

Developing Practice: Teaching Teachers Today for Tomorrow

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This paper argues that the development of classroom practice is central to the purpose of the IPET (initial professional education and training) of teachers. Notwithstanding the growing use of ICTs (information and communication technologies), both in teacher development and school classrooms, the normative modeling of appropriate contact-based practice is still a fundamental component of IPET and needs to be conceptualized, costed, implemented, supported and evaluated accordingly. Increasingly, this needs to be done within a distance education context. However, the advent of new technologies in the social lives of learners, as well as in school classrooms, means that the notion of appropriate pedagogic practice needs to be extended to include a wider range of practices than those premised only on face-to-face contact. The paper provides some suggestions based on current practice in South Africa generally, as well as recent practice at the Unisa (University of South Africa) (Website, <http://www.unisa.ac.za>) in particular, as well as drawing upon a recent on-line tutoring course run internally at the South African Institute for Distance Education (Website, <http://www.saide.org.za>). This an extended and more complete version of a paper prepared for the sixth pan-common wealth forum on open learning, Kochin, India, November 2010.

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Context: A Call for More and Better Teachers

A recent policy statement from the department of education in South Africa (RSA (Republic of South Africa), 2007) calls for “more teachers, better teachers” (emphasis added) and the NEPAD education desk (NEPAD (New Economic Plan for African Development), 2006, p. 2) has identified a number of challenges facing teacher education in Africa more generally while also expressing concern about numbers and quality.

Distance education has long overtaken traditional contact-based teaching in terms of headcount enrolment for the development of teachers in South Africa and is extensively used in Anglophone sub-Saharan Africa more generally (ADEA (Association for the Development of Education in Africa), 2002; Glennie & Mays, 2009), so the call for “more” and “better” teachers represents a particular challenge to current distance education practice and begs the question “What do we need to do differently in order to produce more and better teachers?”.

Samuel (2009) argued that the kind of deep learning required to nurture the development of better teachers calls for a critical, theoretically based approach that begins with a critical unpacking of student-teachers’ educational biographies; scaffolded engagement with multiple authentic school contexts; a clearer articulation between what can realistically be covered within the IPET (initial professional education and training) curriculum, what should be a part of an induction programme and what requires on-the-job development; a relationship with schools that goes beyond agreements on placement to build sustainable and meaningful

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partnerships; student peer collaborative learning and community engagement; and that teaching practice is seen as the pinnacle of the programme wherein the culmination of expertise of being a teacher is enacted (Samuel 2009, p. 752). The extent to which all of these suggested requirements can be met for the large numbers of student teachers that need to be trained is debatable, but Samuel (2009) suggested that there is sufficient capacity within the South African system to meet South African needs.

Within the range of needs that a teacher development curriculum should meet, the central defining role of a teacher as a knowledge worker able to organize knowledge and learning in a systematic way need to be foregrounded (Morrow, 2007), and nurturing a commitment and ability regarding lifelong learning and the appropriate use of appropriate technology to attain educational goals would seem to be pre- and co- requisites given the explosion of access to information enabled by the Internet and mobile social technologies.

The new teacher education policy framework in South Africa (RSA, 2007) meanwhile makes teaching practice a central focus of an IPET BEd (Bachelor of Education) programme accounting for 25% of notional learning time, and higher education quality committee accreditation requirements (CHE (Council on Higher Education), 2008) expect direct institutional involvement in the placing and supervision of student teachers on teaching practice. This has resulted in the need to establish a TPO (Teaching Practice Office) within the department of teacher education at the Unisa (University of South Africa). The work of the TPO is currently under review and an attempt has been made to try and consolidate lessons of experience as well as conceptual and operational assumptions into a teaching practice manual that could be shared more generally (Mabunda et al., 2009) and on which this paper draws. However, we have quickly realized that the conceptualization of teaching practice cannot be disaggregated from the conceptualization of teacher education programmes more generally; we are currently not making the best use of the technology that is available to us—neither for teaching nor for programme management purposes, and we need to be aware of the practice we ourselves are modeling in the way in which we work with knowledge, technology and our students.

Do As I Do or Do As I Say?

