

Experiential learning: Theory and practice at three RUFORUM Universities

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Abstract

African agricultural universities have been heavily criticised for not producing graduates with the skills needed by the modern labour market. One of the perceived solutions advocated for this problem is the greater use of experiential learning approaches. After a short introduction to theory on experiential learning, this paper describes practices at the agricultural faculties at three RUFORUM Universities – Makerere University in Uganda, Moi University in Kenya, and Bunda College of Agriculture in Malawi. Particular focus is given to teaching practice, student attachments and postgraduate research, with suggestions on how to improve experiential learning in each of these areas.

Key words: postgraduate research, RUFORUM, students attachments, teaching approaches

Résumé

Les Universités Africaines organisant la faculté d'Agronomie ont été fortement critiquées de ne pas produire des diplômés possédant les compétences requises pour le marché moderne du travail. L'une des solutions préconisées, recommandée à ce problème, est l'utilisation remarquable des approches d'apprentissage expérientiel. Après une brève introduction à la théorie sur l'apprentissage expérientiel, le présent article décrit les pratiques dans les facultés d'agronomie de trois universités du RUFORUM - Université de Makerere en Ouganda, Université Moi au Kenya et Collège Agronomique de Bunda au Malawi. Une attention particulière est donnée pour la pratique pédagogique, les attachements des étudiants et la recherche postuniversitaire, avec des suggestions sur la façon d'améliorer l'apprentissage expérientiel dans chacun de ces domaines.

Mots clés: Recherche postuniversitaire, RUFORUM, attachements des étudiants, approches pédagogiques

Background

Criticisms of agricultural graduates and the universities that produce them in Africa have become depressingly familiar. Graduates do not have the skills required by the labour market; teaching methods are outdated, with too much emphasis on theory and not enough on practical, problem-solving capabilities; universities are “ivory tower” institutions which do not interact with other actors in the broader field of agricultural innovation; etc. (Ison, 1990; Wals, 2005; Chakeredza *et al.*, 2008; Maguire, 2012).

Among the many changes seen as required are those that relate to teaching/learning methods. One of the key principles agreed in the “Jinja Consensus” in 2003 (SEMCIT, 2003) was the need for “*A student-centered approach to learning and discovery will include flexible and practical approaches to problem-solving, effective communication skills and strong linkages to rural communities and the developmental needs of key stakeholders such as women farmers. Through experiential learning methods, educational institutions should focus on facilitating student development rather than transferring knowledge. New student evaluation systems will be necessary to reflect these goals*”.

Against this background, RUFORUM, a network of 29 Universities in Eastern, Central and Southern Africa developed the project “Shifting from Outreach to Engagement: Transforming Universities’ response to current development trends in agricultural research and training in Eastern, Central and Southern Africa” Project – referred to in this paper as the “Outreach Project”. Collaborating partners in this project include Makerere University (MAK) in Uganda, Moi University School of Agriculture and Biotechnology (MSAB) in Kenya, Bunda College of Agriculture (BCA), of the Lilongwe University of Agriculture and Natural Resource Management¹, and Wageningen University and Research Centre (WUR) in The Netherlands.

An initial activity of this project was a consultancy conducted in 2010 to identify key gaps and opportunities for integrating experiential learning into courses and departments’ training, research and outreach programmes. This paper summarises the main findings of this report, which has been published in full elsewhere (Hawkins, 2010).

¹At the time of this study, Bunda College of Agriculture was part of the University of Malawi.

Learning Theory and Experiential Learning

The consultancy followed three main phases. In the first phase, a series of individual and focus group interviews were carried out with staff, students and project partners at MAK, MSAB and BCA. The second phase consisted of a “desk study” of concepts concerning experiential learning and action research, and how these concepts have been put into practice. During the third phase, the report was edited based on a review by the RUFORUM and Outreach Project partners at a one-day workshop in Uganda.

The paper will therefore be organised in three main sections. In the first section is presented a short review of the concepts of experiential learning. In the second and main section, the degree to which and the ways in which experiential learning principles are applied in the three project universities is discussed. In the third section, a number of conclusions are drawn about capacity strengthening needs at individual and organisational and levels.

