

Teaching and learning at the University of Johannesburg: a position paper

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1. Points of departure¹

In this position paper we focus on four components of teaching and learning at the University of Johannesburg. We begin by situating university education in the complex world of the 21st century. We introduce the notion of “learning to be” – a view of higher education that conceptualises learning as becoming a practitioner of a knowledge and professional domain. We also argue that an information-oriented view of teaching and learning in a university context is not conducive to optimal learning. Coupled with this we introduce the idea of approaching teaching as the design and implementation of “learning tasks”. We then focus on how current Information and Communication Technology (ICT) features in this setting, suggesting that it should extend contact teaching in digitally rich and innovative ways. Lastly we argue for ICT management that supports free access and optimal utilisation.

1.1. Preparing students for a rapidly changing world: “Learning to be”

We live in a rapidly changing world, a world of “supercomplexity” in the words of Barnett (2000). This is a “world without stable meanings; it is a world in which the handling of uncertainty, ambiguity and contestability come to the fore” (Barnett & Hallman, 1999: 145). Studying at a higher education institution should prepare students for this complex future. Therefore, learning that can be regarded as significant is learning that, above all, will enable students to act purposefully in situations they are going to encounter in the future.

Preparing students for such situations in the future implies primarily developing their capabilities for “seeing” and thinking in effective ways in their specific domains of knowledge and its practice. For example, a student learns to “see” the financial world, the world of the chemist, the world of the teacher, the philosopher, the mathematician, the sociologist, and so forth. With this “seeing” the education environment also needs to nurture the traits of thinking of practitioners in these

¹ Section 1 of this paper draws heavily on:
Gravett, S 2005. *Adult learning. Designing and implementing learning events. A dialogic approach.* Pretoria: Van Schaik Publishers, 2nd edition.
Gravett, S 2003: *Teaching and learning: establishing communities of inquiry and interpretation.* (In Gravett, S & Geysers, H: *Teaching and learning in higher education.* Pretoria: Van Schaik Publishers, pp. 22-31).

different worlds. The type of learning that is required for this is referred to by Jerome Bruner² as “learning to be”. Bruner (as cited in Brown & Duguid, 2000) distinguishes between two types of learning, namely *learning about*, which comprises most of the learning in education institutions, and *learning to be*. Arguably, *learning about*, which involves learning of facts, concepts and procedures, is an important part of university learning. However, on its own this type of learning is not *sufficient* for developing effective ways of “seeing”. What is required for “seeing” the world as a specific knowledge practitioner is a deliberate focus on *learning to be*. Learning to be requires learning of the practices of the knowledge domain (discipline or profession) which includes the principles, dispositions, attributes, competencies, activities, skills, procedures and values of the knowledge domain. This type of learning also requires how to best utilise the conceptual frameworks and/or theories of the domain to identify and solve problems or interpret and address everyday issues. It furthermore includes attention to the practices of inquiry of the knowledge domain. Bruner (as cited in Candy, 1991: 282) expresses this idea as follows:

A body of knowledge, enshrined in a university faculty and embodied in a series of authoritative volumes, is the result of much prior intellectual activity. To instruct someone in these disciplines is not a matter of getting the student to commit results to mind. Rather, it is to teach him or her to participate in the process that makes possible the establishment of knowledge. We teach a subject not to produce little living libraries on that subject, but rather to get a student to think mathematically for himself or herself, to consider matters as an historian does, to take part in the process of knowledge-getting. Knowing is a process, not a product.

This view of teaching and learning contrasts sharply with the transmission-of-knowledge or delivery view of teaching and learning. “Seeing” teaching and learning like this, is (still) prevalent at many higher education institutions. It “assumes that knowledge comprises discrete, pre-formed units, which students ingest in smaller or greater amounts until graduation or indigestion takes over. To become a physicist, such a view suggests, you need to take in a lot of formulas and absorb a lot of experimental data” (Brown and Duguid, 1996: 417). We agree with Brown and Duguid, who criticise this conception of education arguing that “knowledge is not a static, preformed substance: it is constantly changing. Learning involves active engagement in the processes of that change.” Learning is thus, we would suggest, also learning to “be(come)”. They further maintain that people do not become physicists by learning formulas any more than they become football players by learning the rules of football. “ In learning how to be a physicist or a football player – how to act as one, talk as one, be recognized as one – it’s not the explicit statements, but the implicit practices that count” (2000: 144-145), in other words, ways of “seeing” underlying the explicit practices.