Glennie and Mays (2009) suggested that often teacher education courses do not sufficiently model appropriate practice, and Robinson (2003, p. 208) noted a tendency to focus on certification rather than on developing practice. Recent reports from the Human Sciences Research Council (Kruss, 2009) and the Council on Higher Education in South Africa (CHE, 2004a; 2004b; 2007; 2008) suggested a need to revisit key assumptions underpinning curriculum design and delivery in higher education generally and in teacher education in particular. A key question to ask would then seem to be: What ontological and epistemological assumptions underpin teacher education and how do these assumptions shape the “storyline” and student experience of our teacher education programmes and their constituent modules? Related questions would then be: “What does policy seem to require and why?”, “What have we learned from examining our own practice?” and “How do we do things better without necessarily requiring teachers and students to be in the same place at the same time?”.

These questions take us back to the perennial challenge of how we make curriculum decisions and what we model in our own practices given that research suggested that: Graduates and post graduates are not necessarily the best teachers-at primary level at least (UNESCO-BREDA (United Nations Educational, Scientific and Cultural Organization, Regional Bureau for Education in Africa), 2009); and that initial training has limited impact on practice anyway (UNESCO-BREDA, 2009; Woolfolk, 2007).

Adler and Reed (2002, p. 5) noted that the problem is that no teacher education programme, wherever it is,

can provide experiences of all the complexities teachers are likely to face. As a result, teacher trainers argued that programmes need to provide opportunities for teachers to understand the underlying principles of teaching in general and specific subjects. These can then be applied and adapted to particular and diverse circumstances, and new challenges as these arise. Others argued that this kind of knowledge, divorced as it is from real classrooms, is not easily applied or adapted, and thus, teacher education is likely to be more effective if it is focused on examples of practice and more direct experience in the classroom and alongside experienced teachers.

Welch (2008) as cited in Kruss (2009) voiced concern about an applied scientist model of teacher training in which codified practice is wrongly equated with theory and suggested (Welch & Harley, 2010) that our minimum curriculum expectations should be that qualified teachers are able to organize systematic learning based on knowledge of their subjects, their learners and the process of learning; communicate effectively and employ a range of teaching strategies which they can justify and are committed to professional development and reflection. They then identified seven knowledge domains through which these outcomes need to be explored (Welch & Harley, 2010).

Harley, Barasa, Bertram, Mattson, and Pillay (2010), Smit and Nduna (2008) and Whitelaw, de Beer, and Henning (2008) all pointed to the impact of context and personal experience and value systems on practice, while Moon (2006) argued for reforming the curriculum so that,

The curriculum needs to focus more, particularly where education and training opportunities are constrained, on core classroom skills and understanding, particularly pedagogies that are more effective in raising achievement: teacher education programmes, therefore, need to be conceptualized in ways that incorporate the daily life and work of the teacher. (p. 23)

Among other things, Moon (2006, pp. 23-24) suggested the need to reduce the time required for initial pre-service training while offering more robust continuing professional development in service while also making greater use of appropriate technologies.

Moon's concerns for a practice focus above were echoed in a 2009 South African Teacher Development Summit Resource Document which argued that although the recipients are teachers, the ultimate intended beneficiaries are the learners in the classroom (ELRC (Education Labor Relations Council), 2009, p. 27)

Glennie and Mays (2009) argued that a move towards team planning, team assessment, team teaching and team support advocated in course materials, required by course assignments and modelled in the ways in which the institution interacts with its teacher-students, through observation, feedback and guided critical reflection and the ways in which materials, assessment and support scaffold critical reflection should further help teachers to articulate and question some of their taken-for-granted assumptions (Beets & le Grange, 2005; le Grange, 2005; Leibowitz, Booie, Daniels, Loots, Richards, & van Deventer, 2005).

However, while teaching programmes will often advocate experimentation and innovation, student-teachers end up doing their teaching practice in a school that is dysfunctional and actively resists any attempts at innovation. Identifying and managing a network of schools appropriate for teaching practice and managing mentors in those schools can become a full-time job in itself and very often institutions do not have the staff available to fulfill this role.

This paper argues that as teacher trainers, we should be aware of our own underpinning assumptions and how these relate to the practices we model in our teaching.

The department of teacher education is one of the five education departments that form the school of education within the college of human sciences at Unisa. The others are: educational studies which focus on

post graduate studies in education; further teacher education which is concerned with ongoing continuous professional development; adult basic education and training and INSET (in-service education and training) which focuses primarily on short courses.

