Thesis Tierney Peter LJMU 2021

Appendix-Supplementary Data

Appendix File Guide

The following information serve as a guide for finding and viewing the relevant supplementary data supporting the findings of this thesis. The data was collected during the period of the project from January 2019 to April 2021. The files included in the Appendix are to be viewed in conjunction with the thesis.

The abstract provides an summary of the body of work contained within the thesis titled **Design, Development and Implementation of Wearable Technology in Football Further Education Settings in the United Kingdom**

Abstract

The prevalence of wearable technology in association football (or soccer) has been prominent in top professional teams for over a decade and is employed by coaches and sport science practitioners to quantify and help improve the performance of either the individual player or team. Educational settings have also witnessed an exponential rise in the application of wearable technology in formal learning environments. The increased number of football industry related qualifications offered by Further Education (FE) and Higher Education (HE) establishments has probably been the driver for this expansion. There is, however, a dearth of research on the educational application of wearable technology in FE and HE. There is also some conjecture as to whether the current wearable technology products on the market, are designed for an educational purpose. The aim therefore of this professional doctorate project was to investigate the use of wearable technology in football related further and higher education settings, and to develop a wearable technology product tool that was deemed appropriate for a FE environment. Thus, the aim of Study 1 (Chapter 4) was to establish the extent, wearable technology was being used in FE and HE environments. Using a mixed-method

research design the initial survey established the type of technology and how they were being employed in FE and HE settings. The study identified that Global Positioning System (GPS) vests and Heart rate chest strap are the most prominent wearable technology. Qualitative findings suggested there are pedagogic challenges and barriers to using this kind of technology, a lack of understanding, and poor feedback and communication. Having established some preliminary findings Study 2 (Chapter 5) explored these barriers and challenges within contextualised settings in more depth. It identified a disconnect between 2 coaching performance and coaching education, highlighting a lack of knowledge surrounding the uses and capabilities of wearable technology used in football related FE settings. Furthermore, participant responses suggested the current wearable technology products on the market were not fit for educational purposes. By designing and developing (Study 3) a bespoke wearable technology product (Chapter 6) provided an industry specific solution to the issues presented in Chapter 5. Adopting a unique collaboration between academia and industry, recruiting experts in various fields, thus enabled the design and development of a novel bespoke system, including the hardware and software requirements reported in Chapter 4 and Chapter 5. Since the purpose of Study 3 was the development of the wearable technology hardware and software, the aim of Study 4 (Chapter 7) was to evaluate the product and system in an applied real-world setting. Findings suggest student engagement increased, and attainment improved. Additionally, it also demonstrated a more accessible and user-friendly platform for use in FE by eliminating technological features captured in Chapter 5. By using a mobile application and cloud-based system that enabled cross pollination to other curriculum areas suggested college staff and coaches were becoming more engaged with wearable technology. Evidence also suggested students displayed attributes of independent learning and demonstrated engagement outside of formal learning environments. In summary, the research data and product development presented in this thesis suggest the wearable technology system is fit for purpose and can be deployed in FE environments. From a practitioner perspective, this doctoral thesis has also laid the foundations for education, football, and wearable technology communities the impetus to work in collaboration. This doctoral thesis demonstrates that

it is possible for academia, business and commercial enterprise to work collectively to elucidate and solve real world industry problems

Contents of Appendix

The appendix comprises of six file formats

1. Sixty six (66) pdf documents: these are referenced in the main body of the thesis and clearly marked for the reader to then be able to locate as the appendix number example being in thesis text page 24 Chapter 1.1 read as (Appendix 1) then in the appendix folder this is listed as **2021TierneyPDAppendix 1. Self Audit Research plan**
2. Six (6) jpg and two (2) png files, these are pictures and referenced in the main body of the thesis as the above example **2021TierneyPDAppendix 76.Non league football use**
3. Ten (10) MS Excel files, that contain the detailed tables and all numerical data used for charts and corresponding results
4. Eighteen (18) Mov and one (1) M4v files, these are video type movie clips referenced in the main body of text within the thesis and referenced as the above examples
5. One (1) word document referenced in the main body of text within the thesis and referenced as the above examples
6. One (1) pptx and one (1) pub files, this is a powerpoint presentation and a publisher article and these are also referenced as above examples in the main body of text of the thesis