

Issue No. 58
6 September 2019

Lucubrate

Magazine

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"I believe that the school must represent present life – life as real and vital to the child as that which he carries on in the home, in the neighborhood, or on the playground." *John Dewey*

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The world is changing all around us. A skilled population is the key to a country's sustainable development and stability. We know that obtaining a quality education is the foundation to improving people's lives and sustainable development. To contribute to skill people over the next ten years and beyond, we must look ahead, understand the trends and forces that will shape our business in the future and move swiftly to prepare for what has to come. We must get ready for tomorrow today. We will make it possible for youth and young adults all over the world to gain skills they can use in the labour market or to create their own jobs. We will make it possible for every person to have lifelong learning opportunities to acquire the knowledge and skills they need to fulfil their aspirations and contribute to their societies.

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Cover Photo: Raymond Thill

Publisher: Lucubrate

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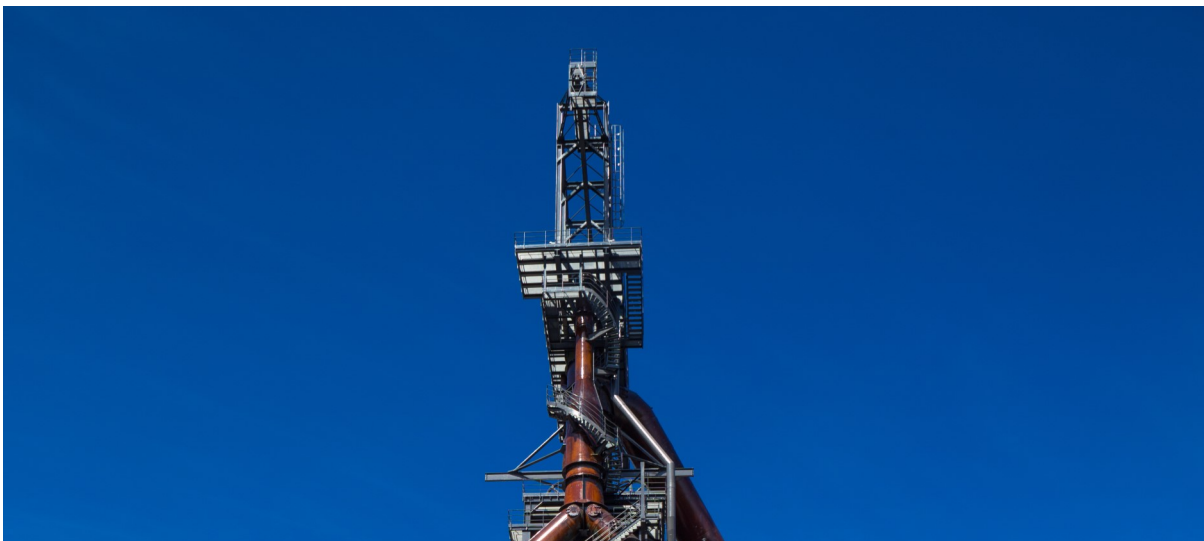
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Universities Collaborating with Industry to Design Relevant Curriculum

By Nita Temmerman (PhD)

Universities and industry have been collaborating for well over one hundred years. The principal nature of these collaborations has generally been research focussed, where industry has provided funding for university researchers to tackle strategic projects that drive industry innovation, development and/or contributes to economic growth.



The partnerships are not always smooth sailing. There is a cultural divide between how universities and industry operate, think and behave. However, as long as there is mutual benefit – a much-needed stream of funding for universities, and for industry- access to expert researchers with innovative capacity, such collaborations continue.



The university – industry partnership is less well established when it comes to authentic participation in curriculum design. Curriculum de-

Nita Temmerman (PhD)

is a former university Pro Vice-Chancellor Academic and Executive Dean, Faculty of Education. She is currently Chair of two Higher Education Academic Boards in Australia, visiting Professor to Ho Chi Minh City Open University, University of Technology PNG, Solomon Islands National University, as well as an invited specialist with the Hong Kong CAAVQ, invited external reviewer with Oman Academic Accreditation Authority (OAAA), and published author.

sign here refers to a planned sequence of learning for an entire degree program. It includes consideration of program aims,

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student learning outcomes, learning activities and assessment tasks mapped across a whole program.

