Turkish Online Journal of Qualitative Inquiry (TOJQI)
Volume 12, Issue 10, October 2021: 453-461

The Use of ICT Physical Education in the Partnership Teacher Training of School and Institutions

Yashoda Rani[1], Dr. Rahul Kumar[2] and Prof. Kalpana Sharma[3]

[1]Ph.D Scholar, ASPESS, Amity University, Noida (India)
[2]Teaching Associate, ASPESS, Amity University, Noida (India)
[3]Professor, Supervisor & Director, ASPESS, Amity University, Noida (India)

Abstract

The project investigated the way ICT is currently used in Physical Education (PE) in the NCPE Researched the opportunities for enhancing and extending its use. It examined how the course, in both university and school-based settings, is able to support trainees in the use of ICT in PE. From this enhanced knowledge base, the research sought to identify areas for improvement which could be taken into consideration when planning for the next cohort of trainees. It will also be used to inform arrangements for supporting teachers in DSR schools and highlight areas the schools themselves may like to consider.

The research process was designed and implemented so as to be informative and supportive, encouraging all involved to reflect on and develop current practice rather than to make judgements. It aimed to promote and further develop effective use of ICT to the benefit of the local Partnership of trainees, teachers, schools and university-based lecturers; as well enhancing the learning experiences of the school students.

Although the study focused on the practice of one NCPE partnership, it is felt the findings and recommendations may be helpful in supporting the improvement of practice more widely.

Key findings and recommendations

The following findings emerged from the research. As data were collected from three distinct groups of people, the findings are grouped in this way.

Trainees

- Most trainees ***showed some awareness of the potential of ICT in PE*** but had little specific knowledge, understanding or associated skills.
- Most trainees were ***very positive and enthusiastic about learning to use ICT*** as they believed it could enhance their teaching and the learning experience for the school students, but many felt opportunities for this were not fully realised.

- Many trainees felt ***ICT was not 'visible' enough across the course,*** noting it was neither used or referenced regularly across the programme, but was associated more with distinct University-based sessions, often run by people who came in specifically to do this.

- Trainees noted the need for ***more dedicated workshops and hands on sessions*** so they could familiarise themselves with a range of equipment and technical skills early on in the course**.** They reported that 'watching' ICT being used was no substitute for 'doing', and they felt they lacked experience of using specific ICT applications relevant to them in their school placements and future career.

- Many trainees reported that ***their placement schools were not able to provide a rich ICT/PE experience***, with many schools only using ICT with specialist PE groups such as DSR, A or A1 classes. This was mainly due to combinations of lack of equipment and staff expertise (or occasionally simply time).

School-based principal subject tutors (and other PE colleagues in partner schools)

- Most were ***very positive and enthusiastic to learn more about using ICT in PE*** to enhance their teaching and student learning.

- Most felt they had ***limited experience of using ICT in their teaching and did not have sufficient understanding of its potential to address this.*** Very few for example use digital video, and even fewer were able to access any video analysis software, or have a real understanding of the opportunities which its use might open up.

PGT programme tutors

- The two main PE PGT tutors noted their ***interest in the area, and recognition of the role of ICT,*** but felt they needed more practical experience to develop this.

- ***Lack of time*** was reported as a barrier to the intentions to embed ICT use in the PE PGT Programme. This related both to tutor-time needed to set up new equipment, learn how to use it themselves and then how to embed it into their programme in an appropriate way; and also to being able to find the additional time in lectures to incorporate ICT in a very tight schedule.

- ***An acute shortage of ICT resources and equipment***, particularly in relation to the specific needs of the subject area, was noted. Trainees who subsequently went to well-equipped schools were therefore not familiar with equipment they needed to be able to use in schools, whilst those who had few (or no) resources in their placement schools completed the course with insufficient ICT experience. Some additional equipment was on site but was not fully operational.

Recommendations

Recommendations (shown as R1, R2 etc) relate to the whole programme and Partnership, and are not split between the various groups who raised the issue. It is recognised that there are time and resource implications for many of the recommendations, and where possible suggestions of ways to work towards these recommendations are offered. It is also appreciated that many of the points made

are ones which tutors and colleagues in partner schools and on the university site are already aware of and striving to address.

Whilst the recommendations are specific to this partnership, it is felt they provide a framework on which other partnerships can draw.