A short review of knowledge and learning. The literature on learning and the nature of knowledge is vast. What follows is therefore only a very superficial summary - based around three exaggerated dichotomies - but it does provide a background to the discussion on what universities teach, and how they teach it, and the concepts of experiential learning.

Deep vs surface learning. Marton and Säljö (1976) identified two types of students:

- **Surface learners** tend to focus on remembering information or discrete facts that they assumed they would be tested on later – an approach with a low level of “cognitive engagement”.
- **Deep learners**, on the other hand, would try to make meaning of the information given, putting it into a context that made sense to them, and relating it to their existing understanding (Bowden and Marton, 2004).

Positivism and constructivism. Learning is also related to concepts of knowledge itself:

- **Positivism** holds that there exists a true, knowledge of ‘reality’, that this reality is universal and unchanging, and that it can be gradually revealed by the scientific method. This

objective knowledge is assumed to be independent of the values of the different observers or interested parties, and the role of the teacher (instructor) is to pass on this knowledge to the individual learners – (an “instructivist” learning approach).

- **Constructivism**, while interpreted in many ways (see, for example Matthews, 2000), assumes that knowledge is a function of how the individual ‘constructs’ meaning from his or her experience, and through social interaction. ‘Reality’ is not independent of perception: different people may interpret the same phenomenon in different ways. The role of the teacher is to facilitate the students’ learning (construction) through reflection of experience, and social interaction and dialogue.

Pedagogy vs andragogy. The third dichotomy described here relates to different types of instruction:

- **“Pedagogy”** (derived from the Greek “agogos” meaning leader, and “paidos” meaning child) is often considered to be the profession of teaching, but it has come to be associated with the teacher-directed approach often used with children.
- To contrast with pedagogy, Malcolm Knowles introduced in 1970 the term **“andragogy”** (“andros” meaning adult) as “the art and science of helping adults learn”, based on the principles of:
 - *Self-concept* - knowing why something is important to learn.
 - *Experience* – relating the learning to experience.
 - *Readiness* – overcoming inhibitions about learning.
 - *Orientation* –directing oneself through the information.
 - *Motivation* - being ready to learn (after Smith, 2002),

Experiential learning. At its simplest “experiential learning” (EL) can be equated to learning from experience. This is not a new concept. Sophocles (495-406 BC) is reputed to have said “*One must learn by doing the thing; though you think you know it, you have no certainty until you try*”. More recently, Albert Einstein (1879 – 1955) has been quoted: “*Knowledge is experience, everything else is just information*”.

However, experience does not always automatically lead to learning – most of us have probably repeated mistakes from which we should have learned. Learning requires reflection upon

the experience – giving it meaning and (re)constructing our knowledge base. While thinking about what has happened is an everyday process, people and professionals vary in the effectiveness with which they use reflection. “Deeper” processes of reflection can themselves be learned, which do not just describe what happened, but also consider alternative viewpoints, recognise that alternative explanations may exist, and analyse how different actions relate to different contexts. Reflection thus leads to new or revised understanding and knowledge, new processes of critical review, new theories of how things work, resolutions about personal behaviour, plans for future action, etc. Reflection also enables learners to be aware of their own learning processes, leading to higher overall achievement (adapted from Moon, 2004).

The concept of EL has therefore led to more developed theories of how people learn, which can then be used to develop more structured and effective learning programmes. Perhaps the most influential have been the ideas of David Kolb (1984), who described four different but linked sub-processes that interact over a period of time (which may be minutes or months) to achieve learning. In this “experiential learning cycle”, direct or concrete experience (i) is followed by (ii) reflection on what happened, then (iii) the formulation of a general rule or conclusion (conceptualization), followed by (iv) more experimentation that gives rise to new experience etc.

There is now a vast literature on experiential learning (EL)², which includes a range of meanings, practices, and ideologies. Moon (2004) reviews some of these definitions, citing that of McGill and Warner Weil (1989) as one of the most useful:

[EL is] “the process whereby people individually and in association with others, engage in direct encounter, then purposefully reflect upon, validate, transform, give personal meaning to and seek to integrate their different ways of knowing. Experiential learning therefore enables the discovery of possibilities that may not be evident from direct experience alone.”