There is no doubt that employers rely on higher education providers to deliver qualified and skilled employees and universities rely on industry to provide work placements for their students and to employ their graduates. For the best fit to occur between input and output (graduates), the two parties should be clearly and regularly communicating their expectations with each other. Notwithstanding professional learning (skills and attributes), usually outlined by a professional body as in the case of Engineering, Accounting, Architecture etc; and expected to be addressed in the curriculum, participation of industry in the design of curriculum is less prevalent.

No Overarching Framework or Support

Collaboration between industry and higher education in the design process is still rather a contentious issue for some in the higher education sector. Whilst relationships with industry groups are actively fostered, as mentioned before they have generally been about industry providing a valuable work place experience for learners to augment job preparation and enhance graduate employment prospects. Other instances of association are the inclusion of industry site visits for students, guest presentations/lectures by industry personnel, and the inclusion of students in industry supported competitions. However, while they represent valuable types of engagement, they are not generally applied in a whole-of-program way, but rather are incorporated into a few subjects and dependent on individual academics and their industry contacts. In other words, there is no overarching framework and/or (maybe) support (or maybe even incentive) available to ensure a comprehensive approach is taken. One particular role comfortably assigned to industry is that of membership onto a university advisory committee that meets perhaps once or twice annually.

The Economy Relies on a Skilled and Educated Workforce

A central component of a productivity growth strategy for any society is to develop the skill base of its workforce. A prosperous economy relies on a skilled and educated workforce. Today's economies more than ever are less based on physical capital and more on ideas development. Young people need to be presented with a curriculum that strengthens their preparation for living and working and positioning the course of action in a progressively more multifaceted, fast altering and globally interdependent world. Employers want job ready employees with the requisite relevant knowledge as well as skill sets to 'hit the ground running'.



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Education is preparation for many jobs.

But we know that education is about much more than preparation for a single job. It has to be about producing individuals with analytical and creative minds capable of applying and creating new knowledge. It has to be about engaging young people in learning, which is durable, transferable and broad ranging, but also appropriate for the real world. It has to be about equipping them with broadly based graduate skills that sit comfortably alongside professional-discipline specific knowledge, values and understandings.



Picture: ilcianotico

Partnerships Built on Trust.

The most successful partnerships are built on trust, having a common vision and seeing mutual benefits. It takes time to establish such partnerships. It does not mean industry becoming the dominant decider of what learning outcomes, content, learning activities and assessment tasks should make up an academic program, which is what some academic staff are concerned about. What a sincere partnership with industry will provide for is inclusion of a real-world, contemporary perspective about workforce skills that compliment a theoretical knowledge base. Each party brings important complementary knowledge, expertise and perspectives.

The Students Will benefit.

In the end, it is the students who will benefit from genuine industry - university collaborations. They will be assured of studying a curriculum that is relevant and aligned with the real world of work and one that advances their professional knowledge, skills and understanding and ultimately improves their chances of employment.



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Learning by Real-World Problem-Solving in Vocational Education

By Bill Lucas, Ellen Spencer and Guy Claxton

Learning by attempting to solve real-world problems can be a highly effective means of developing expertise.



Picture: jovannig

Learn PBL from Medical Education

'Problem-based learning' (PBL) is an enquiry-based approach to problem-solving that grew out of medical education. It is intuitively appealing as a way of developing knowledge in the context of vocational education(1). A meta-analysis of the effectiveness of PBL (2) showed that although PBL students out-scored their peers in clinical performance, this was at the cost of lower basic science exam scores and more study hours per day. More evidence of the effectiveness of PBL is



Bill Lucas, Ellen Spencer, Guy Claxton

in "How to teach vocational education: A theory of vocational pedagogy",
The City & Guilds Centre for Skills Development (December 2012)

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needed, however (3), not least because minimal research has been conducted outside the areas of medical and gifted education (4).

Real-World Problem-Solving

There have been attempts to develop pedagogy that tries to reconcile the tensions between teaching through expert demonstration and transmission, and between learning through more constructivist approaches that allow the learner to experience learning through the sorts of method we have covered in this section. An example is Nicholas Farrar (5) attempt to understand dry stone walling. In the dry stone walling example, learners must learn to solve numerous problems with each stone laid. Farrar's exploration of the process of becoming a dry stone walling 'expert' reveals how real-world problem-solving develops the learner in this context.

