

DIGITAL PEDAGOGY AND ITS ARRIVAL IN TEACHER EDUCATION

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ABSTRACT

This paper tries to broadly defined digital pedagogy is use for electronic elements to enhance or to change to experience of teacher education. This can be anything from the simple use of PowerPoint in the classroom, to the Khan Academy's exhortation to "flip the classroom," and the growth of Massively Open Online Courses (MOOCs) such as Udacity and Coursera offering free online education to the general public. Examples of digital pedagogy also include blogging assignments, the use of social media in the classroom, "forking" syllabi with GitHub, and getting students to use digital tools to test ideas. In sum, digital pedagogy is an attempt to use technology to change teaching and learning in a variety of ways.

Academic interest in digital pedagogy has grown by leaps and bounds. Late 2011 saw the launch of digital-pedagogy centred journals such as Hybrid Pedagogy and the Journal of Interactive Technology and Pedagogy. A specialized THAT Camp, or an un conference on the humanities and technology, was held on Pedagogy in 2011, and a corresponding THAT Camp Hybrid Pedagogy will be held in 2012. And MLA interest on the subject has also been growing: at the 2012 Convention in Seattle Katherine D. Harris and Brian Croxall and Kathi Beerens organized two extremely popular electronic roundtables on digital pedagogy.

Importantly, some argue that simply using electronic elements in your teaching does not mean that you are practicing digital pedagogy. [Paul Fyfe \(@pfyfe\)](#) thinks, for example, that simply incorporating a technological tool without reflecting upon pedagogical change isn't digital pedagogy. He argues: "if the tool you have is a hammer, it is tempting to treat problems as nails." In other words, this means that a simple incorporation of a tool (say Powerpoint) in a lecture, without any reflection on how the lecture form itself should evolve, is pretty much the same as a lecture without Powerpoint (which leads to the well-known Death by Powerpoint meme). [Jesse Stommel \(@jessifer\)](#) argues that digital pedagogists should consider the importance of "hybrid pedagogy," or "think holistically about the various hybridities of the modern pedagogue, to think about how we live our real/digital lives in both academic and extra-academic spaces

Introduction

Digital pedagogy includes several axiomatic changes to traditional pedagogy and has more in common with a constructivist approach, in which students construct their own knowledge in a social context. However, digital pedagogy goes beyond that to include teaching about and for

digital technology for learning. Central to digital pedagogy is the co-construction of knowledge. A digital pedagogy includes planning for learning which is less content than problem-solving based. It can present knowledge as problematic rather than as fixed. As such it promotes higher order thinking skills and students move from remembering content to gaining a deep understanding of concepts (Kent & Holdway, 2009). It develops critical analysis, metacognition and reflection, often through creation, editing and publishing online (Luckin et al, 2009). Further, digital pedagogies can include Web 2.0 technology for social networking, with the use of blogs, wikis, i-phones and i-pads for learning. In this way digital pedagogies help to promote connectedness to the wider world. (Kent & Holdway, 2009).

In order to embrace digital pedagogies teachers may find they are no longer the experts and that they need to change from being users of technology, such as when they find and print off activities for students, or information for themselves to use in teaching, to becoming co-creators (Poore, 2011). As not all students have navigation skills or use the whole range of ICT competently (MCEEDYA, 2010), teachers need to demonstrate how to identify, select, analyse and use ICT information such that students develop critical digital literacy (Asselin & Moayeri, 2011). Teachers also need to accept that there will be fundamental changes to activities, rather than using old activities on new media.

Many studies have been conducted with regard to the attitude of teachers towards use and interactions of technology have revealed the importance of attitudes for learning to use technologies (Cox, Rhodes & Hall, 1988; Davidson & Ritchie, 1994; Hannaford, 1988; Kay, 1990). These findings were further supported by Bandalos & Benson, 1990; Dupagne & Krendl, 1992; Francis-Pelton & Pelton, 1996; Loyd & Gressard, 1984a; Mowrer-Popiel, Pollard, & Pollard, 1994; Office of Technology Assessment, 1995.) Several studies found that individuals' attitudes toward computers may improve as a result of well-planned instruction (Kluever, Lam,)