Education staff teach across the three departments (which deal with initial, continuing and post-graduate studies in education) and within the school a matrix form of organization has been adopted in which programmes and disciplines are involved in what Pinar (2009) would term a “complex conversation”. This is illustrated in Table 1.

Table 1

Creating Complex Conversations Between Programmes and Disciplines

| Interest groups programmes | Philosophy of education | Sociology of education | Psychology of education | History of education | Comparative education | Curriculum studies | Inclusive education | HIV/AIDs | Maths education, etc. |
|--|--|---|-------------------------|----------------------|-----------------------|--------------------|---------------------|----------|-----------------------|
| | (1)(2) | Verticality (intellectual history) | | | | | | | |
| BEd FP (Foundation Phase) Grade R-3 | Horizontality (understanding of present circumstances) | Arena for a complex conversation (Pinar, 2009) informed perhaps by socio-critical theory (Maila & Mabunda, 2009) critical hermeneutics (Van Niekerk & Mays, 2009) | | | | | | | |
| BEd IP (Intermediate Phase) Grade 5-6 | | | | | | | | | |
| BEd SP/FET (Senior Phase /Further Education and Training) Grade 7-12 | | | | | | | | | |
| PGCE FP | | | | | | | | | |
| PGCE IP | | | | | | | | | |
| PGCE SP/FET | | | | | | | | | |

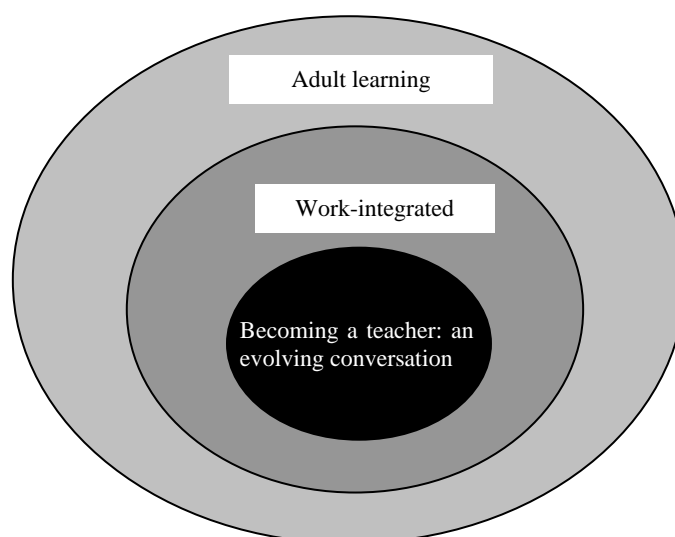


Figure 1. Pedagogic underpinnings.

As both a starting point and a continuing golden thread for such a discussion with student teachers, there is a growing recognition of the need to engage students' evolving identities as a teacher and their own moral value frameworks (Barak & Mansur, 2009a; 2009b; Burton, 2009; Ropo, Mäkinen, Yrjöinen, Syvänen, & Portimojärvi, 2009) and on the pedagogical content knowledge of the teacher (Adler & Reed, 2002; Botha, 2009). How we engage with such issues needs to be rooted in contemporary understandings of adult learning (Rogers, 2002; Gravett, 2005; Meriam, Cafferella, & Baumgartner, 2007) and work-integrated learning (Illeris, 2008) as illustrated in Figure 1.

What emerges from a consideration of the literature is the realization that meaningful learning—the kind of deep learning that changes the way people think, feel and behave cannot be “delivered”. It is a complex and iterative process in which individuals and groups interact and make meaning in a variety of ways and contexts and involves more than simply the cognitive domain.

Within these broad theoretical parameters, Figure 2 sets out a current understanding of curriculum requirements for teacher education in South Africa. The model is based on the design of teacher education programmes by the former standards generating body and as reflected in the norms and standards policy document (RSA, 2000) but modified in line with the previous discussion and revised policy (RSA, 2007).

