

Title:

Strategic development of Consortium of Educational Institutions in Digital Health (CONEDIG) – A Discussion Paper

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Abbreviations:

GDHE – Global Digital Health Education

ISfTeH – International Society for Telemedicine & eHealth

CONEDIG – Consortium of Educational Institutions in Digital Health

CME – Continuing Medical Education

CPD – Continuing Professional Development

1. Background / Conception:**1.1 History of digital health education**

Digital technology for health services has revolutionized the healthcare system. The use of health information technology, telemedicine, wearable devices, personalized medicine, mobile medical applications and general wellness devices are now almost inclusive aspects of healthcare. This surge of digital health technology was brought about by access to the internet, development of smart devices and a 'tech savvy' generation. Apart from the ease of access to healthcare, digital health technology proposes to reduce costs and tailor healthcare to the needs of a person. In order to better utilize and reap maximum benefits of this resource, the advent of formal education in this field was imminent. Further fuelling this aspect are initiatives taken by governments to digitize the healthcare system by the introduction of the Electronic Health Record, etc. into routine medical practice.

The digital health field is a unique blend of the knowledge of medicine and information technology. Since information technology is an integral feature, it forms a branch of informatics. Some of the subjects that are covered in this field (may be used interchangeably) include health informatics, medical informatics, clinical health informatics and public health informatics. These subjects cover training in the delivery of digital healthcare, use of mobile medical

applications, digital therapeutics (regulated evidence-based software interventions), telehealth, wearable devices, sensors and digital biomarkers (hardware-software based measurement of physiological data)¹. Other competencies include the ability to select, use and evaluate digital tools and systems with regard to data protection handling of continuous clinical data, analysis of data and ethics especially with regard to the use of artificial intelligence². Another important aspect that must be given consideration is the study of legislation and regulatory frameworks that accompany the introduction of digital health technology.

Mosch et al (2019) indicate an urgent need for digital health literacy and skills among health professionals. Based on the results of a consultation with the European Medical students' association, the authors defined a gap between the overall willingness of students to become key players in a meaningful digitisation of healthcare and the competencies and skills that are acquired during their courses³. In essence, we are now looking at the incorporation of 'informatics' into the medical field.

1.2 Recent developments

Timothy Dy Aungst and Ravi Patel (2020) envision several digital health training options such as built-in (didactic courses, laboratory exercises, rotations or clinical experiences), elective track process and adjunctive degrees (e.g. masters) following completion of didactic courses and formal education¹. Subsequently, a capstone project may be an easy mechanic to create an output from an elective track process or an adjunctive degree, done through outside partners. Additional options include postgraduate education, like residency or fellowship positions, continuing medical education (CME) for current practitioners and learning suites and certificate programs provided by professional organizations and associations.

Haag M et al (2018) cite the challenges in adapting university teaching of digital health technology that involve insufficient or missing infrastructure, lack of training opportunities for teachers, additional burden on teachers and the unfavorable legal framework conditions that impede innovation².

Timothy Dy Aungst and Ravi Patel (2020) also highlight the issue of a lack of digital health experts with backgrounds in education, which schools need to acquire to be able to provide such education. Therefore, it is paramount that relationships between ongoing educational programs are fostered. Due to the need for the promotion of exchange of knowledge sharing, ideas, experiences and best practices through virtual classes, an international outreach program on digital health is required. Such an initiative is best addressed by the creation of new organizations or societies that are dedicated to fulfil this need and provide the required education services to health professionals¹.

2. Emergence of CONEDIG:

2.1 Brief history of initiative

In recent years, there has been a rapid development of educational institutions in digital health education as programs for bachelor, master and post-graduate studies. In November 2019, the International Society for Telemedicine and eHealth (*ISfTeH*) presented a project with regard to development of educational programs in digital health with a view to contribute to a controlled and efficient growth of 'Global Digital Health Education' (GDHE). Hence, it was

realized that the need of the hour was the setup of a “Consortium” of “Educational Institutions” in the field.

With the need to continuously explore, analyze and disseminate existing benchmarks and best practices in GDHE, it was thus decided to unite academic institutions with an interest in GDHE. *A working group of common interests was created under the title “Consortium of Educational Institutions in Digital Health” (“CONEDIG”). This consortium is to function as an independent body operating on a not-for-profit basis under the umbrella of the ISfTeH⁴.*

CONEDIG was conceptualized with the aim of consolidating digital health education for initial training (at the undergraduate level) and continuous training (as part of CME activities). The idea encompasses the creation of a set of education programs for digital health (e.g. telemedicine) and the evaluation of existing programs in digital health. An additional aspect approached, is to work toward ownership of a common lexicon in digital health. As membership to CONEDIG, engaged institutions will be able to work on a common agenda.

CONEDIG’s purpose is to assist the Consortium’s partners to coordinate their programs around GDHE issues (including Telemedicine, eHealth, mobile health, Medical Informatics, Bio-Medical Engineering, etc.) such as teaching, research, development as well as practical applications in view of initial graduation and post-graduation.

2.2 Vision, mission, activities

The vision of CONEDIG is to develop ‘a la carte’ training courses in digital health. As such, the vision involves the creation of an evaluation and accreditation framework for digital health programs. This may be in the realm of academic as well as clinical programs. The consortium should be capable of informing societies of the existence of CONEDIG and invite students to participate in study programs. Exchange programs for PhD students and teachers would therefore be a vital component and a platform to share experiences in GHDE.