The various skills and competencies to be developed on the part of student teachers for using digital pedagogy:

- Surfing the Internet and locating useful information from the Internet for the development of lesson plans.
- Developing lessons plans incorporating student use of technology in the learning process.
- Evaluating and selecting appropriate software for a particular subject and per student needs.
- Generating printed documents like student assignments, newsletters, communication, etc. utilizing a variety of applications software like word processing and desktop publishing.
- Managing student data ; using data management tools for efficiently managing learning.
- Using technology to gather, organize, and report information about student performance like Excel and Access for database management.
- Developing tools to evaluate technology-based student projects including multi-media, word processing, database, spreadsheet, PowerPoint, desktop publishing, and Internet/telecommunications.

- Using the Internet to support professional development including locating professional organizations, communicating with other teachers electronically, and participating in on-line professional development workshops and seminars.
- Developing assignments and project work for students; giving them broader and deeper knowledge in a field of study; developing critical thinking and infusing creativity among students.

Techno-Pedagogy a Skill

Teachers must understand their role in technologically-oriented classrooms. Thus, knowledge about technology is important in itself, but not as a separate and unrelated body of knowledge divorced from the context of teaching--it is not only about what technology can do, but perhaps what technology can do for them as teachers.

In techno-pedagogy, there are three areas of knowledge, namely: content, pedagogy, and technology.

Content (C) is the subject matter that is to be taught.

Technology (T) encompasses modern technologies such as computer, Internet, digital video and commonplace technologies including overhead projectors, blackboards, and books.

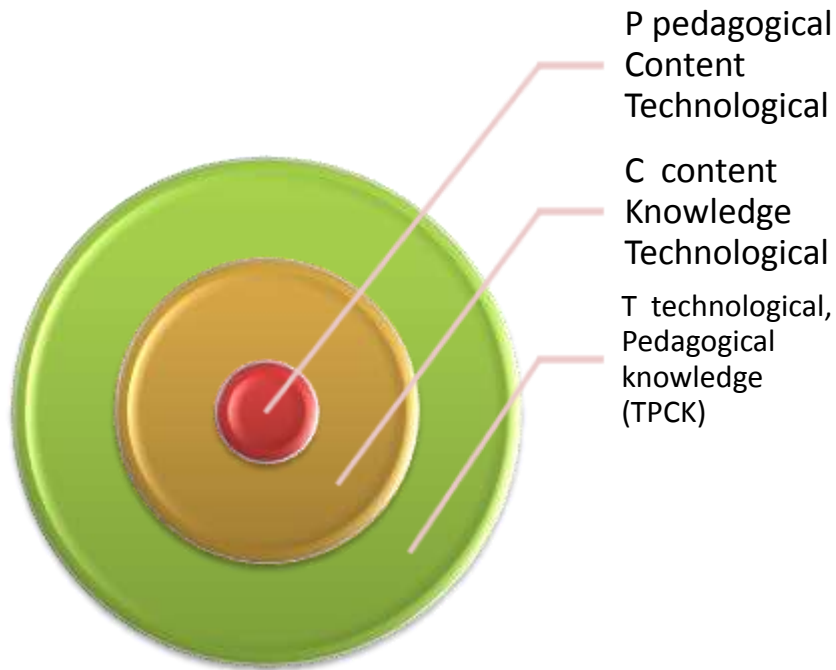
Pedagogy (P) describes the collected practices, processes, strategies, procedures, and methods of teaching and learning. It also includes knowledge about the aims of instruction, assessment, and student learning.

Speaking truthfully, technology integration entails the understanding and negotiating of the relationships among the aforementioned three components. Good teaching is not simply adding technology to the existing teaching and content domain.

Rather, the introduction of technology causes the representation of new concepts and requires developing sensitivity to the dynamic, transactional relationship between all three components suggested by the TPCCK framework. (Koehler, M. J. and Mishap, P. 2005)

Depending upon the nature of content, scope of content, and level of students, appropriate technology integration must be sought. Technology as an aid enhances the process of learning and helps in achieving higher level objectives.