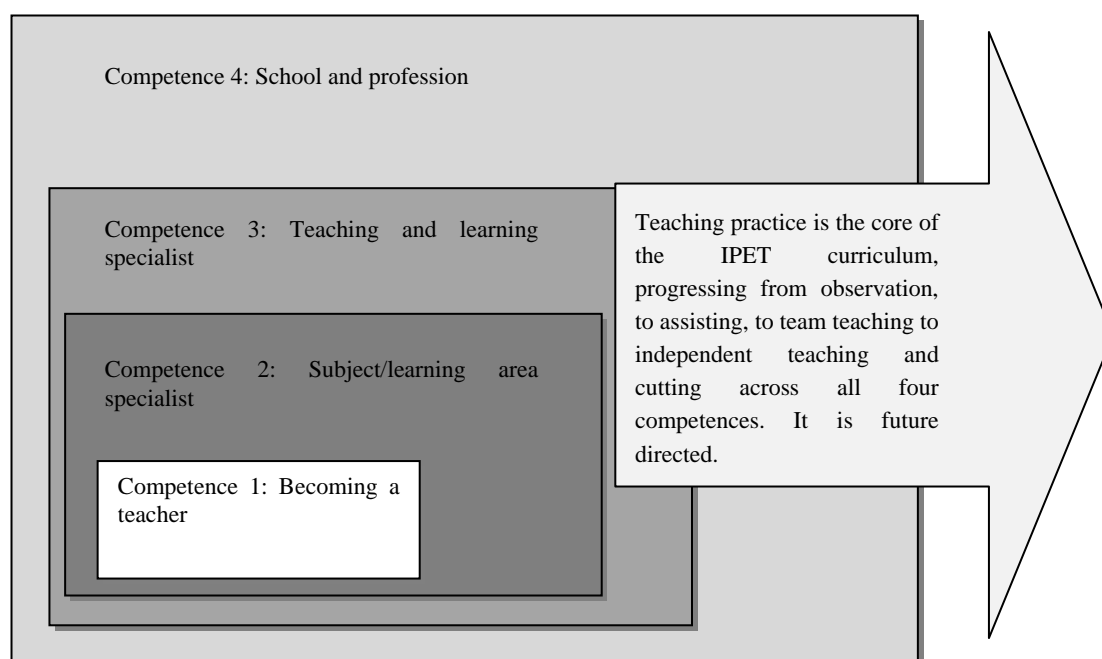


Figure 2. Teaching practice in the IPET curriculum.

As argued previously, this paper sees the starting point of the IPET of teachers; as Component 1 is the start of a conversation about what it means to “become a teacher”. It involves reflection on experiences as learners and student teachers observing practice and how this understanding is continually challenged and nuanced throughout the IPET experience. In this component of the programme, therefore, a dialogue is begun that will continue throughout the programme. The way in which this is done will need to provide opportunities for student teachers to develop the academic literacy, numeracy, metacognitive and critical thinking skills that they will need to be successful in the programme as well as begin exploring the nature of learners and learning.

Starting from this foundation, the four components of the programme build upon each other in the

sequence in which student-teachers tend to have questions—starting from personal experience and then thinking about what to teach (Component 2), how to teach (Component 3) and why to (continue) to teach (Component 4) as reflected in a study by Karaman (2009) and a commitment to nurturing the growing autonomy of practice of the student-teacher.

In Component 2, the previous discussion suggests that the engagement should begin with both the assumptions made about student-teachers' subject competences on entry and the curriculum they will actually be required to teach.

Component 3 recognizes that many teaching competences are transferable across subject boundaries, but that in some instances the form is the message.

The link between Components 2 and 3 would be a focus on pedagogic content knowledge.

As student-teachers become more familiar with the contents and practice of teaching and spend more extended periods in schools, they naturally become more aware of the context outside their own classrooms. Thus, Component 4 of the IPET curriculum needs to explore the wider school and professional implications of becoming a teacher.

The golden thread that holds an IPET programme together is the discussion which began in Component 1 about what it means to become a teacher and how the students-teacher's awareness and understandings change as they spend more and more time in the classroom on teaching practice. It is assumed that students-teacher will spend more and more time in classrooms and schools as they work through the IPET curriculum and will naturally work through a sequence of structured engagements on their journey towards autonomy—from guided observation to reflexive practice assisting qualified and experienced teachers, then on to co- and team-teaching and eventually the practice of independent teaching. The teaching practice component is forward looking, constantly anticipating the challenges that may arise and helping students-teacher to understand teaching as a process of lifelong learning that continues beyond graduation. Students-teacher should be encouraged to keep a professional journal—a narrative of their experience and develop and maintain a portfolio of professional practice (increasingly digital in nature) to help them chart and reflect upon their growth as teachers. School-based mentors are critical in this process, but they need to be trained, supported and monitored to ensure that they live up to the professional expectations of their roles as mentors to a new generation of teachers and do not simply exploit the students-teacher in their care (Mabunda et al., 2009; Maphosa, J. Shumba, & A. Shumba, 2007).