² Jerome Bruner is arguably one of the leading scholars of learning, with a history in the psychology of learning and of learning in the professions. He is currently senior research fellow at the School of Law at New York University.

The implicit practices or “ways of seeing” are usually taken for granted by experts in a knowledge domain. The challenge for university teachers is thus to identify the ways of seeing implicitly in the knowledge domain, and develop teaching and learning tasks that embed the effective ways of seeing in different situations, which are then explored with students. We agree with Lee Shulman ³(as cited in Hutchings, 2000:3) that “teaching is best understood not as a technique, but as an enactment of the teacher’s understanding of what it means to know a field *deeply* – and how that understanding develops.”

1.2 From information to knowledge

In some higher education contexts education is viewed, albeit unwittingly, as production and consumption of information, with teaching as “info-delivery”, learning as “info-consumption” and assessment as “info-replication”. This type of education does not encourage “deep learning”⁴ which is lasting and commensurate with the ideals of higher education. Teaching at a university should focus on learning that is “rich with connection making” needed for “insight and for the lively and flexible use of knowledge” (Perkins, 1991: 5).

Many students leave the university with more information than usable knowledge. Weigel (2002: 4) reminds us that learning content (as information) is the “medium for knowledge construction and the springboard for learning.” And we would add that merely acquiring information does not mean that learning has occurred. Learning takes place “when students act on content, when they shape and form it. Content is the clay of knowledge construction; learning takes place when it is fashioned into something meaningful.” Similarly, Apps (1994: 170) explains the difference between knowledge and information as it applies to education as follows: “My knowledge becomes your information and your knowledge becomes my information until we have wrestled with it, analyzed it and attempted to apply it.” This highlights the importance of creating learning opportunities that require active engagement of students.

The example of the Massachusetts Institute of Technology (MIT) is worth considering. This university has recently made coursework and learning material freely available on-line. This act of information distribution illustrates the point that teaching should not be equated with the dissemination of learning content. MIT argues that it distinguishes itself not only through excellence of learning material, but in particular through the *learning experience* that the University offers to students by way of its teaching.

³ Lee S. Shulman is president emeritus of The Carnegie Foundation for the Advancement of Teaching. Shulman’s research and writings have dealt with the study of teaching and teacher education; medical education; the psychology of instruction in science, mathematics, and medicine; and the quality of teaching in higher education.

⁴ The terms deep and surface learning were coined by Ference Marton, a learning specialist from the University of Goteborg stemming from extensive research in higher education contexts.

1.3. Teaching as design and implementation of learning tasks

We would argue that university teaching may be best conceptualized as learning task design and implementation. Within this view, the role of the lecturer is not to 'deliver' information but to design *challenging learning* tasks for students with a view to foster "deep learning", which is, also according to Jerome Bruner, "learning to be" (thus a practitioner of knowledge and skills).

When designing learning tasks, the following should, among others be taken into account:

- Students' existing knowledge and academic dispositions
- Task-based collaboration among students themselves, and lecturers and students
- The everyday practices of the knowledge and profession domains
- Progressive support for students with regard to conceptual development and discourse literacy

Learning tasks could include lectures and varying interpretations of content, explanations, questions to students, comments on students' contributions, discussion of student questions, narrative demonstrations of procedures, peer learning and review, case studies, defining and solving of ill-defined contextual and complex problems, engaging with experts, development of artefacts, modelling, coaching, simulations, problem based learning, and so forth. A lecture, as an expert's exposition of a topic, can be a platform for an effective learning task for students. For it to be effective it should be designed to *engage* students optimally in the performance of the task. It has to solicit response from students. It has to invoke "issues and questions in a way that invites an active reinterpretation of meaning from multiple standpoints among the listeners" (Burbules & Bruce, 2001: 1105). It should ideally demonstrate the "ongoing working of a scholarly mind" (Biggs, 1999: 99).