P C T Pedagogical Content Technological Content Knowledge Technological Pedagogical Knowledge Technological, Pedagogical knowledge (TPCK)

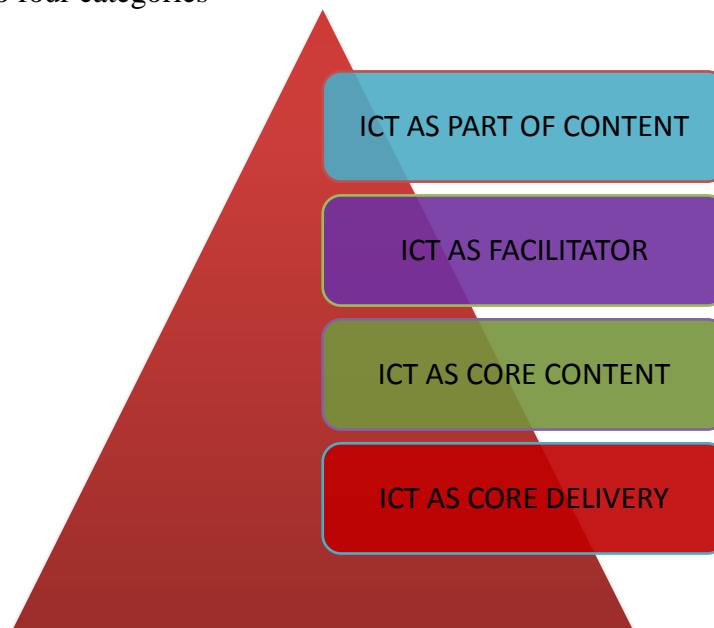


Approaches to ICT integration in Teacher Education

Use of ICT within teacher training programs around the world is being approached in a number of different ways with varying degrees of success. These approaches were subsequently described, refined and merged into following approaches:

1. ICT skills development approach: Here importance is given to providing training in use of ICT in general. Student teachers are expected to be skilled users of ICT for their daily activities. Knowledge about various software, hardware and their use in educational process is provided.
2. ICT pedagogy approach: Emphasis is on integrating ICT skills in a respective subject. Drawing on the principles of constructivism, pre-service teachers design lessons and activities that center on the use of ICT tools that will foster the attainment of learning outcomes. This approach is useful to the extent that the skills enhance ICT literacy skills and the underlying pedagogy allows students to further develop and maintain these skills in the context of designing classroom- based resources.
3. Subject-specific approach: Here ICT is embedded into one's own subject area. By this method, teachers/subject experts are not only exposing students to new and innovative ways of learning but are providing them with a practical understanding of what learning and teaching with ICT looks and feels like. In this way, ICT is not an 'add on' but an integral tool that is accessed by teachers and students across a wide range of the curricula.
4. Practice driven approach: Here emphasis is on providing exposure to the use of ICT in practical aspects of teacher training. Focus is on developing lessons and assignments. Using ICT and implementing it in their work experience at various levels provides students an opportunity to assess the facilities available at their school and effectively use their own skills.

Thus, ICT in teacher training can take many forms. Teachers can be trained to learn how to use ICT tools. ICT can be used as a core or a complementary means to the teacher training process (Collis & Jung, 2003). The various ways in which ICT teacher training efforts could be classified into four categories



From the above suggested approaches, regarding ICT as a core component at the pre-service level, integration of all approaches would help in developing proper attributes among prospective teachers.

There should be joint efforts of educators and prospective teachers in implementing and sharpening ICT skills. Whatever approach is followed in educational institutions to develop knowledge about ICT, it has inherent limitations. Coupled with other reasons, we are not making student teachers fully confident in using ICT in their daily classroom activities. As reported by Larose F. in their study, the level of computer literacy of the teaching staff is satisfactory but there is little transfer of these competencies to teaching practices (**Larose F., et al. 1999**). **Efforts are required on the part of teachers to make use of the available facilities for the best use in teaching**

Conclusion

This paper sought to explore digital pedagogy and its utilization on teacher education to develop skills and appropriate knowledge among teacher trainees for using and integrating the correct technology in an appropriate manner. Every teacher should know how to use technology, pedagogy and subject area content effectively in their daily classroom teaching. It is clear that merely introducing technology to the educational process is not enough. One must ensure technological integration since technology by itself will not lead to change. Rather, it is the way in which teachers integrate technology that has the potential to bring change in the education process. Hence, attitude and self-efficacy towards technology play an important role. For teachers to become fluent in the usage of educational technology means going beyond mere competence with the latest tools to developing an understanding of the complex web of relationships among users, technologies, practices, and tools.