No 1 Putting Rules Into Practice

First, putting rules into practice by applying them in real-life scenarios allows the learner to gain valuable experience to the point where, over time, he is able to treat rules as 'guidelines', working around them if a 'better' result will ensure from an alternative action. In the case of the dry stone wallers, the 'rule' was that walls had to be built to a straight string line. The 'better' result was greater speed (faster walling) and efficiency (less wastage of flat stones) brought about by knowing when to ignore the rule.

No 2 The Right Stone

Second, dry stone wallers followed certain 'maxims'. These weren't rules, but summarised a great many aspects about walling, and were often hard to grasp in practice. For example, they all knew that picking up 'the right stone' was key to successful walling. And yet it was only through the experience brought about by real-life problem-solving that the instinctive selection of the right stone developed.

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Picture: corepics at Adobe Stocks

No 3 Reflect on Progress

Third, practical problem-solving gave wallers the opportunity to stand back – literally – and reflect on their progress.

No 4 State of 'Flow'

Fourth, real-world problem-solving gave wallers the opportunity to experience a state of 'flow', the state of being totally engaged in an activity, and within a deeper application of thought.

No 5 Emotional Involvement

Fifth, real-world practical experience gives learners the opportunity for emotional involvement. Farrar found that wallers linked emotion with the learning of their craft. A better appreciation of the beauty of the product, or the ingenuity that went into creating it, for example, gives the learner a desire to do the job well.

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Expansive Apprenticeship

In the thinking about workplace learning, Lorna Unwin (6) has helpfully introduced the notion of the 'expansive apprenticeship'. This idea is the development of Yrgö Engeström's (7) ideas regarding the tension between expansive (pro-learning) and restrictive learning environments. A restrictive apprenticeship is found where organisations want to produce profitable workers as quickly and cheaply as possible. Naturally, this does not facilitate the learner to inquire and reflect. To develop real-world problem-solving abilities in learners, they need to be given more 'expansive' experiences in order to be able to contribute to business success and to develop worthwhile careers. Unwin proposes that education providers (and, accordingly, this must be considered when developing vocational pedagogy) take into account the 'dual identity of worker and learner, and commit themselves to a model of apprenticeship that has the pedagogic, social and economic value'.

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Constructivist Approaches to Learning

Real-world problem-solving is at the heart of what is referred to as constructivist approaches to learning. John Savery (8) usefully summarises these to include the creation of authentic tasks which are anchored to the real world, high levels of ownership by learners of the tasks they undertake, learning environments which support and challenge learners' thinking, and opportunities for learners to take responsibility as they develop alternative ideas and strategies.

Picture: Raymond Thill



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Real-World Problem-Solving is Core to any Vocational Pedagogy

Real-world problem-solving is core to any vocational pedagogy. But, depending on the nature of the vocational education and on the contexts in which it takes place, it may take many forms. It also requires structured processes for expert feedback and learner reflection.

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The TVET Expert of the Week; **Dr Tessy Okoli, Nigeria.**

Suggested and Presented by
Mr Igberadja Serumu Igberadson

Tessy Okoli, PhD, is the Provost, Federal College of Education (Technical) Umuze, Anambra State in Nigeria. She oversees a teacher training institution, a fast-growing institution with special focus on Technical, Vocational Education and Training (TVET) covering entire South-East Nigeria.



Ms Tessy Okoli, PhD, Nigeria

Established in 1986 by the Federal Government, the College has the mandate of training competent skilled and technically-oriented manpower resources that would be utilized in primary and secondary schools across states in Nigeria.

The National Certificate in Education (NCE) programme offered in the College has produced thousands of graduates that are replicating their skills across schools in Nigeria. In addition to the NCE programme, the College offers a Professional Diploma in Education (PDE) as a top-up programme for teachers. To accommodate the increasing demand for admission into university by Nigerian

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students, the College commenced degree programme in 2012, in affiliation with the Nnamdi Azikiwe University, Awka.

Dr Okoli was appointed the Provost by President Muhammadu Buhari on May 17, 2018. Before her appointment, she spent over 26 years as a lecturer in the College, where she served as the Dean, School of Agriculture & Home Economics Education, Dean, Students Affairs, Coordinator, Continuing Education Programme (CEP), Head of Department, Agricultural Education, among other academic leadership positions. She provided strong academic leadership in the College at various times and became a rallying point among her colleagues.