Moon (2004) goes on to review what can be described as characteristics of experiential learning:

² See bibliography. The Kolbs’ website (www.learningfromexperience.com) also includes a useful video on “what is experiential learning”, as well as comprehensive bibliographies of EL.

- The learning is personally significant to the learner;
- It is not usually mediated or “taught” (rather “facilitated” or managed);
- The material of learning is usually direct experience (rather than texts, information);
- There is a process of reflection
- There is usually a formal intention to learn, and learning events are usually structured.

Action research. The concept of EL can be also related to the way research is carried out, particularly by universities in postgraduate programmes.

The “**conventional**” research approach is associated with a positivist way of thinking, confirming or rejecting hypotheses about an objective reality (“facts”). Following normal incentives for university staff, the resulting knowledge is usually published in an appropriate professional journal, but may remain unused in practice by society (knowledge “on the shelf”).

“**Action research**”, by contrast, is specifically intended to lead to action (improvement, development) as an outcome, in addition to research (knowledge, understanding). The understanding allows more informed change, and at the same time understanding is improved by observing and reflecting on the results of the action carried out. Kurt Lewin, who is credited with first using the term “action research”, is reputed to have said: “*If you want to know how things are – just try to change them.*” Action Research tends to be cyclical, participatory, and qualitative. Cyclical in that it is based on Kolb’s learning cycle described above, and iterative in that the cycle is repeated, with new planning based on the lessons learned through reflection of previous experience and actions. Action research is participatory because it needs to involve the people who are likely to be affected by the change. This allows the understanding to be widely shared and the change to be pursued with commitment. Examples of action research include the “Participatory Extension Approach” (PEA) described by Ramaru *et al.* (2009), and Ngwenya and Hagmann (undated).

EL practice in the three Universities

Staff understanding of EL. When asked: “what is experiential learning”, staff and/or students at the three universities contacted gave a range of replies. EL was considered to be “*putting training into practice*”; “*gaining experience by practicing*”; “*on the job learning*”; “*applying emerging issues*”;

“problem based learning”, or “learning through conducting experiments”; “learning by doing”; “engaging the student to be part of, involved in the problem”; “learning with farmers”... “developing a learning community”... “constant reflection” , etc.

However, not all staff at the universities were convinced of the value of experiential learning: “...it doesn't teach facts” was one opinion given.

The above quotes show that there is a wide range of understanding of the concept of EL. To some, it simply means practice of theoretical knowledge. To others, it is an alternative way of learning. To yet others, it involves engaging with others. When asked how EL has been integrated into academic programmes, many staff interviewed pointed to student field attachments or “internships”, or particular courses that have been designed with EL principles in mind.

Few faculty staff members interviewed had formal training in teaching or pedagogical approaches in general, much less in EL in particular. Such training did not appear to be a requirement for staff in any of the three universities visited: “we've never been taught how to teach”; “nobody penalises you for the way you teach” were typical comments. Teaching staff at the universities visited lacked skills in curriculum development, definition of learning outcomes, developing appropriate learning activities, learning materials and assessment methods.

There were however valuable exceptions to this general finding. Each of the three universities had separate faculties (schools or colleges) of education. These faculties usually focus on preparing teachers of secondary education, although some instance were found of departments and staff who have an interest in, and capacity for training of fellow university staff. One example was the series induction workshops on teaching practice for new staff at UNIMA, through the Committee on University Teaching and Learning” – although the last workshop appeared to be have been about four years prior to the study. Another example was the development of a training manual for a 3-day course in “learner-centred methodologies” by the Department of Curriculum, Teaching And Media in the School of Education at MAK, aimed at staff of other MAK faculties. Other instances of training in learning methods mentioned by staff interviewed included a Postgraduate Certificate in

Curricula

Academic Practice, offered by Kabarak University (Kenya) in collaboration with three other Kenyan Universities and York St. John University (UK); and the “Personal Mastery (PM) Learning Cycles” at MAK (Kibwika, 2006).