REFERENCES

1. Ashton, P. (1985). *Motivation and the teacher's sense of efficacy*. In C. Ames, & R. Ames (Eds.), *Research on motivation in education*, 2, 141-171. Orlando, FL: Academic Press Inc.
2. Bandalos, D. and Benson, J.(1990). "Testing the factor structure invariance of a computer attitude scale over two grouping conditions", *Educational Psychology Measurement*, 50,49-60.
3. Bandura, A. (1982). "Self-efficacy mechanisms in human agency. *American Psychologist*"t, 37, 122-147.
4. Bandura, A. (1986). *Social foundations of thought and action: A social-cognitive view*. Englewood Cliffs, NJ: Prentice-Hall.
5. Bandura, A. and Adama, N.E.(1997). *Analysis of self-efficacy theory of behavioural change.*, *Cognitive Therapy and Research*, 1,287-308.
6. Bandura, A., Adams, N. E., & Beyer, J. (1977). **Cognitive** processes mediating behavioral change, *Journal of Personality and Social Psychology*, 35, 125-139.
7. Chu, P. C., & Spires, E. E. (1991). *Validating the computer anxiety rating scale: Effects of cognitive style and computer courses on computer anxiety*, *Computers in Human Behavior*, 7, 7-21.
8. Collis, B.,and Jung,I.S.(2003). *Uses of information and communication technologies in teacher education*. In B. Robinson & C.Latchem (Eds.), *Teacher education through open and distance learning*, London: RoutledgeFalmer, 171-192.
9. Cox, M. J, Rhodes, V. & Hall, J. (1988) *The use of Computer Assisted Learning in primary schools: some factors affecting the uptake*. *Computers and Education*, 12(1), 173-178.
10. Davidson, G.V. and Ritchie, S.D.(1994). *How do attitudes of parents, teachers, and students affect the integration of technology into schools?: A case study*. Presented at the National Convention of the Association for the Educational Communications and Technology 16th Nashville, TN,(Eric Document Reproduction Service No. ED. 373 710)
11. Delcourt, M. A. B & Kinzie, M. B. (1993). "Computer Technologies In Teacher Education: The Measurement Of Attitudes And Self-Efficacy." *Journal Of Research And Development In Education*. 27 (1). 35-41.
12. Dupange,M. and Krendl,K.A.(1992). *Teachers' attitude towards computers: A review of literature*, *Journal of Research On Computing in Education*,24,3,420-429.
13. Ertmer, P.A. and Newby, T.J.(1993). *Behaviorism, cognitivism, constructivism: comparing critical features from an instructional design perspective*, *Performance Improvement Quarterly*, 6(4),50-72.
14. Ertmer, P.A., Evenbeck, E., Cennamo, K.S., and Lehman, J.D. (1994). *Enhancing self-efficacy for computer technologies through the use of positive classroom experiences*. *Educational Technology Research and Development*, 42, 45-62.
15. Francis-Pelton, L., & Pelton, T. W. (1996). *Building attitudes: How a technology course affects preservice teachers' attitudes about technology*. [Online]: <http://www.math.byu.edu/~lfrancis/tim's-page/attitudesite.html>
16. Gist, M. E., Schwoerer, C., & Rosen, B (1989). *Effects of alternative training methods on self-efficacy and performance in computer software training*. *Journal of Applied Psychology*, 74 (6), 884-891.
17. Hakkinen, P. (1994). *Changes in computer anxiety in a required computer course*. *Journal of Research on Computing in Education*, 27(2), 141-153.

19. Hannaford, M. E. (1988, March 24 & 25). *Teacher attitudes toward computer use in the classroom. Paper presented at the Annual Pacific Northwest Research and Evaluation Conference, Washington Educational Research Association, Seattle, WA.*
20. Key, R.H. (1990). *Predicting student teacher commitment to the use of computers, Journal of Educational Computing Research, 6, 299-309.*