Overall, the realities of the postmodern connected environment suggest the need to develop communities of learning and practice (Wenger, 2000, pp. 163-164) to facilitate the exchange of ideas and support for research-based practices in teacher education and development. It is suggested that the teaching practice component offers an opportunity for the integration of the research, community engagement and teaching and learning mandates of the university and for the development and maintenance of reflexive communities of practice involving ongoing dialogue among student-teachers, decentralized tutors and supervisors and faculty and ministry staff. Such an attempt at meaningful integration would also be in line with recommendations from a CHE (2007) report on improving teaching and learning in higher education generally. Increasingly, this dialogue would be mediated via mobile networking (Ally, 2009).

It should be noted that a four-year BEd curriculum (typically taking six to eight years of part-time study at a distance) is increasingly skewed towards critical theoretically based reflection. This kind of deep theoretical reflection really only becomes meaningful once teachers are teaching; as Samuel (2009) noted this means we

need to think about how we pick up on some of these issues during induction and continuing professional development. It should be possible to get teachers into classrooms earlier, and in some contexts, successful recruitment and retention may rest on providing in-service IPET with student-teachers earning a small but growing stipend, as they progress and can assume greater autonomy (Mbunyuza-De Heer Menlah & Mays, 2010).

Appropriate Use of Appropriate Technology

The rapid pace of technological change and increasing globalization have resulted in an exponential increase in access to sources of information, which means that teachers can no longer be expected to be the sole content authority for the classroom. Slattery (2006, pp. 48-49), a curriculum specialist, argued that the postmodern condition also requires that teachers adopt a wider variety of teaching approaches which foreground the co-construction of knowledge. Increasingly, this will need to involve the use of a wide variety of increasingly mobile and increasingly connected technologies.

A growing body of literature provided insight into the possible advantages and the minimum requirements for integrating ICTs into ODL (Open and Distance Learning) provision more generally (Simonson, Smaldino, Albright, & Zvacek, 2003) and on the unique opportunities provided by the online environment in particular (Anderson & Elloumi, 2004). The literature suggested the need to recognize the increased diversity of the potential learners and to design with different learning needs in mind from the outset (Ehlers, 2004; Davis, 2004; as cited in Moore, 2007), including the need to address issues of cultural diversity (Gunawardena & LaPointe, 2007; as cited in Moore, 2007), and make the necessary investment in appropriate curriculum design ahead of marketing and registration (Butcher, 2001). It is then necessary to create awareness of the nature and demands of distance and technology mediated learning prior to registration (Simpson, 2004; Davis, 2007; as cited in Moore, 2007) and give attention to the ways in which both tutors and learners are prepared, monitored and supported in an online or technology mediated learning environment (McPherson & Nunes, 2004) during the learning process. The learning process must be informed by an understanding of adult learning theory (Davis, 2007; as cited in Moore, 2007) and the changing expectations and preferred learning styles of students (Dede, Dieterle, Clarke, Ketelhut, & Nelson, 2007; as cited in Moore, 2007) and in particular the need for interaction, customization and reciprocity in learning partnerships (Beldarrain, 2006). Caplan, Thiessen, and Ambrock (as cited in Anderson & Elloumi, 2004) pointed to the need for multi disciplined teams to develop these kinds of programmes which will obviously have implications for project management, time and cost and in turn models a particular form of professional practice.

Rumble (2004, p. 170) sounded a caution that although the costs of online learning have not been well established, some tentative conclusions from research that has been done are that online learning can be cheaper than face-to-face teaching, but not cheaper than print-based distance learning, because interactive group communication technologies, like computer conferences, de-industrialize the distance education process, and hence, increase costs (Anand, 1997; as cited in Rumble 2004). It is, therefore, important that costing and the monitoring of costs form an integral part of design, development and teaching and learning processes.

Welch, Drew, and Randall (2010) reported on a Saide (2010) engagement with an on-line learning process to explore how to train tutors to support distance learning on line. They noted the usefulness of Salmon's (2004) model for structuring a learning programme on line overall and Gunawardena, Oretgano-Layne, Carabajal, Frechette, Lindemann, & Jennings (2006) Wiscom model for designing particular learning activities. They concluded that, designed appropriately, an on line course can result in greater engagement and interaction but

question whether such an approach can be used effectively for large scale provision.