A comprehensive review of the structure of the different BSc and MSc programmes in the three universities was beyond the scope of the study. However, a cursory look at some of these programmes suggested that most programmes focus the constituent courses on technical issues relating to *things*, rather than on *process* issues relating to *people*.

Most courses, at both undergraduate and especially postgraduate level, were also focused on particular disciplines. There were few (but significant) courses that develop *meta-disciplinary* concepts and skills such as systems thinking (and the application of such thinking to farming systems, livelihood systems, innovation systems, value chains, etc.), *personal development skills* (inter-personal communication, interactive and reflective learning, etc), and *management skills* (planning, facilitation, organisational change, etc). In other words, the emphasis was on “hard science” rather than on the “soft skills” of management.

Most courses – especially those at postgraduate level, emphasised *quantitative research methods* and statistical analysis that are suitable for research in crop and livestock performance *per se*, rather than on qualitative research methods that may be more suitable for research in multi-stakeholder processes of innovation in agricultural practice. Some early courses at BSc level discuss techniques such as individual or focus group interviews, but these topics were usually not taken up at postgraduate level (even though many postgraduate students interviewed used these methods in their research).

Most 4-year BSc programmes include a *special project* (or dissertation). However, these mini-research projects tend to focus on technical and disciplinary issues, rather than on process issues. Field attachments were often considered as the main means of students gaining practical skills, and incorporating experiential learning methods into BSc programmes. However, the weighting of these attachments, in terms of credit units, often limited their importance within the overall programme (e.g. they account for only 1-4 CU from a total of 180 or so for a 4-year programme; see below).

MSc and PhD programmes are seen mainly as a preparation for a career in *research*, not a career in *management or business*. The MSc programmes seen at the three universities almost all follow a 2-year programme, with 2 semesters of courses and 2 semesters of research project. The courses included in MSc programmes focus mainly on in-depth disciplinary and reductionist topics.

However, there were significant examples of recently-developed programmes at the three universities that were constructed more around EL principles and content more oriented towards management of innovation. Examples here included:

- Bachelor of Agriculture and Rural Innovations (BARI) Programme at MAK, which is organised around rural innovations concepts and professional skills (in addition to traditional agricultural themes), as well as including “Supervised Experiential Learning Projects”;
- The recently developed BSc in Agricultural Extension Education at MSAB which includes a number of courses on “soft skills”;
- The “mid-career BSC programme” at BCA where learning is firmly located within the students work context;

Each of these programmes had been recently developed (2005-2010), and each has valuable elements that could be extended to other undergraduate programmes.

Curriculum development processes. In the three universities, the process of incremental change to existing programmes is constant, with a major revision at Faculty level every 4 years or so. All three universities also involve stakeholders in curriculum development processes. Such involvement was at least in some cases said to be a requirement for University approval of new programmes, although not all staff interviewed appeared to consider stakeholder involvement to be mandatory or universal.

In some cases, tensions were noted between what stakeholders wish to see in curricula - generally, more “skills” at managing processes - and what academics want to include - more “knowledge”. It therefore becomes critical as to who sits on the committees that eventually determine the shape of the programmes (i.e. Departmental, Faculty and Senate Committees). Examples noted were the development of the

BARI programme and the new MSc in Integrated Watershed Management at MAK.

A limitation reported was the lack finance to pay for such stakeholder participation. Another limitation in terms of stakeholder involvement in curriculum development is that none of the universities visited appears to have a good tracing system or formal records of where their graduates are employed. Inevitably, this limits feedback from either graduates or employers on the knowledge, skills and attitudes required by graduates, and corresponding adjustment of curricula.

