contributes to feelings of incompetence and hesitance. As demand for health informatics (HI) expertise grows [2], HI becomes crucial for handling digital health-related responsibilities [3]. Although professional and technological competency levels vary across settings [4], HI education is essential for future professionals. Educational frameworks such as Technology Informatics Guiding Educational Reform

(TIGER) [5], International Medical Informatics Association (IMIA) [6] and Kirkpatrick's Four Levels of Training Evaluation Model [7] support this need. This study identifies key HI competencies for healthcare professionals and proposes an educational structure to develop them.

Methods

A mixed method study using convergent design analyzed data from a scoping review [8] and focus group interviews [9]. The scoping review included 28 English-language publications published between 2016 and 2020, analyzed via content analysis. The focus group interviews in-

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volved 21 health informatics professionals from Germany, Finland, and Portugal (informaticians n=3, IT specialists n=19, managers n=3, pharmacists n=2, physicians n=3, physiotherapists n=2, registered nurses n=7), with data examined using thematic content analysis. Themes and categories were based on TIGER educational framework domains and core competency areas.

Results

The challenges in HI revolve around knowledge and competencies related to direct patient care, IT-background [10] and management, including IT-supported management, change management and financial management in educational and professional settings [10], [11]. Additionally, competencies in documentation and fundamental computer science skills, competencies in data protection, data security and interoperability are essential [10].

Focus group interview examples:

“Nurses need to work with technology so they can build appropriate skills. For example, if they recommend patients use a specific app, they must also be familiar with how to use that app to adequately advise the patient.”

“I feel that documentation in patient work is one core part, and communication and reporting are maybe the priorities for maintaining patient safety.”

To implement these competencies, a blended teaching method is suggested to support interaction and collaboration among students and teachers within multiprofessional framework [11].

Discussion

The development of HIT has had both positive [1], and negative impact on healthcare professionals, highlighting the rapid growing need for HI competencies [2]. The findings suggest that educational programs should include documentation practices, especially nursing-related documentation. This education should focus on standardized terminology as well as institutional-related information. The second topic addresses management, including process management, IT-supported management, change management, and financial management [10]. The third topic focuses on interoperability, prioritizing the learning HIS with a focus on electronic health records and HIS from a customer's perspective [11]. Supported by Kirkpatrick's model [7], learning is a collaboration and effort provided by employers on-the-job training.

Conclusion

Although use of digital tools daily, healthcare professionals lack key HI competencies, especially in interoperability, management, and documentation. To address the need, HI education and training should include blended learning, including hands-on components to improve

practical HI skills. Healthcare professionals need to understand digital tools used in healthcare and develop competencies in health informatics.

Notes

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Competing interests

The authors declare that they have no competing interests.

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