R1 ***The reported enthusiasm and motivation of all groups in the Partnership in relation to role of ICT in PE needs to be nurtured and invested in, with more ways being found to capture, maintain and utilise this***. Suggestions include:

a) Recognising current use of ICT in teaching and administration, and to emphasise what ***is*** currently happening so as to build on this positive feature.

b) identifying and building on the ICT sessions/incidents which trainees felt inspired by

R2 ***There is an urgent need to raise the awareness of the specific ways in which ICT can enhance the teaching and learning of PE.*** Whilst most subject tutors demonstrated a general awareness of use of ICT in PE, they need support to make this more specific, for example to have examples of how technology can be used in teaching programmes structured to meet the PE National Curriculum requirements. This will enable them to review and adapt existing teaching programmes and discuss resourcing needs.

Examples (more detail is available in Appendix 1) include:

a) Using video cameras and video analysis software for analysing, assessing and improving performance.

b) PowerPoint for presentation and demonstration of pupils' ability to select and synthesise information to meet their needs and develop an ability to question its accuracy, bias and plausibility.

c) Using the Internet to find resources to support teaching extend pupil learning and set enrichment activities.

d) Heart rate monitors and other health related exercise equipment to develop pupil knowledge and understanding of what happens to their body during exercise and to develop appropriate training methods for different activities.

e) Interactive CD ROMS and DVDs that enable pupils to learn new skills or develop existing skills through visual and auditory demonstrations.

R3 ***the potentially valuable role of ICT in PE needs to be more visible and widely promoted outside the subject area.*** Head teachers, senior managers, ICT coordinators, governors and others with links to resourcing decisions, need to be made more aware of the very specific ICT resources which are of most benefit in the teaching and learning of PE. Many of these, such as access to digital video cameras and video analysis software, heart rate monitors etc are quite distinct from the needs of other subject areas.

R4 Ways need to be found to support tutors within both university and schools to improve their knowledge, understanding and skills in relation to ICT in PE and hence impact on practice. This is more complex than merely the provision of ad hoc resourcing and training, although both these aspects are important. It is beyond the scope of this report to address this whole subject in detail, but it will require institutional support, review of teaching programmes (identifying and observing examples of good practice) in order to develop a robust programme for ICT development in the subject area to be implemented over time.

Specific suggestions include:

a) To identify and utilise pockets of expertise within the Partnership

b) Providing sessions on use of ICT in PE as part of the programme of PE partnership meetings at the Institution, drawing on expertise from within the Partnership as appropriate. There were, for example, very positive reports for sessions on using PowerPoint in PE, and on digital video in PE at a workshop led by a school-based tutors at the DSR PE/ICT event (Feb 2018).

c) To encourage groups of partner schools to work together and draw on each others' expertise, or identify common needs which can be met jointly

d) To proactively encourage/enable sharing of ideas, examples of good practice and prepared materials such as video clips and scenarios which have proved 'successful' (i.e. have made an impact on learning and performance). The University website may be able to play a role in facilitating this.

e) To identify suitable ICT/PE training and support for teachers on how to implement technology and on how to integrate it into their teaching programmes.

f) To encourage school-based tutors to work closely with their school ICT co-ordinator to get a better understanding of the opportunities and limitations of ICT use within the school. This will also improve shared understandings of the needs within PE.

g) To develop an appreciation of the different strengths of the three NCPE PE providers in the region, and work together where appropriate for mutual benefit.

h) To explore common ICT needs and investigate any possible benefits/opportunities of links with expertise in the Exercise and Sports Science Department based on the same university site as the NCPE PE programme.

R5. The use of ICT needs to be made more explicit increasing its visibility across the NCPE PE Programme. The importance of modelling good practice with ICT both in Institutions and school-based situations needs to be more widely recognised and implemented. Suggestions for achieving this include:

a) Any current use of ICT in teaching session, such as using PowerPoint, spreadsheets, use of interactive white boards, use of internet etc could be made explicit to the trainees so it is seen as an example of modelling. Where appropriate this opportunity can then be used to note the

transferability of use to a school-based teaching situation or trainees can be invited to find examples of this.

b) General reference to and encouragement for the use of ICT should be integrated into lectures and noted by school based tutors when supporting trainees practice.

R6 more opportunities should be found for using ICT both prior to and during school-based work. A mapping of opportunities for the modelling of ICT across the three phases of the Programme could be undertaken, so that all trainees experience some common basic experience on how ICT can promote learning and teaching. This may initially focus on the taught (university-based), part of the Programme but then could extend to get clarity on what ICT experiences are fulfilled in the wide range of school based settings.