Classroom practice. As seen above, EL requires dialogue and group processes. In this way, the learner can relating new information to prior knowledge and experience, and can socially “construct” knowledge through a consideration of multiple perspectives. Classroom practice described by faculty staff does not always enable this construction process. Typical lectures are one-way communication process. Some lecturers had tried to adopt a more facilitative style, assigning individuals or groups of students to prepare topics for presentation to fellow students during the class, thus promoting a greater degree of classroom discussions. Others gave reading material in advance to students, using the classroom time for discussion of the material. In general, students interviewed preferred approaches that maximise classroom discussion, and said they learned more, as well as developing the skills of discussion. In fact, it appeared to be common (e.g. in MAK) for students to organise themselves into informal study groups, with much valuable interaction taking place outside the classroom; it would thus make sense for teaching staff to see how to maximise the benefit of such groups.

Staff rarely mentioned other EL methods, such as games and role-play, during the study (one staff member who had experimented with such techniques said that such methods were considered as strange by other staff and also by students: “*they think you’re bonkers*”). Similarly, the use of case studies does not appear to be widespread in the three universities visited (again there were exceptions, as in the MAK Economics and Agribusiness BSc Programme, as well as the Family and Consumer Science BSc at MSAB, both of which use case studies as material for analysis and class discussions).

In terms of assessment, individual and peer assessment is often suggested as a means of encouraging EL, in that it allows for the assessment of process skills (self management and organisational skills, research skills, communication and intellectual skills) which are not often visible to the teacher. There were only a few examples of use of individual and peer assessment at the three universities, including their use for assessing classroom presentations by groups by the Dept of Agricultural Extension and Education at MAK. Assessment by teaching staff is still the general practice.

In addition to staff skills (individual capacity), limitations to a more widespread use of EL in teaching include organisational limitations (see, for example, Taylor and Fransman, 2004). Many of these limitations were noted at the universities visited, including:

Staff time. EL methods – interaction, discussions, group work, games, role-plays, etc. – were seen as requiring more preparation than conventional lectures. Most universities provide guidelines for staff time in terms of preparation, based on a more traditional lecturing style.

Large class sizes – reported at up to 200, especially for courses that are combined across programmes. Large classes present challenges for faculty staff to promote discussion or activity groups.

Classroom infrastructure, which often consisted of fixed benches that cannot be rearranged to accommodate group discussions or group work.

Student expectations, which often consist “regurgitating what is fed” in order to obtain good grades. While the BARI programme at MAK did include courses on adult learning these appeared to be too late (in the 4th year) to allow students to reflect on their own learning processes early on in their academic studies.

Staff incentives/promotion criteria, with an emphasis on quality based on appraisal/evaluation. A good example of this was the student evaluation of courses and lecturer performance as conducted at BCA – but this of course is related to the previous point on student expectations.

Practical Work and Field Attachments

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Most coursework at the universities visited consisted of some practical experience. Typically, a course schedule over 1 week consists of 3 hours practical, 2 hours of lecture and 1 hour of assignment although in some cases written assignments are considered as “practical work”. All three universities have extensive agricultural land, where students can develop practical skills in crop and animal management. In food science courses at both Moi and Bunda College, at least, students from food science courses manage the faculty cafeterias (develop menus, procure supplies, cook meals, manage accounts, etc).

A number of courses at the universities visited are organised in the form of a “project”. A good example is the BSc on Community Nutrition and Extension at MSAB, where groups of students walk to nearby communities each Friday over 12 weeks to collect data on diet history and growth, as well as giving presentations to villagers on nutrition. Students are assessed on how well they communicate with villagers, as well as on the basis of their written reports. Another is the BSc in Agribusiness Management at BCA, which includes a course constructed around the development of a business plan, based on market research, tender information, etc.

Practicals and projects notwithstanding, field attachments were mentioned by many staff as the main way in which EL is incorporated into academic programmes. All three universities use field attachments (or “internships”), where students are attached to a suitable collaborating organisation for a period, usually during the long break between semesters (the “recess term”). However, there were differences between departments and universities in the length and management of these attachments, as well as the assessment methods used and the credit weight given.

