

Conclusions

- The process of introducing mobile technology into clinical education should involve all stakeholders engaged in clinical training and institutional support, including training coordinators, mentors, students, and healthcare staff, including hospital ward managers.
- Extensive promotional and training activities for students and all stakeholders should be undertaken at the stage of implementing mobile technology in practical education. Additionally, it is necessary to ensure that all parties involved in clinical education speak with one voice on the use of mobile technology. This approach will ensure that mobile technology is used in practice.
- The sustainability of implementing mobile technology in clinical education requires evaluation of students' and stakeholders' opinions and needs.
- In considering the cultural acceptance of the usage of mobile technology in clinical settings, and the issues of the professional image of medical personnel/students using mobile technology, patients should be involved in the discussion and strategy development.
- The use of mobile technologies in clinical education should reduce the burden of paperwork for students and stakeholders involved in education. This will motivate all parties involved in clinical education to use mobile technology more.

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Recommendations to ensure the
introduction of mobile technology
in practice placements settings

4D in the digitalization of learning
in practice placement

As identified in the literature, different strategies should be implemented to introduce mobile technology into practice placement and they need to be considered at 3 different points of time:

Recommendation 1. When designing the innovation

When designing an innovation for digitalization in practice placements, several important aspects need to be considered:

- 1. Economic issues:** To overcome economic barriers, various strategies should be considered, such as reducing the cost of application and devices, ensuring affordable Internet packages, and increasing university investment in innovation.
- 2. Technical features:** Several technical features need to be considered when designing the innovation, including offline storage, easily viewable content on small screens, transferability of information among different platforms, data synchronization, software speed, printing options, and security measures.
- 3. Device selection:** Deciding what kind of mobile device is more suitable depends on the context where it is implemented. Tablets and other mobile devices are more appropriate for staff and patients, while smartphones are useful for students as they are less bulky and reduce costs.
- 4. Student's and educator's engagement:** Curricula and learning objectives should be considered when designing the innovation, and contents should be adapted according to the students' grade. Educators should also be involved in the design, and the innovation should integrate other aspects of medical school e-learning facilities, such as an e-portfolio.
- 5. Guidelines and policies:** Institutional governance about using mobile devices in the workplace is essential, and explicit and clear policies and behavior codes should be set.

Recommendation 2. During implementation

During implementation several strategies should be developed to assure its success. These strategies highlight the importance of training, teamwork, culture, staff and patient engagement, and patient education in successfully implementing mobile technology in healthcare education.

- 1. Training and guidance:** Adequate training and guidance is crucial for successful implementation of mobile technology in healthcare education. This training should be provided to educators, staff, clinical teachers, and especially students, including clear guidance on privacy and confidentiality issues. Training can foster nursing students' information literacy and evidence-based practice when using mobile devices.
- 2. Implementation team:** An implementation team, including clerkship directors, and a prominent leader for students and staff to approach with ideas, can contribute to successful implementation.
- 3. Promote a tablet/ innovation "culture":** Promoting an innovation "culture" can increase staff and patient engagement and empowerment.
- 4. Engaging and empowering supervisors and clinical staff:** Engaging and empowering supervisors and clinical staff through initiatives to improve staff awareness about the value of portable devices, better coordination between university and practice placements, and assuring them that mobile devices are used for pedagogical purposes.
- 5. Engaging patients:** Engaging patients by explaining the use of mobile devices to avoid misinterpretation, asking for consent, and explaining the benefits of mobile devices to improve the quality of care and safety as educational tools.

Recommendation 3. After implementation

After implementation, once the innovation is already introduced in practice placements, several things should be considered in order to have a successful mLearning in practice placements over time.

- 1. Technical and maintenance support:** Technical and maintenance support should be provided to users. This should include hardware, software, and network connectivity. Support channels such as helpdesk, email, live chat with technical staff, web-information, FAQ, user tips, peers, and troubleshooting page should be available to rectify any software or other issues. One study recommends having an interdisciplinary team comprising technology experts and library scientists to provide support that students may require, including mobile discussions and confidentiality.
- 2. Insurance for lost/damaged/stolen devices should be guaranteed:** Guaranteed insurance for lost, damaged or

stolen devices is essential to protect users and their investments.

- 3. Free Internet access should be ensured:** Ensuring free internet access is necessary to enable users to access online resources and carry out their tasks without any additional cost.
- 4. Student's and stakeholders' feedback:** Healthcare leaders and students should be part of the conversation to gather feedback from students and stakeholders to mitigate the barriers of introducing mobile devices in clinical placements. It is also essential to keep asking students what they need from the device on clinical placement once introduced. This feedback will help to tailor the device usage and support to meet the students' needs.

