
LEARNING REPRIORITISED: SUPPORTING THE ODEL STUDENT BY DEVELOPING A PERSONAL INFORMATION MANAGEMENT SYSTEMS AND STRATEGIES PROGRAM (PIMSS)

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Abstract

Students do not know how to learn, and lecturers do not know how to teach their students how to learn, is what is being argued in this position paper.

Learning is the process where the brain is changed by inputs which forms new or changed representations, which lead to changes in behaviour in specific contexts.

Learning is the ultimate goal of teaching. If learning doesn't happen, then education, whether open, at a distance or face-to-face, has failed. This is even more of a problem for Distance Education learners and educators, because this lack of, or compromised ability is less visible than at contact institutions.

What is therefore needed, is scientifically based support programs teaching learners of all ages how to become self-directed life-long learners, skilled to assess, manage and weigh masses of available information and the ability to keep up with a super-fast changing reality. This is a program aimed at providing student support, by developing the person in terms of personal development (identity), lifelong learning skills (mastery), and making a meaningful contribution (legacy). It is similarly also aimed at continuing personal development of lecturers and staff, for their own lifelong learning as well as empowering them to support their students' learning.

Addressing these issues, a Personal Information Management Systems and Strategies Program (PIMSS) was developed. It is based on recent and valid Mind, Brain, and Education Science principles, and is made available on mobile devices for the sake of conciseness and optimal availability. The theoretical basis of the PIMMS Program is indicated as Neuro-constructivism, and the rationale and content of the program is briefly explained.

Learning needs to be prioritised, if teaching is to be effective.

Learning – A Needed Priority

What is the oldest profession on earth?

Surprisingly, and contrary to what you might be thinking, it is teaching and learning... From time immemorial humans had to teach their young and their peers how to master life and living. Fast forward to the 21st century, and in essence not much has changed. Teaching and learning is still foundational to human life. It is more formalised, professionalised, specialised, and complex than back in earlier times, but now as then, the more experienced (or experts) still have to guide the less experienced (or novices) towards deeper knowledge and insights.

Learning is the ultimate goal of teaching – if learning doesn't happen, education, whether open, at a distance of face-to-face, has failed. Then all the institutions, research and theories have missed their reason to be and their primary goal.

In this position paper, I argue the case that learning is not afforded its rightful place of importance by all stakeholders, from industry, management, lecturers as well as learners themselves. Reasons for this are touched upon, ranging from challenges making it difficult, to ignorance about it.

This is of heightened importance for DE institutions, because compromised, ineffective learning is more difficult to detect and addressed when happening at a transactional distance between lecturer and student.

A solution for this situation is suggested, in the form of a scientifically based program intended to increase the learning proficiency of students as well as the pedagogical proficiency of lecturing staff, adding to their continued professional development.

Each of the aspects regarding the role players as well as the suggested solution warrants an extensive study on its own, with in depth supportive arguments. However, in this position paper issues will be merely touched upon in an “ears of the hippopotamus” way as it is being called in Africa – what emerges on top rests upon a solid and voluminous body of evidence underneath. Much more can and will be said when this presentation is being published.

Learning – A Neglected Priority

What we are, and should be wondering about, is learning. All the hallowed face-to-face halls of the Oxfords, Cambridges, Harvards, MIT's, Max Planck's and Oldenburgs, and all the erstwhile post-office and mail-based OU's, UNISA's, IGNOU's and other megaliths, are in existence not for their own sake, but primarily for learning to take place. Period. Learning is king and queen. Learning is the holy grail. If not, woe to us and shame on them. If we agree to it that learning is the holy grail, the be-all and end-all of what we are busy with – and it is – then we need to know what is effective learning, and how can we create circumstances conducive to learning. How do we know that learning has taken place?

To wonder scientifically, we need some guiding rigor. We can therefore wonder about learning in Bronfenbrennerian-like categories of Macro, Meso and Micro. Reality, however, is always more complex and encompassing than the categories we need to reduce it for the sake of manageability. It is therefore no surprise that learning straddles the levels, appearing in all three of them. In fact, it is almost reassuring that it happens, because it underscores the centrality of learning to what we are focusing upon, and it humbles our attempts to reduce reality to limiting categories, which to be honest, we cannot do without.