At MAK, field attachments were introduced in about 2003, first in the AEE department and later throughout the faculty, as a result of feedback from employers, who complained that graduates were too theoretical and did not have practical/social skills. Originally organised in the long recess after each academic year of undergraduate programmes, the demands of management and staff time limited most undergraduate attachments to a 10-week field attachment period during the recess at the end of the 2nd or 3rd year at the time of the study. Some staff members were doubtful of the value of the attachment programme (“*are we preparing scientists or*

vocationalists?”). Since 2004, when there was last a general review of curricula, attachments have been assessed, and generally accounted for 5-6 credit units (of a total of about 250 for a complete BSc programme). The BARI programme at MAK, however, includes 2 field attachments, each of 10 weeks, known as “Supervised Experiential Learning Projects” or SELPS, conducted in collaboration with NGOs, the National Agricultural Advisory Services (NAADS), National Agricultural Research Organisation (NARO), local government and private companies. The MAK Faculty of Veterinary Science included a modified field attachment (in the 5th year), with students placed in communities as veterinary service providers (living in the community for 2 periods of 3 weeks, with a break of 3-4 weeks in between).

At MSAB, the Dept. of Family and Consumer Science included a 12-week attachment at the end of the 3rd year of the programme. Typical organisations receiving students included hospitals and NGOS. Students were expected to report to the University on what they did, what they were unable to do, the problems encountered that had not been covered in university courses, what they had learned and where they could apply these lessons. They were also expected to write a report for to the host organisation or community group as well as the university. The Animal Science Dept at MSAB also had a similar attachment programme (with research organisations, Agricultural Development Corporation farms, Government Institutes, Veterinary Labs, NGOs, etc.), where students set their own schedules for what they wanted to learn, and kept a daily reflective log with weekly summaries.

Attachments were also a feature of BSc programmes at BCA (during 3rd year recess), although limitations of financial resources for students and visiting supervisors meant that in some cases the period is reduced in practice from the nominal 8 weeks to 4 or even 2 weeks. Even so, the attachment at BCA accounts for 10 credit units, and is assessed by external supervisors (60%) as well as academic supervisors (40%). The expected learning outcomes were defined by the HOD (rather than the student). Nearly all staff and students affirmed the educational value of practicals and especially attachments. However, the main limitations to expanding or even maintaining field attachments were cost and demands on faculty time.

Postgraduate Programmes and Research

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All the postgraduate programmes reviewed incorporate both coursework with (thesis) research. Masters programmes typically involved 1 year (2 semesters) of courses, and one year of research and thesis writing (although this period often was sometimes extended to a third year). A number of features of the postgraduate programmes reviewed limited the effective use of EL and/or possibilities for interaction with other stakeholders to promote innovation:

Limited prior experience. About 50% of students interviewed had prior work experience when registering for a postgraduate degree, with others coming straight from BSc programmes (although this proportion varied considerably between programmes). From an EL perspective, it is likely that students with some professional experience are in a position to benefit more from postgraduate study.

Emphasis on quantitative research methods. Course work within the postgraduate programmes discussed almost entirely emphasised quantitative research methods and biometry; few students interviewed considered that they had been sufficiently prepared to use qualitative methods (e.g. focussing on innovation processes).

Lack of systems context. The MSc technical programmes observed were disciplinary focused, and offered little preparation for the study of social processes – such as agricultural innovation. Students had little exposure to systems concepts and systems thinking, which would help place the research problem into context (e.g. the farm or livelihood system; the innovation system or value chain).

Lack of economic analysis. In most technical programmes (crop, animal, soil science, etc), MSc coursework offered little preparation for any kind of economic analysis, and hence technically focussed students usually neglect the economic evaluation of technology being researched (one supervisor is said to have questioned if economic analysis is part of soil science, when a student proposed including such an analysis as part of his thesis).

Limited functional interaction with farmers. Students interviewed often claimed to have included work with farmers as part of the research. However, probing further, it appeared that this did not always mean significant interaction with these

farmers: some research simply used the farm as a “decentralised experiment station” with effectively little communication with the farmer concerning the topic of the research.

Focus on technology, not innovation. Most of the research observed focused on technology (plant and animal) performance and quantitative analysis, rather than on (mainly qualitative) processes of stakeholder interaction that lead to innovation and change. Students did not know how to assess and document processes of interaction, analyse multi-stakeholder innovation processes, or reflect on their own learning about working with others. Several students said that they would have liked to have been able to pay more attention to these issues, but that that “*these issues are not considered important*” by their supervisors, or do not constitute required elements for written theses.