Dr Okoli was appointed in the year 2016 as Consultant on Capacity Building in the Fadama III World Bank Assisted Project where 250 agricultural entrepreneurs were trained in the Graduate Unemployment Youths Scheme (FADAMA GUYS). The project targeted training 6000 youths in agricultural enterprises across states in Nigeria. She also served as a Resource Person in Special Modular Agricultural Science Workshop for the Science Teachers Association of Nigeria (STAN).

Dr Okoli is currently the National Secretary of Association of Women in Colleges of Education (WICE), a formidable union pushing for equal access of women to education in Nigeria. She is also the Chairman, Forum for African Women Educationalist of Nigeria (FAWEN), FCE(T) Umunze Chapter, an organisation that champions literacy campaign among Nigerian women and vulnerable groups.

A highly resourceful scholar, she was the best graduating student at the Department of Agric Education, Anambra State College of Education. She further graduated from the Faculty of Vocational and Technical Education, University of Nigeria Nsukka (UNN), with a degree in Agric Education. She later obtained her M.Ed from the same university and bagged PhD from the Enugu State University of Science and Technology (ESUT).

Dr Okoli, a strong advocate of women education and empowerment, joined the Federal College of Education (Technical) Umunze on March 3, 1992, as an Assistant Lecturer in the Department of Agricultural Education. She rose through the ranks to become a Principal Lecturer in 2007 and later Chief Lecturer, an equivalent of Associate Professor in the university system, on October 1, 2011.

The University of Nigeria Nsukka (UNN) conferred a distinguished alumni award on Dr Okoli recently in recognition of her remarkable contribution in promoting Technical, Vocational Education and Training (TVET) in the country. She has over 60 publications in reputable academic journals, as well as several chapter contributions in books and research papers presented at reputable local and international conferences.



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Develop the Core Skills in TVET to Enhance the Employability of Learners and Jobseekers.

Progress has been made in recognizing the value of core skills for the world of work, building them into curricula and ensuring some measure of professional development for teachers and trainers.



A report published some years back has looked into six different countries (1). The report presents some main findings when it comes to the curricula and the core skills in Technical Vocational Education and Training (TVET). You can read about different countries.

Australia

In Australia, the review of units of competency and course curricula is embedded in the endorsement and continuous improvement processes approved by the National Skills Standards Council (NSSC). However, while the introduction of successive new frameworks has on each occasion generated research in the

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area, the impetus for the introduction and monitoring of these frameworks has been influenced more by political imperatives than by a desire to monitor and evaluate alternative approaches to generic skills development. Consequently, beyond the extensive pilot evaluation in the 1990s, there has been very limited monitoring and evaluation of the effectiveness of generic skills initiatives at the government policy level.

Chile

In Chile, there is no national agreement to integrate core competencies into the curriculum. To date, no monitoring and evaluation system has been implemented for initiatives at either the secondary or tertiary level. One step towards this was the trial incorporation of the ICT test into the SIMCE assessment system. In the first trial, half of all secondary students did not achieve a minimum level pass. In the realm of informal education, training courses carried out in programmes run by the National Employment and Training Service (SENCE) do not include evaluation components but only provide assistance in gaining access to the diploma.



India

In India, the absence of any formal form of reporting on core skills delivery or testing has resulted in the absence of a system of monitoring or evaluation. Though certain private initiatives have been initiated, they are too recent to effectively monitor and evaluate results. Stakeholders feel that an effort should be made by the Directorate General of Training to incorporate a stand-alone scheme of core skills delivery and testing using internationally approved methods. This feature, if embedded as a separate test within a learner's overall assessment, will encourage students as well as teachers and training providers to put more emphasis on raising the employability of students across a range of different occupations.

Jamaica

In Jamaica, although there have been improvements in the identification and inclusion of core skills in the TVET curriculum and occupational standards, there is no evidence from the quality of graduates that training in these skills is consistently or increasingly effective.

Malawi

In Malawi, monitoring and evaluation tools for all occupations, including core/fundamental skills, have been developed. TVET institution managers were involved in the training workshops on delivery, supervision, monitoring and evaluation that led to the development of these tools. However, the question of monitoring and evaluation specific to core/fundamental skills, especially in industry, has not been adequately addressed. To date, there has been no monitoring and evaluation of the national implementation strategy. The challenges of monitoring and evaluation are compounded by poor data management systems in public colleges and poor monitoring of private TVET providers.