R7. More 'hands on' opportunities need to be built into the Programme to enable trainees to learn how to use different ICT devices and software applications. This might be facilitated by giving trainees access to a good range of ICT applications of relevance to PE alongside technical support. Setting of tasks which encourage trainees to do this and hence give them a purpose and structure for this additional 'hands on' activity outside their structured lectures and teaching commitments may be beneficial.

This project will work across the whole partnership of NCPE provision at DSR to research trainees' experiences of ICT in the teaching and learning of PE as preparation for their role in the teaching profession. In so doing the practice of teachers in the partner schools will also be the subject of reflection and development, and hence it is anticipated that the project will make a positive impact on the learning experiences of school students.

Exeter is a Category B provider and has one of the largest cohorts of PE trainees in a secondary NCPE PE programme in the Noida, with 46 students for the academic year 2018-19, the year this research was undertaken. We currently work with a wide network of *DSR Schools*, of which 40 take PE students. These are the schools and trainees which were at the centre of this research.

Pilot research was undertaken across the academic year 2018-19, which provided an initial understanding of how 25 PE subject tutors in the DSR schools use ICT for learning and teaching in PE. This provided baseline data for the current research, as well as an opportunity to test research instruments for the study reported here.

The research project reported here addressed in particular priority 7e in the tender document, which was *to research and develop the effective use of ICT in teaching and learning*; in this case in the subject of PE.

Methodology

The target population for the research includes those involved with the NCPE programme in PE. The research design is best explained diagrammatically, see diagram 1. Essentially baseline data were collected in term one (October to December) of the academic year 2018-19 from trainees, school-based tutors (principal subject tutors) and NCPE course tutors. Case studies were then undertaken in 6 'DSR schools' where trainees were based for two terms (January to June 2018), and finally a

questionnaire was completed by all trainees and group discussions with all trainees were undertaken. Further interviews with course tutors were also carried out at the end of the academic year.

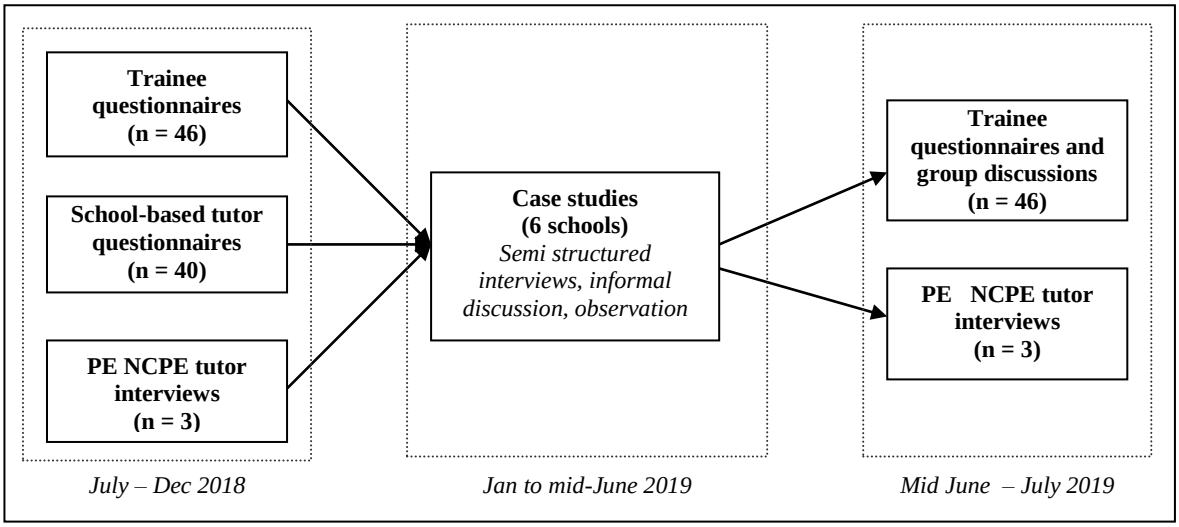

Diagram 1: Overview of research structure and data collection

The diagram does not show the preparatory and pilot work undertaken across 2018-19 when this study was planned, the instruments developed and piloted and data collected. Two questionnaires were developed for the pilot study, the first was used with 25 school based PE tutors (*Principal Subject Tutors*) in October 2018, and the second was used with the PE trainees at the end of their course in July 2018.