1.4 Assessment of and for learning

Student learning research (Ramsden, 1992; Barnett, 1992) suggests that the single most important influence on student learning is their perception of assessment. Students deem that which is required of them in assessment tasks (assignments, tests, examinations, etc.) as the "*true curriculum*". Therefore they focus their learning to comply with the assessment requirements that they anticipate (Ramsden, 1992; Barnett, 1992). According to Brown and Knight (1994:12) assessment plays such a significant role in the academic life of students "... that it is not the curriculum which shapes assessment, but assessment which shapes the curriculum and embodies the purposes of higher education."

University teachers lament this fixation of students on assessment. However, they can turn this to their own advantage by designing assessment tasks with outcomes that encourage deep learning, coupled with engagement in the knowledge and practice domains.

Assessment that supports such learning:

- Shows congruence between, teaching approach, learning goals (outcomes) and assessment tasks
- Utilises a variety of assessment methods
- Includes tasks that test transfer of knowledge and skills from the coursework to professional practice
- Provides feedback to students to support learning
- Provides opportunities for peer and self-assessment.

1.5 Contact time⁵ – how much?⁶

We would argue that the current debate at the UJ about optimum contact time that is required with students needs to be informed by the approach to teaching adopted by University teachers. If one approaches teaching as “info-delivery”, and learning as “info-consumption,” and assessment as “info-replication” – then it makes little sense to increase contact time. Information can be distributed much more effectively in other ways than through personal contact in a lecture room. Contact time should not focus on information delivery, but should add significant value to the learning experience of the student. Otherwise it serves little purpose. It has to support students to learn the practices of the knowledge domain – to learn to “be(come)” a historian, or an accountant, or a chemist. If teaching is approached in this way it makes sense to provide for optimal contact time with students.

First year students, we argue, need more contact time than seniors. The rules of practice of the university as institution have to be learned while they are learning to “be(come)” specific knowledge practitioners and inquirers. The way of life at university differs from the life at school and first year students have to experience the shift from school culture to university culture as soon as possible.

Moreover, most students that enter a South African city university like the UJ are English Second Language speakers. They not only have to learn new discourses in the knowledge domains, but also have to do this via the English language. Seligman (2008), who completed a study of literacy development at the UJ found that there are multiple literacy barriers to learning, but that English as medium of instruction is a major obstacle. She recommended that that literacy development takes place in the

⁵ In accordance with the University Teaching and Learning Policy contact time is defined here as “purposeful, scheduled, face-to-face interaction between students and learning facilitators” (for example lecturers, tutors, mentors and demonstrators).

⁶ Also see Appendix 1.

disciplines and professional knowledge domains. This would require more contact time.

1.6. The “New Learner” and digital technology

Marc Prensky (2001), a digital game-based specialist, expresses amazement that the debate about the perceived decline of education seems to ignore that students who currently enter higher education are fundamentally different from previous generations. They are no longer the students that the higher educational system was designed to teach before the arrival of digital technologies. Current students are not just different from previous generations in terms of their clothes, body adornments, styles, language, or social activities. They are also different because their lifeworlds have changed dramatically. He refers to the arrival and rapid dissemination of digital technology in the last decades of the 20th century. Today’s students represent the first generation to have grown up with this new technology. They have spent their lives surrounded by computers, videogames, digital music players, video cameras, cell phones, and all the other toys and tools of the digital age. Graduates today may have spent less than 5 000 hours of their lives reading, but over 10 000 hours playing video games, and watching 20 000 hours of television. Computer games, email, the Internet, cell phones and instant messaging are integral parts of their lives. Prensky coined the term “digital natives” for these students, who are “native speakers” of the digital language of computers, video games, the Internet and so forth. This may have implications for university teachers, whom he sees as “digital immigrants” who have migrated to this world and who are not as attuned to a digital lifestyle as the students. He also says that often the students are much more advanced in the use of the new tools and that this may cause friction.