Teachers (and trainers) in South Africa have tended to be slow to access the potential of computer technology generally and online potential in particular, and many live and work in rural communities with access limited only to occasional visits to town. In schools which have access to ICTs, reliable Internet connectivity varies widely as does teacher readiness to use the technology, so administrative usage tends to outweigh curriculum usage (Saide, 2010). So for the foreseeable future, the department of teacher education at Unisa sees teacher education programmes as being web-supported rather than online and web-dependent with all core information and resources being made available in print and/or on CD (compact disc) ROM. Nonetheless, all programme teams are committed to the maintenance of Websites on a sakai-based learner management system called “myUnisa” for each programme module and the support of active discussion fora for each teaching practice module as well as across teaching practice modules. There is a growing body of contextually-based research on which it is possible to draw to make informed decisions (Cross, Mhlanga, & Odero, 2007; Moll, Adam, Backhouse, & Mhlanga, 2007).

The key point to be made here is that the way in which we use technology as teacher trainers’ models particular values and uses for our students-teachers. Therefore, we need to make conscious choices to use appropriate technologies in appropriate ways taking cognizance of both our learning purposes and the technology profile of our target learners.

IPET Through ODL

Moon, Leach and Stevens (2007, p. 64) observed that one common mistake in the design stage of program development is to give attention to material development at the expense of well-thought-through strategies for support, assessment and quality assurance.

Recently, within Unisa, there has been recognition of the need to think and plan more holistically in terms of the student walk through the institution (Louw, 2007) and the fit or lack thereof between student and institution expectations, preparedness and responsiveness at each key step of the walk (Prinsloo, 2009). Table 2 illustrates how appropriate technologies can be harnessed appropriately in each step of the student walk at Unisa (thus, modeling appropriate practice for student teachers).

Table 2

Technology and the Student Walk

| Step in the student walk | Appropriate technology for purpose and audience |
|---|--|
| 1. Marketing and orientation | Provision of information in user-friendly styles and multiple modes (e.g., online, mobile—CDR (compact disc recordable/read only), DVD (digital video disc), podcast, audio/video and print) and access to OER examples of learning resources enables potential students to make more informed choices. Supported by online advisors, call centre or staff at decentralized regional centers. |
| 2. Application: Responsible Open Access Programme | Provision of diagnostic self-test quizzes available on line, DVD, flash drives or in-person at regional centers can help potential students to make appropriate choices about what, how much and in what mode to study. The emphasis should be on the most appropriate route to access learning rather than on testing for exclusion. Supported by online advisors, call centre or staff at decentralized regional centers. |
| 3. Registration | Students can register online remotely, at a self-service terminal at a regional centre, or seek personal assistance at a regional centre. Currently, about 70% of Unisa students register on line. A technology-enhanced registration process allows for automatic pop-up alerts regarding pre- and co-requisites, possible exam clashes, workload challenges and WIL (work-integrated learning) components, such as teaching practice. It also allows for the possibility of immediate access to digital versions of resources immediately on successful registration through the use of a toaster. |

(to be continued)