Philippine

The Philippine TVET system is facing increasing pressure to be responsive and competitive in the global market. It is having to adjust its programmes and standards to meet the diverse and constantly changing needs of the global economy. In its desire to make 20 basic competencies more relevant and responsive to the demands of the major industrial sectors, TESDA commissioned the Southeast Asian Ministers of Education Organization Regional Centre for Educational Innovation and Technology to deepen its existing basic TVET competencies. The recommendation on basic competencies has not yet been published by the TESDA board, and thus remains to be implemented.



Photo: Karl Skaar

Core Skills Integration

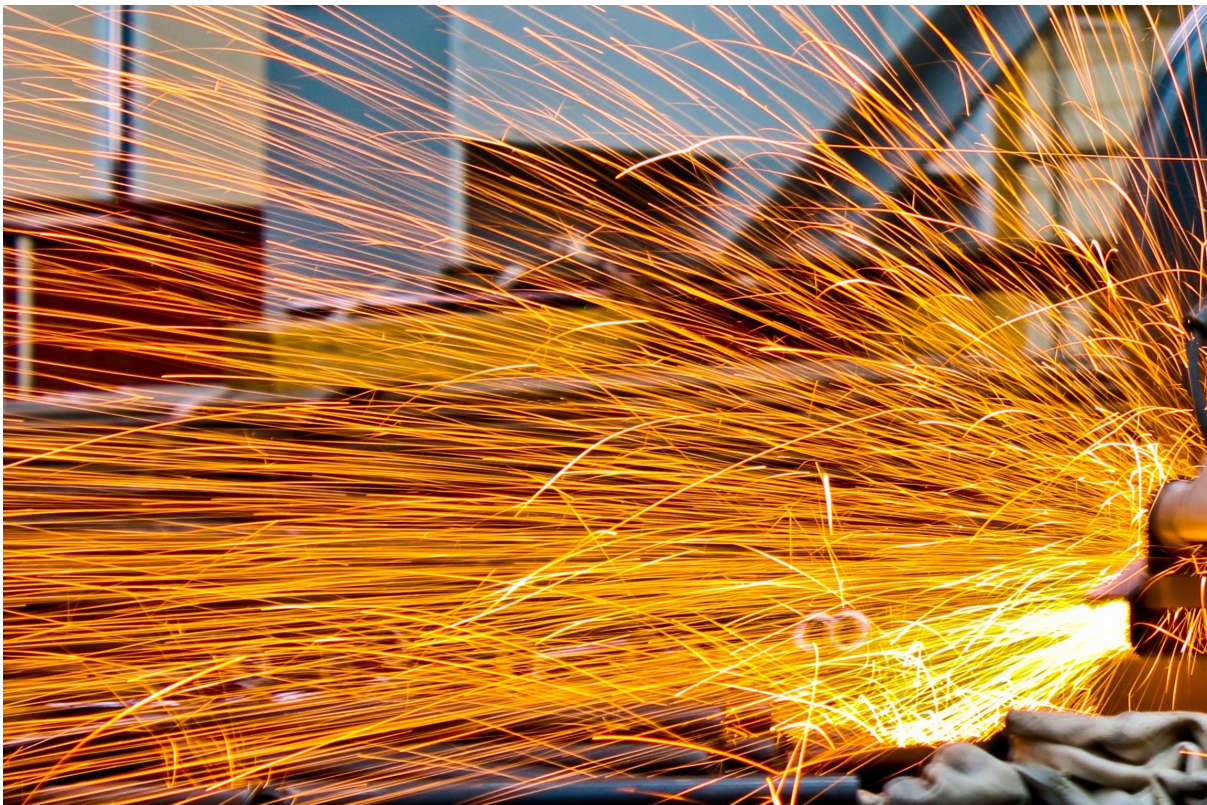
It is clear that in none of the six countries has a comprehensive approach to core skills integration been achieved. While Australia undertook the most comprehensive development process and has various mechanisms in place by which core skills are integrated into qualifications and competency standards, the lack of standardized national assessment and reporting has led to a piecemeal and

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ad hoc approach. Such fragmentation is also a feature of the other countries reviewed, perhaps with the exception of the Philippines, where a form of national reporting through institutional assessment means that at least those institutions delivering programmes based on TESDA training regulations are required to assess and report on core skills achievement.

