

Wales Institute of Digital Information (WIDI): A Model of Collaborative Health Education, CPD, Research and Innovation

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Abstract. The Wales Institute of Digital Information has developed a flexible model of education, CPD, research and innovation for the Welsh health and care sectors, in the digital arena. The co-produced model had produced significant benefits for both health employers and the Universities involved in the partnership. The model is continuing to develop collaborative educational provision from level 2 to level 8 and is concentrating on expanding its digital research and innovation offering to the health and care sector in a similar co-developed collaborative way.

Keywords. Education, professionals, model

1. Introduction

Prior to 2017 the NHS Wales Informatics service (now called Digital Health and Care Wales (DHCW)) [1] had been experiencing ongoing problems with recruitment, retention, educational development, and continual professional development of its digital workforce. This problem was also not confined to NWIS alone as the Welsh NHS [2] also had similar issues. In an attempt to address these issues discussions took place between key individuals within NWIS the University of Wales Trinity Saint David (UWTSD) [3] and, later on in the process, the University of South Wales (USW) [4], to develop a model of collaboration that could address these issues.

The result of the collaborative talks was the implementation of the model with the creation of the Wales Institute of Digital Information (WIDI) in March 2017 [5].

2. The Creation of the Model

Talks between key individuals at NWIS and UWTSD established, early on that there were synergies between the two organisations regarding their missions, USW joined in the discussions later on in the process. NWIS needed to address several issues including recruitment; retention; continuing professional development (CPD); research and

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innovation. UWTSd was interesting in extending its research into digital health and in developing part time student programmes and employer based training courses.

The WIDI Partnership had the knowledge and expertise to enhance digital workforce development in health and care and innovation and to establish health and care data research projects.

The subsequent model that was developed concentrated on three strategic pillars:

- Professionalisation, Skills and Academic Development
- Research
- Innovation and Engagement

2.1. Pillar 1: Professionalisation, Skills and Academic Development

WIDI began the education development process via detailed discussions with health employers to establish what their needs were. It soon became clear that an apprenticeship programme could address the educational skills issue within NWIS and NHS Wales, the problem however was that no funded apprenticeship scheme existed in Wales. WIDI consulted with apprenticeship experts in Wales, England and also crucially Staffordshire University, who had experience of developing similar programmes.

Traditionally Universities have developed programmes and then asked employers if they want to send students to study on them, there is usually some attempt at employer involvement in programme design but often it is minimal, usually via a committee or two, this results in programmes that do not properly fit the employer needs. The WIDI model was different: employers were involved in programme development from the very beginning, selecting modules and delivery models that would be suitable. This co-design method produced a programme that was directly relevant to NWIS and NHS, Wales but also to many other public sector employers who had similar needs. Employer feedback therefore provided critical information regarding the level, content and delivery model of the developing programmes.

WIDI developed the Welsh Digital Degree Apprenticeship portfolio based on the model that was, at that time, running in England since there was no equivalent Welsh funded version. Three apprenticeship titles were initially developed which had embedded academic degrees as follows:

- BSc Computing (Data & Information Systems)
- BSc Computing (Computer Networks & Cyber Security)
- BSc Computing (Software Engineering)

WIDI took a proposal, to Welsh Government, to release funding a year early since we had apprentices waiting to start. This proposal was accepted and so the programme took on its first cohort of apprentices in academic year 2018-19. The delivery model was a one day a week release from employment with industrially based projects and modules making up the academic content, the programme could be completed in 4 or 5 years using this delivery model. NWIS and many of the South Wales Health Boards sent apprentices onto the programme along with other sector employers. Academic accreditation was also a key employer and University requirement for this programme and so the BCS accreditation was also gained for these titles. Two further titles were subsequently launched, at UWTSd, after employer consultation namely:

- BSc Computing (Cloud Computing)
- BSc Computing (Cloud Software Development)

Recruitment onto these programmes is shown in Table 1.

USW also launched two Digital and Technology Solutions Degree Apprenticeships spread over 56 months delivered from the University’s Treforest Campus.