| | |
|---|--|
| 4. Teaching and learning | |
| Orientation | <p>Traditionally, Unisa has relied on printed tutorial letters at programme (300 series) and module (100 series) levels for orientation purposes and these are also available in PDF (portable document format) format online and so can be downloaded should students lose their copy. Other orientation possibilities include YouTube, video-conferencing, satellite TV or radio broadcast, video on DVD or podcast, an etutor led small group online or tele-conference, and where the need exists and numbers justify it, even a face-to-face contact session in a regional centre, other institution, school, church hall, teacher centre, etc..</p> <p>All contact with student-teachers should consciously model appropriate teacher-student behaviors.</p> |
| Maintenance/Formative assessment | <p>In many institutions, formative assessment in the form of assignments is a pre-requisite for entry to summative assessment (most often in the form of a formal examination).</p> <p>Ten percent of students either do not complete or do not pass their formative assessment.</p> <p>So:</p> <p>Provide SMS (short message service) and email reminders of deadlines;</p> <p>Set up online discussion fora related to assignment preparation;</p> <p>Provide for an etutor or student led (PCL (peer collaborative learning)) small group online or tele-conference, and where the need exists and numbers justify it, even a face-to-face contact session;</p> <p>Provide for online, postal and in-person submissions;</p> <p>Provide for online marking and marks submission;</p> <p>Automate routing of non-submissions or weak submissions for pro-active follow-up by an etutor—by phone, email or skype;</p> <p>Provide feedback on problem areas in a TL (tutorial letter), email, SMS, in the online forum, via etutor or face-to-face tutor.</p> <p>For the joint exploration of practice consider having students engage with digital copies of lesson planning documents and videos of classroom practice and encourage critical engagement online, by mobile, in an etutorial or in a face-to-face tutorial; maintain a programme and TP (teaching practice) Website throughout the programme including updates on policy, news articles, and research publications, etc., as well as informal chat room facilities.</p> |
| Consolidation/Summative assessment registration | <p>Ten percent of students successfully complete the formative assessment but although registered to attempt summative assessment do not present themselves.</p> <p>So:</p> <p>Provide SMS and email reminders of timetables;</p> <p>Provide SMS or online booking of exam candidacy and automated reminders for deferrals;</p> <p>Automate routing of non-registrations for pro-active follow-up by an etutor—by phone, email or Skype;</p> <p>Provide feedback on key areas/assessment foci in a TL email, SMS, in the online forum, via etutor or face-to-face tutor, or use YouTube, video-conferencing, satellite TV or radio broadcast, video on DVD or podcast.</p> |
| Summative assessment | <p>Of the 80% of students who present themselves, 70% of Humanities students pass first time (pass rates tend to be lower in other fields), yielding an initial cohort throughput of $80\% \times 70\% = 56\%$.</p> <p>Track trends automatically to prioritize interventions.</p> <p>Where possible provide both online and more traditional opportunities to complete summative assessment.</p> <p>Automate routing of no-shows or poor performance for pro-active follow-up by an etutor—by phone, email or Skype.</p> |
| 2nd opportunity examination | <p>At Unisa, students who fail a module with a stipulated subminimum can register for a second examination opportunity in the following semester.</p> <p>Provide SMS and email reminders of timetables;</p> <p>Provide SMS or online booking of exam candidacy and automated reminders for deferrals;</p> <p>Automate routing of non-registrations for pro-active follow-up by an etutor—by phone, email or Skype;</p> <p>Provide feedback on key areas/assessment foci in a TL email, SMS, in the online forum, via etutor or face-to-face tutor, or use YouTube, video-conferencing, satellite TV or radio broadcast, video on DVD or podcast.</p> |
| 5. Graduation and alumni | <p>Build and maintain a database of graduates; keep regular contact with alumni through a quarterly newsletter; conduct eimpact studies; recruit graduates as etutors ...</p> |

Conclusions

This paper argues that the development of innovative and sustainable classroom practice is central to the purpose of the IPET of teachers in sub-Saharan Africa since most teachers currently in training will work in fairly traditional, usually under-resourced and over-crowded classrooms and receive minimal support from colleagues or departmental officials. However, with every passing year, teachers and learners' access to a wide variety of increasingly Internet enabled and increasingly mobile technologies widens the scope of the possible. Proceeding from an understanding that many teachers teach in ways that reflect their experiences of how they themselves were taught and that they are profoundly influenced by the practice endemic in their work contexts, it behoves us as teacher educators to model best practice in the ways in which we engage with student-teachers and we ask them to engage with content and context—both in person and by means of appropriate technologies used in appropriate ways. In particular, given the influence of context on practice, harnessing technology to create and sustain communities of practice would seem to be critical.

In addition, it seems equally likely that we will continue to experience challenges in recruiting and retaining teachers in certain subject areas—especially mathematics, science and languages and in rural communities (Paterson & Arends, 2008). It, therefore, seems increasingly likely that in some areas a peripatetic teacher will need to be shared across several schools in a cluster and thought will need to be given to how the best use can be made of technology to maximize the impact of the limited human resources available—a combination of DVD-based independent learning resources, SMS-based communication and some contact would seem possible fairly immediately.

There is a hierarchy in decision-making implied by the discussion in this paper:

First, we need to design a curriculum that actually focuses on the practice of teaching;

Second, we need to design learning pathways and learning activities that model the approaches to knowledge, learners and technology usage we would like students-teacher themselves to exhibit in their own teaching;

Third, we then need to use the most appropriate technologies in the ways most appropriate to the learning intention taking cognizance of the (changing) technology profile of our students-teacher and their learners as well as their contexts of practice.

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