Among the development of academic activities, CONEDIG will adopt the following:

- Support / create a framework of developing new and updating existing curricula in digital health;
- Support / create a framework of evaluation or accreditation of study programs in digital health;
- Support / create generic modular study courses on various topics in digital health

The consortium also advocates for development of guidelines in recommendations of good international practices in digital health. Consortium members will therefore represent these aspects in international and global circles. This in turn will allow the consortium to advocate the advancement of GDHE in developed and developing countries.

2.3 Partner institutions

CONEDIG includes expertise from five founding members. These are:

- Universidade do Estado do Rio de Janeiro (UERJ) *Rio de Janeiro State University*, Brazil
- Université de Bordeaux, France

- Deggendorf Institute of Technology, European Campus Rottal-Inn (DIT-ECRI), Germany
- Peoples' Friendship University of Russia (RUDN), Russian Federation
- University of KwaZulu Natal (UKZN), South Africa

The five partner institutions intend to share experience and assist each other to discuss the inventory of existing modules and course qualifications. Subsequently, CONEDIG member institutions will be instrumental in developing common modules and courses in GHDE, strengthened by teaching and exchange across institutions. CONEDIG will thus pioneer the prospect of developing a generic CME awareness course.

The amalgamation of experiences from the five partner institutions is paramount to consolidate a theoretical and harmonized approach in transforming knowledge to be useful and usable. The modelling of this approach stems from the experience of education in telemedicine and allied fields. Such experience will develop criteria for evaluation of the results of their education programs. Furthermore, continuous active contribution to achieve the consortium's short, medium and long term objectives and collaborative discipline between partners will contribute to the desired goals. Subsequently, having foreign cooperators contributing to the exchange of similar initiatives, shared teaching and international research funding will be beneficial. Such a partnership will expand and sustain the use of telemedicine and digital health in member countries and other countries. . This is needed in order to set up agreements that will allow institutions to work together to offer career opportunities in the digital health field.

2.4 Goal and Objectives

CONEDIG proposes to transform theoretical knowledge into practical and useful knowledge. This requires an overview of the activities of the member institutions, exchange of experiences and develop a common thread of the activities of involved institutions.

The stated goals of CONEDIG are as follows:

1. To stimulate a collaboration between educational institutions delivering programs in digital health
2. To explore and benchmark existing synergies in the field
3. To come up with further development possibilities of the programs
4. To define career opportunities
5. To develop a common promotional campaign

With the aim of exchanging experiences, CONEDIG members are to conduct regular meetings to discuss the goals of the initiative, search best practices and international cooperation with the best teachers, work on common paths and setup annual workshops in GHDE. CONEDIG's strategy / roadmap development in GDHE involves:

§ Defining its aims and objectives

- Conducting online education
- Implementing CME in digital health

§ Defining short, medium term goals and plotting a course for the next year

3. Description of survey results (expectations of the consortium): An International and recognized resource platform in the field of Digital Health

The members recognize the necessity to approach the health needs of each country and not remain too much in theory. As a global platform for advancing GDHE worldwide, CONEDIG expects to train and qualify people to work in GDHE around the world. Participation and collaboration in international research and the creation of an international teaching network in digital health will facilitate the development of joint projects in GDHE. CONEDIG will thus act as a global meeting place of academics in the field of digital health with experts in the field sharing knowledge, expertise, content and personnel for education and research.

4. Development of a working program

4.1 Roadmap of activities, work packages, resources, expected deliverables, risk mitigation

In order to initiate and support a multi-stakeholder dialogue in GDHE and secure its role and position in the GDHE landscape, CONEDIG has proposed to develop a roadmap of activities for the next 1-3 years that include:

- The development, provision and promotion of joint ad hoc courses, qualifications and project applications (e.g. CME, CPD) as e-learning activities in order to provide practical training to support GDHE
- The training and support of health care professionals and medical students at all stages including undergraduate, postgraduate and CPD in digital health to deliver improved patient care
- The sharing and exchange of digital health personnel to teach and instruct in member institutions' courses
- Assistance to medical institutions to implement telemedicine as a discipline (subject) in their curriculum
- Finding and securing funding sponsorship, partnerships
- Increase membership (inclusion of 33% of ISfTeH institutional members)
- Attracting member institutions from countries that are not ISfTeH national members
- Evidence that the consortium is functional with a register of qualifications, courses, modules and their content
- The consortium in concert with member institutions can develop internationally acceptable basic introductory/awareness courses that is not country and legislation specific

In the medium term (4-7 years), CONEDIG envisions the following:

- Increase global influence and provide leadership and support all those involved in digital health
- Expand the consortium to include institutions from 66% of the ISfTeH institutional members
- Advance evaluation of best practices, scaling up creation and dissemination of ad hoc study courses
- Promote standards in digital health
- Create an association on the lines of an 'Accreditation Commission of Education Institutions on Digital Health'
- Award of joint qualifications along with ongoing joint research applications and successful completion of joint research programs

The long-term goals of the consortium will be to consolidate what has been implemented in the short and medium term. Eventually, it will be required that the consortium is recognized and visible in the field of training and the use of digital health.

4.2 Potential funding and sustainability

The Consortium will need to determine an initially needed working budget. An initial funding of EUR 10.000,00 should be considered. In order to address financial issues, close links should be fostered with the industry.

5. Conclusion

For the successful implementation and incorporation of digital health technology into the healthcare system, it is imperative that an association that reflects the formal education of digital health is created. As a consortium of educational institutions in digital health, CONEDIG will serve as a global platform for advancing digital health as well as telemedicine education. Integral to this idea involves the sharing of expertise for joint educational and research projects. With the resources of experience, enthusiasm, existing courses and infrastructure that the founding institutions can provide, CONEDIG will be an indispensable tool in GDHE.

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