Thesis format. All three universities have standard formats for MSc theses. In general, these require a standard presentation based on conventional scientific research processes: introduction and literature review, method, results, discussion and conclusions. This format does not encourage a process that follows an EL or action research process, with several iterative cycles of planning, action, reflection, lessons learning, and re-planning, etc., or research that involves more qualitative analyses.

Limited application of results. Most faculty staff encountered admitted that postgraduate research nearly always remains “on the shelf”. Students who had worked with farmers as part of the research admitted that their results are not written in a style accessible to farmers or end users, and are rarely communicated to others beyond the university department.

Assessment limited to the academic. Related to the previous point, theses (results, outcomes) are assessed by an academic and sometimes external supervisor - and rarely by end-users or “clients” (unlike internships at undergraduate level).

The Role of the University

Underlying much of the university practice described above is the understanding many staff and university managers have about the *role* of the university. The mission statements of the three universities studied emphasised their role to society or community development. When asked however, many university staff and managers described a more traditional and limited

focus on the production of “new knowledge” as the main *raison d’être* of the university.

It is notable that – with notable exceptions such as the Masters in Agribusiness Management and the BARI Programme at the MAK; and the BSc/MSc in Agribusiness Management at Bunda College of Agriculture - almost all of the programmes offered by the universities in agriculture were described as “science” programmes, emphasising positivist thinking about things (soils, crops, livestock), rather than constructivist thinking about people. It seems that programmes developed with more emphasis on processes, or EL in general, can find it difficult to get approval under the current prevailing understanding of the “science paradigm”.

Conclusions

Strengthening capacity for EL. Inevitably, limitations of space in this current paper limit detailed discussion of the way in which experiential learning is, or is not, put into practice in the universities studied. In particular, there was a considerable variation in practice and hence there were often interesting and important exceptions to the inevitable generalisations made here; experiences which in themselves offer good possibilities for learn. For a more complete discussion therefore, the reader is referred to the original report from which this paper is derived (Hawkins, 2010).

From this brief review of practice at the three universities, as well as examples from elsewhere (Muir-Leresche, 2008; Hawkins, 2010; Maguire, 2011), a number of ways are identified here in which experiential learning can be encouraged.

In curriculum development, through:

- Greater involvement and influence of agribusiness and sector organisations in determining curriculum content;
- Inclusion of core courses on systems concepts and application (innovation/livelihood systems, value chains, etc)
- Focus on higher level learning outcomes (applying, evaluating, analyzing) that promote deep learning;
- Use of self and peer assessment (in addition to teacher assessment);
- Inclusion of personal/social skills development.

In teaching practice, through:

- Maximising small group work, “buzz groups”, discussions and student presentations;
- Including seminars and guest presentations from “non-academic” resource persons;
- Encouraging students to keep reflective diaries or logs of their learning and learning activities.

In **student attachments**, through:

- Placement of students with multi-stakeholder contexts - ongoing development projects or agribusinesses – to give opportunities for developing communication skills and learning about organisational issues, as well as technical skills;
- Allocating credits commensurate with time expended and importance within the overall curricula;
- Encouraging students to develop their own learning objectives, and self assessment of the achievement of these objectives;
- Balancing self, employer (host), peer and teacher assessment;

In **postgraduate programmes and research**, through:

- Inclusion of qualitative research methods (for working with people, organisational issues) as well as quantitative methods;
- Inclusion of an analysis of practical, economic and social implications in technology evaluation;
- Inclusion of an assessment by research partners (farmers, agro-industry) of technology being evaluated;
- Inclusion of a self-assessment/reflection of the research and learning process, and implications for future curriculum development.

Part of this agenda for change towards more experiential learning can be promoted through development of individual (staff) skills in improved methods for facilitating learning and curricula development. But a greater integration of higher education with the demands of employers and the agricultural sector more generally will require deeper, organisational and institutional change; change in the way universities perceive themselves and their role, the consequent incentives given to staff, as well as the resources given to them to go beyond the simple instructional model of lecturing to packed auditoria.