It is apparent from the research that the absence of national assessment and reporting significantly limits the extent to which core skills are meaningfully addressed in the delivery of training. The absence of a coherent approach not only to defining core skills but to ensuring their inclusion in qualifications, standards and curricula limits the extent to which they are addressed through delivery, assessment and reporting.



Improve the Quality and Relevance

While developing countries face numerous challenges in seeking to improve the quality and relevance of their TVET and skills systems, it should be recognized that an explicit focus on core skills in delivery and assessment practices provides

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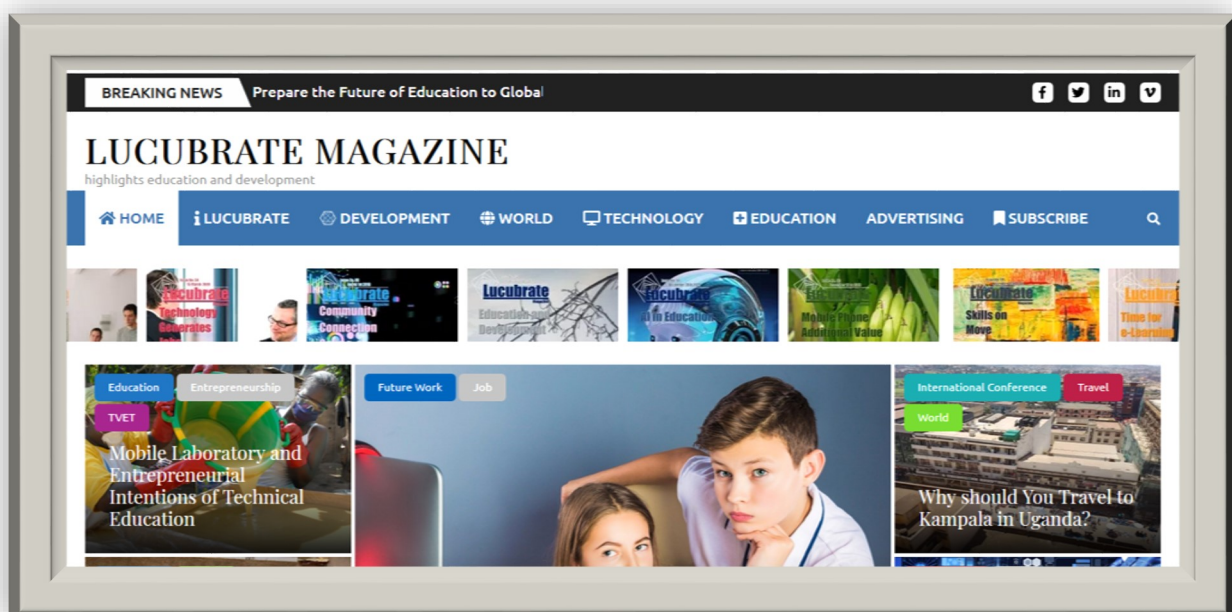
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the opportunity for broader improvements in the quality of teaching and learning that take place in institutions. The same teaching and learning strategies that are required to develop communication, teamwork and problem-solving skills will also improve the quality of technical skills developed. The clear implication is that an explicit focus on the delivery and assessment of core skills should be given priority in pre-service and in-service teacher and trainer development programmes. While the case studies identified some initiatives that are already taking place, there are no mandatory requirements for teachers and trainers to undertake professional development in the delivery of core skills.

These six case studies have demonstrated that in both developed and developing countries, much remains to be done to ensure that TVET and skills systems adequately develop the core skills that can so profoundly enhance the employability of learners and job seekers.

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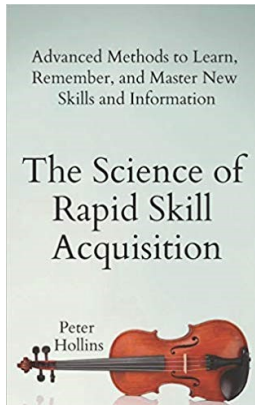
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Book

The Science of Rapid Skill Acquisition

By Peter Hollins



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Released on February 2019

Friday 6 September 2019

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Issue No. 58

6 September 2019

Lucubrate

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