Methods and instruments

Two different *questionnaires* were developed and deployed. The first was for use with the school-based principal subject tutors in Autumn 2018; the purpose of this was to find out about their current practice, attitudes, concerns and needs, and their own views about their ability to support PE trainees in using ICT in their school-based work. The second questionnaire was for the PE trainees, to be administered at the end of their course in July 2019. This was to collect data relating to their views on the ICT experiences across all elements of the NCPE programme; ieS the sessions in the university in term one and the experiences during the school-based period in terms two and three. The questionnaires were both adapted from those developed for the pilot study, making changes to reflect what had been learned from the pilot study, and also to take into account some additional requirements of this research. An ICT audit was already in place and this was used to collect baseline data from the trainees at the start of the course (October 2018).

Interviews were undertaken with the two main PE course tutors and also the PE/ ICT specialist who provides additional input focussing on the use of ICT in PE. Informal interviews were carried out through discussions in term one, and then a formal semi-structured recorded interview in term three, towards the end of the year.

Group discussion: A specific session was arranged for the trainees (split into two groups of approximately 23 in each) to reflect on and review the ICT provision in their NCPE PE course. Trainees were asked to complete and hand in the questionnaire at the start of the session, followed by

a tutor-led whole group discussion. After this they worked in smaller groups (4 or 5 people in each) to discuss pre-prepared questions regarding their ICT provision across the course as a whole. These small group discussions were recorded, with the permission of all involved. The data from the discussions were used to supplement that from the end of year questionnaire and complete the picture built up from school case studies and university tutors. The session ended with an opportunity for each small group to summarise and report back on the points they had raised, and to broaden this out into more whole group discussion.

Case studies (using interviews, informal discussion and observation) were undertaken in 6 schools. Each student has three visits from a university tutor, and data were collected from trainees and school-based subject tutors across these (slightly extended) visits as proved possible/appropriate. Semi-structured interviews and informal discussions with both subject staff and trainees were used to address key questions about the use of ICT in the school and the opportunities and support trainees were experiencing. Opportunity for observation and further informal discussion were also taken during these scheduled visits to the schools. Use of ICT is a required element to consider when university tutors make school visits, but in order to undertake this research, additional emphasis was placed on this aspect during the visits.

As noted previously, the project was designed to build on and complement the NCPE funded PE/ICT event to be held in DSR in February 2005, ensuring added value to both activities. A team of 10 PE NCPE trainees' researchers attended the event with the specific brief of participating in and reporting on, each of the sessions offered. The notes made form these sessions formed part of the data set for this research, as did the subsequent presentations they gave on the day to their NCPE PE peers at a university-based seminar day following the event. Further data was obtained from discussions in meetings involving the research team and the speakers and experts involved in planning the PE event. Notes were taken at each of the planning sessions, and interviews were undertaken with each of the PE/ICT experts, in order to get their view of the way ICT can help to enhance and extend learning in PE.

Areas for further investigation

This research study, taking into account not just the data collected directly for this study, but also that from the pilot study and parallel TTA funded PE/ICT event, suggests that PE may be one of the contexts where ICT can be more directly associated with learning gains and the 'raising of standards' (in this case standards of performance) than in most other subject areas. For example it was the view of experts interviewed for the pilot study and ICT/PE event that the use of digital video for visual feedback and analysis, may prove to have one of the strongest links between use of ICT and important learning and lifestyle gains of any subject. Further investigation which enables and facilitates the identification and research of contexts where there are pockets of good practice in this area, will help provide a better understanding of the potential of this approach and how it can be more widely implemented.

Dissemination and other outputs.

- The emerging findings were drawn on internally to inform some changes to the current NCPE PE course at DSR and the final outcomes have also been shared with the current University-based NCPE PE tutors.

- The outcomes of the research have been disseminated in, and are having an impact on, practice at The College of noida college of physical education, where one of the project team is now based. Marjon offers a range of programmes in PE, including both BEd and courses. A virtual learning space has been established which students use for independent and guided study as well as a resource base. Software packages and hardware are now available to staff to model their use in practical session and for students to practise using before school-based experience. The School of Sport, Physical Education and Leisure has an ICT coordinator to help both staff and students with their use of ICT for learning and teaching, and he was a pro-active delegate at the TTA funded PE ICT event (February 2019). He runs ICT training sessions for the whole staff to facilitate and support them to model, promote and enable students to use ICT in practical sessions.

- The findings of the research will be shared directly with one school in another region, which focus on the use of ICT in PE and also work with PE trainees from a university in the North of India. It is anticipated this will highlight areas of commonality and help to identify common needs for further work.

- An academic paper, '***The use of ICT in the teaching and learning of Physical Education in compulsory education: how do we prepare the workforce of the future?'*** for submission to the *India PE review* is under preparation, and will be submitted in July 2019.

- An invitation to publish the findings in outcomes of this current study in the professional magazine *Sports teacher* has been accepted. Details are being discussed with the editor.