In this context, we suggest that the New Learner needs “new” learning tasks. This learner is more likely to have been exposed to a complex, multilayered, digital world. They also have a different vernacular – a digital vernacular. Therefore, learning task design needs to engage learners who speak, imagine, navigate, network and share digitally.

2. ICT’s and University Education⁷

Universities have largely been unprepared for the arrival of technology and have adopted often very costly technological innovations without fully realising the consequences. The envisaged added value has in many instances remained unrealised. Currently, however, ICT managers and administrators have options.

2.1 Various ways for the use of ICT’s

⁷ This section draws on Reeves, Herrington and Oliver, 2004, ETR&D 52 (4): 53-65

Information and Communication Technologies can function in a number of different ways:

- As information stream: The delivery of learning resources and other necessary information pertinent to learning, research and administration (for example, medical imagery needed for a case study)
- As enabler of communication: The use of both synchronous (real time) and asynchronous (any time) communication modes
- As enabler of collaboration: The use of collaborative authoring and other on-line services to support co-authorship and co-construction (for example, Google documents allows many authors to write and edit documents synchronously)
- As information transformation tool: Information transformed from one, or many, information streams to alternative streams (for example, the development of a storyboard from a written novel)
- As professionalization tool: The use of technological tools associated directly with a profession (for example, the use of Computer Aided Design software by architecture students).

2.2. A vision for ICT's at the UJ

ICT's, including computer, web and cell phone technologies, should be used appropriately to support learning. When used appropriately, ICT's:

- Support students to work individually or together to solve domain specific complex problems and to complete tasks in ways that support the notion of "learning to be(come)" a full participating member of the knowledge and professional community
- Foster learning outcomes that are of the highest order, including identifying and defining problems, improving problem-solving abilities, enhancing communication skills, and asking questions
- Support learning task design that fosters complex learning, which includes an array of thinking skills
- Require students and lecturers to "speak digitally"
- Provides universal access to information, communication systems and collaborative environments, and software to support information transformation as well as to support professional development
- Offers an infrastructure that exposes users to instantly accessible and often contradictory world-views simultaneously
- Provides learning opportunities that rely on multi-tasking as an enabler the learning process.

2.3. Current practice in higher education

We are of the opinion that currently, perhaps even world-wide, technology-supported learning is at best disappointing. It appears that the use of educational ICT's fails to realize the vision as stated above, and that most course designs remain

constrained by assumptions about info-delivery as teaching. Many current online course designs do not differ in any substantial way from contact teaching modes. We contend that existing instructional methods tend to be replicated online, instead of taking the opportunities for innovative course design – for learning to “converse” digitally.

Our challenge is perhaps firstly not in finding the causes of the inappropriate use of Educational ICT’s itself, but in the very way that the practice of teaching is viewed by lecturers. The issue is thus not so much the use of ICT’s, but the views of teaching and learning. With learning task design we have argued for what we believe the practice of teaching should be. Why this is not so, may be due to the hegemonies of info-delivery teaching practices and perhaps the way in which academic departments, and the instruments that they use for lecturer evaluation, entrenches structured ‘delivery’ of learning content, and the instrumental assessment of learning outcomes.

Students express frustration that the online tools are not used to support learning in ways that are commensurate with the affordances of the technology. They are often merely required to ‘learn from’ the technology instead of more appropriately, to ‘learn with’ it. Further, the way in which course management systems (for example Blackboard/WebCT) are designed replicate *delivery* classroom instructional practices such as duplicate lecture notes, readings, quizzes, term papers, exams, and the like. What they encounter in the class they encounter on the web.