Table 1. Digital Degree Apprenticeship Recruitment Figures

Pathway	2018-19	2019-20	2020-21	2021-22	Total
BSc Computing (Data & Information Systems)	9	12	9	5	35
BSc Computing (Computer Networks & Cyber Security)	17	10	14	7	48
BSc Computing (Software Engineering)	12	9	9	5	35
BSc Computing (Cloud Computing)			1	3	4
BSc Computing (Cloud Software Development)		1	3		4
TOTAL	38	32	36	20	126

There was also an employer demand for level, 2, 3 and 4 Health Informatics distance learning training programmes. These were developed again with employer involvement and via a partnership with an FE sector College, Coleg Sir Gar.

At level 7, Masters level, WIDI Has received funding from Welsh Government to run an MSc Digital Skills for Health and Care Professions, the first course of its kind in Wales, this postgraduate course enhances the skills of Health and Social Care staff. This course is suited to those who have an interest in expanding and working within the digital landscape of health and care delivery. It attracted around 60 recruits in year 1 of its operation, 2021/22 with a similar number expected in 2022/23. Once again these high level Digital Skills were identified as a significant need within the health and care sector by the sector themselves!

As well as academic provision there have also been several specialised CPD events run primarily for DHCW staff in Data Analysis and Data Visualisation. These titles were specified as areas of significant need within DHCW.

2.2. Pillar 2: Research

The co-production model developed for the academic programme provision was also adopted in the research approach with health and care partners. Identified areas of research were very much applied and related to the direct needs of the health body initiating the project with the Universities adapting to those needs rather than to the University research agenda. The significant links that WIDI developed with the health and care sector has led to a number of completed, active and developing research projects. Via funding from Welsh Government WIDI have employed six Research Assistants, twelve fractional academics and two professors to work on health and care research projects.

The projects that fall into these categories are shown in Table 2:

Table 2. WIDI Research Projects

Project Name	Category	Partner
Urology Clinical Trials Referral System	Stage 1 complete	SBUHB
Ward based e-Whiteboard	Proposed	CTMUHB
Rural Health Care Solutions Using AI, Robotics, IOT and Satcom	Proposed	PTHB
Get-Fit-Wales	Active	CTMUHB
ARIA	Active	RIW/ CTMUHB
Explode2 Voice pattern analysis in COPD patients using AI		
TOTAL	38	32

There are 6 PhDs and 2 Masters by research currently ongoing with employees of DHCW and additionally a further 13 undergraduate and 11 masters level individual projects are underway with various health boards.

2.3. Pillar 3: Innovation and Engagement

The collaborative model has led to significant engagement with many of the health boards:

- HDUHB: Establishment of Pentre Awel as a research, education, and training centre
- CTMUHB: 2 staff seconded to WIDI one day per week, seeking to appoint a Visiting Research Fellow/Professor along with 4 other staff working on projects
- PTHB: One staff member seconded 1 day per week, looking to appoint a Visiting Research Professor
- ABUHB: along with TEC Cymru to develop a long term PhD programme to upskill staff

Most of these health boards have also signed memorandums of understanding with WIDI.

3. Conclusions

In conclusion this paper shows that a co-production approach model of collaboration between the health and care sector and Universities can have very significant advantages to all parties involved in: Professionalisation; Skills and Academic Development; Research and Innovation and Engagement.

References

- [1] Digital Health and Care Wales, Online [Accessed June 2022], <https://dhcw.nhs.wales/>
- [2] The National Health Service, Wales, Online [Accessed June 2022], <https://dhcw.nhs.wales/>
- [3] University of Wales Trinity Saint David, Online [Accessed June 2022], <https://uwtsd.ac.uk/about/>
- [4] University of South Wales, Online [Accessed June 2022], <https://www.southwales.ac.uk/about/>
- [5] Dearing W, Ware, A, Wells I. March 2017, Online [Accessed June 2022], <https://widi.wales/2021/01/22/major-boost-to-wales-healthcare-workforce-development-and-research/>