References

1. Cuckle, P., Clake, S. and Jenkins, I. (2000) Student teachers' information and communication technology skills and their use during teacher training. *Journal of information technology for teacher education,* 9 (1), pp. 9-22.
2. Cuckle, P and Clake, S (2003) Secondary school teacher mentors' and student teachers' views on the value of information and communication technology in teaching. *Technology, Pedagogy and Education,* 12 (3), pp. 377-391.
3. Cummings, M (2001) Internet, goal net or both: PE and the introduction of ICT into the curriculum. *The British Journal of Teaching Physical Education,* Autumn, pp. 19-22.
4. Elbourn, J. and Cale, L. (2001) Selecting Computer-based resources to support learning in Physical Education. *The British Journal of Teaching Physical Education,* Winter pp. 35-37.
5. DfEE and QCA. (1999) *Physical Education: the National curriculum for England*. London: Dfee and QCA.
6. Fischer, T. (1996) Information technology and the curriculum: IT capacity and the new teacher. *British Journal of Curriculum and Assessment,* 6 (2), pp. 33-37.
7. Green, N. (2002) Using ICT within PE - its impact on a working department. *The British Journal of Teaching Physical Education,* Summer p.25.
8. Koh, M and Khairuddin, A (2004) Integrating video and computer technology in teaching – an example in gymnastics initial PE teacher- training programmes in Singapore. *The British Journal of Teaching Physical Education*, Autumn pp. 43-46.

9. Lockwood, A (1997) The role of technology in PE teaching. In Capel, S. *Learning to teach Physical education in the secondary school: a companion to school experience*. London: Routledge. pp. 209-217.
10. Ofsted. (2004a) *Ofsted subject reports 2002/3: Physical education in secondary schools*. London: Ofsted. Available at http://www.ofsted.gov.uk/publications/index.cfm?fuseaction=pubs.summary&id=3544 (accessed 05/11/05).
11. Ofsted. (2004b) *Ofsted subject reports 2002/3: ICT in secondary schools*. London: Ofsted. Available at http://www.ofsted.gov.uk/publications/index.cfm?fuseaction=pubs.displayfile&id=3540&type=doc (Accessed 05/11/05)
12. Ofsted. (2004c) *ICT in Schools 2004: The impact of Government Initiatives: secondary physical education*. London: Ofsted. Available at
13. http://www.ofsted.gov.uk/publications/index.cfm?fuseaction=pubs.displayfile&id=3642&type=pdf
14. Simpson, M. and Payne, F. (1999) *Using Information and Communications Technology as a Pedagogical Tool - Who Educates the Educators*? Paper presented at the European Conference on Educational Research, Lahti, Finland 22-25 September 1999. Available online at: www.leeds.ac.uk/educol/documents/00001292.doc (accessed 15/11/05)
15. Stidder, G. (2004) The use of information and communication technology in PE. In Capel, S. *Learning to teach Physical education in the secondary school: a companion to school experience*. London: Routledge. pp. 219-238.
16. Stratton, G and Finch, A. (2001) Information and communication technology in Physical Education: an ITTE-school partnership perspective. *The British Journal of Teaching Physical Education*, Spring pp.24-26.
17. Teacher Training Agency (TTA). (2002a) *Qualifying to teach: professional standards for qualified teacher status and requirements for initial teacher training*. London: TTA
18. Teacher Training Agency (2002b) NQT survey 2002 available on line at: http://www.tda.gov.uk/partners/datasurveys/nqtsurvey/nqtsurvey2002.aspx accessed 15/11/05)
19. Teacher Training Agency (TTA). (1999a) *The use of information Technology in subject teaching. Identification of training needs, Secondary Physical Education*. London: TTA (17/3-99).
20. Teacher Training Agency (TTA). (1999b) *The use of information Technology to meet teaching objectives in physical education. Initial teacher training. Secondary*. London: TTA (50/5-99)
21. Tearle, P. and Katene, W. (2005) The role, current practice and potential for use of Information and Communications Technology in Physical Education in UK secondary schools: A pilot study, British Educational Research Association conference, University of Glamorgan, September 14th – 17th
22. Van Damme, G. (2001) *ICT in Practice for Physical Education & Sports.* Available on line at: http://www.sports-media.org/ (accessed 15/11/05)
23. Wood, J. (2005) Body and mind: A report on the use of ICT in PE. Coventry: BECTa. Available online at http://www.becta.org.uk/corporate/publications/documents/ict_in_pe.pdf (accessed 15/11/05).