The philosophical stance that is taken by those who control ICT at institutions may be a further contributory factor. While the internet might act as an agent of societal transformation and empowerment, it can also be a way of controlling resources for education. The values and propositions that officials of ICT embrace are reflected in the way they manage the resources and access at higher education institutions that are associated with control and power (management control). These two dimensions (empowerment and management control) can be used to define four kinds of systems:

1. Low empowerment and high management control
2. Low empowerment and low management control
3. High empowerment and high management control
4. High empowerment and low management control – a networked, empowered organization)

Contemporary management theory suggests that a networked organization can rapidly solve problems and is more likely to succeed. However, the concept of high empowerment and low management control is alien to many higher education institutions where management and ICT services are more concerned with control than the appropriate use of resources.

In addition, the use of a production line approach in the design and development of integrated learning material packages appears to be core to the epistemology of e-learning units in higher education. In addition, there seems to be a lack of a research imperative at the units that are responsible for the “instructional design” of courses. There is also a lack of interaction between the academic function and those units which control current *educational* ICT systems.

Furthermore, it appears that in many higher education institutions, there is very little academic input into the governance of ICT *structures*. Limited interaction exists between the technical division and the academic staff. Academics have to submit to the rules of the technical division with limited recourse.

Finally, the interaction between the lecturer and the university units that are responsible for educational ICT and the professional development of lecturers are largely not aligned. Stated differently, the pedagogical approach that lecturers adopt, may clash with the approach that an educational ICT unit supports, or that are practised by academic development units.

2.4 A way forward

The challenges ahead are both conceptual and technical.

At a conceptual level, a shift is required in the way in which technology is currently seen as a means of transmitting or re-packaging information. Instead, technology should be viewed as an agent of educational change that will be aligned with contemporary views on learning (for instance, “learning to be”, as discussed earlier).

This university requires a shift in the way that the units supporting educational ICT’s function. These units need to be transformed into research and development units. They need to develop course designs that can be considered best practice. They need to use appropriate experimental course and research designs to generate new knowledge. The members of such a unit need to be designer-researchers and developers who research contemporary learning task design.

At the technical level, we propose as point of departure the type of ICT supporting systems that are, as we have already stated, high in empowerment and low in control. This would include the expansion of the use of Free/Libre Open Source Software (FLOSS), which includes the freedom to use software for any purpose, the freedom to study and to adapt, the freedom to re-distribute, and the freedom to improve and release such improvements into the public domain. Of course, we support the notion that this approach should extend to the practices of teaching and of learning. We also propose the removal of restrictive controls and access to internet services, the expansion of bandwidth, and academic and student input into ICT governance and resource allocation processes.

A review of a number of ICT governance models in higher education in South Africa highlights the need for the whole university community (academic staff, students and administrators) involvement regarding matters of IT governance. We propose that (a) committee(s) should be established at the UJ in order to ensure fair, appropriate and legitimate participation. A key principle is that IT governance structures should include all stakeholders.

Such an integrated committee structure would:

- Set and prioritise IT-related policies and projects
- Concern itself with the use of ICT for teaching, learning and research (Stakeholders include experts from the academic community and student representatives)
- Concern itself with issues related to Web and other technologically-related communication issues across the University (e.g. Internet and intranet) (Stakeholders include members from public relations, communications, human resources, student affairs and student representatives)
- Concern itself with institutional ICT infrastructure, and academic and business services (e.g. wireless, security technology, directory structures, licensing issues, network infrastructure, and intuitional management systems and data) (Stakeholders include members from IT, Library, administration, finance, human resources, student affairs and student representatives).

3. Conclusion

Central to the position that we are taking in this paper is the notion of *learning to be a practitioner of a knowledge domain* – a person who learns to access and appropriate the discourse of the community of knowledge and of the profession. Also, in order to support student learning optimally the professors and other university teachers⁸ need to consider teaching as the design and implementation of multiple learning tasks in different modes. We furthermore argue for a utilization of ICT's that enhances, energises and mobilizes conventional higher education practice in creative ways. Also, we point out that the management of technology resources needs to facilitate optimal use and access.

⁸ We use the generic term teacher for anyone who acts as instructional mediator in any learning event.

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