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References

- Bowden, J. and Marton, F. 1998. *The University of Learning: Beyond quality and Competence in Higher Education*. Kogan.
- Chakeredza, S., Temu, A.B., Saka, J.D.K., Munthali, D.C., Muir-Leresche, K, Akinnifesi, F.K., Ajayi, O.C. and Sileshi, G. 2008. Tailoring tertiary agricultural education for sustainable development in Sub-Saharan Africa: Opportunities and Challenges. *Scientific Research and Essays* 3 (8):326–332.
- Hawkins, R. 2010. *Experiential learning, action research and outreach: A gap analysis*. RUFORUM, Kampala, Uganda. 125 pp.
- Ison, R. 1990. *Teaching threatens sustainable agriculture*. Gatekeeper Series No 21. IIED, London, UK.
- Kibwika, P. 2006. *Learning to make change: Developing Innovation Competence for recreating the African University of the 21st Century*. Wageningen Academic Publishers, The Netherlands. 207 pp.
- Knowles, M.S. 1970. *The Modern Practice of Adult Education: Andragogy vs Pedagogy*. New York Association Press.
- Kolb, D. 1984. *Experiential Learning: Experience as the Source of Learning and Development*. Prentice-Hall, Inc., Englewood Cliffs, N.J.
- Maguire, 2012. *Agricultural Education and Training to Support Agricultural Innovation Systems*. In: *Agricultural Innovation Systems: An Investment Sourcebook*. World Bank, Washington, D.C. pp 107-177.
- Marton, F. and Säljö, R. 1976. On qualitative differences in learning. I – Outcome and Process. *British Journal of Educational Psychology* 46: 4-11.
- Matthews, M.R. 2000. *Constructivism, Epistemology and the Learning of Science*. Kluwer Academic Publishers. *Editorial in the special issue of Science and Education* 9:491–505.
- Moon, J.A. 2004. *A Handbook of Reflective and Experiential Learning: Theory and Practice*. Routledge Falmer. 252 pp.

- Muir-Leresche, K. 2007. Good practices in transforming African agricultural universities and faculties. SEMCA Community of Practice, December 2007. Available online at: http://www.iln-africa.net/uploads/documents/case_studies/Transformation_Goodpractices_SEMCA_Dec07.doc (Accessed May 29, 2012).
- Ngwenya, H. and Hagmann, J. (undated). Facilitation for change: Triggering emancipation and innovation in rural communities in South Africa. Institute for People, Innovation and Change in Organisations (PICOTEAM), PICO Southern Africa. Available at: http://www.future-agricultures.org/farmerfirst/files/T2b_Ngwenya.pdf (Accessed May 29, 2012).
- Ramaru, J.M., Hagmann, J., Mamabolo, Z.M. and Netshivhodza, M.H. 2009. Innovation through action – An action research journey with smallholder farmers in Limpopo Province, South Africa: experiences of soil fertility management. In: Almekinders, C., L. Beukema and C. Tromp (eds.) Research in Action – Theories and practices for innovation and social change, Wageningen Academic Publishers, ISBN 978-90-8686-087-6, The Netherlands, 45-66. Available at: <http://www.picoteam.org/publications/pdf/Innovation%20through%20action%20-%202009-3.pdf> (Accessed May 29, 2012).
- SEMCIT. Sustainability, Education and the Management of Change in the Tropics (SEMCIT) and the Jinja Consensus. Available at: http://www.iln-africa.net/uploads/documents/resource/SEMCIT_Jinja_Consensus.pdf (accessed May 22, 2012).
- Smith, M.K. 2002. Malcolm Knowles, informal adult education, self-direction and andragogy, the encyclopedia of informal education, Available at: www.infed.org/thinkers/et-know1.htm accessed 29 May, 2012.
- Wals, A.E.J. (Ed.). 2005. Curriculum innovations in higher agricultural education. Elsevier Overheid. The Hague.