There are some indications that all is not well with learning. One glaring indicator is the low throughput rate at universities, especially at distance education institutions. This presentation is therefore scouting the terrain of learning, with the eventual goal of describing an intervention aimed at supporting students and staff to become self-directed life-long learners, successful in completing their formal studies and equipped for learning there-after. Attention is given to various role-players involved in teaching and learning, attending to the wants of the community at large, of management, of lecturers and ultimately of learners and students. This is followed by a description of what effective learning entails, as informed by Mind, Brain, and Education Science based on the theory of Neuro-Constructivism, and how that translated into a practical program aimed at teaching effective learning strategies. This program has been piloted with medical, dentistry and veterinary science students, and is now being rolled out to 160 UNISA students in a course for police officers.

Learning is of and should be of importance to various role players in education in general and distance education in particular. These role players range from the learners themselves, the lecturers teaching them, the management guiding the process, and industry as the final destiny of learners. It is therefore important to ascertain what each of the role players wants, what they get and what challenges they face. The next sections are brief ventures into these questions.

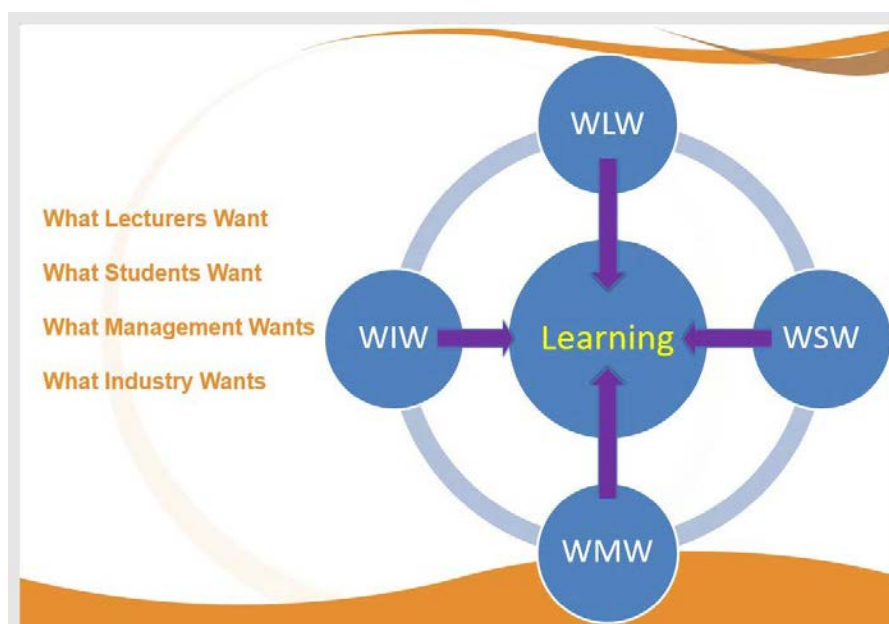


Figure 1.

What Industry Wants: Lifelong Learners

Students learn in order to be employable in real life jobs. Industry needs skilled employees, who are equally able to re-skill and up-skill themselves when changes require it. All employers and employees need effective learning skills. Current workforce needs up-skilling and re-skilling because of development and change. New entrants to the workforce often come from a background where education at school and post-school institutions is below standard or not specific enough for the task expected of them. Workers re-entering the workforce after time spent raising a family or having been in own employment, need learning opportunities and the skills to come back on par.

Learning as a prerequisite for sustainable development of humanity is underscored in goal 4 of the 2030 Development goals: “Ensure inclusive and quality education for all and promote lifelong learning”. According to sub-goal 4.4 “By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship”. The reason being an explicit goal, is because it is not happening and 103 million youth worldwide lack basic literacy skills, and more than 60 per cent of them are women (<http://www.un.org/sustainabledevelopment/education/>). There are also unacceptable high drop-out rates from school (<http://www.data.unicef.org/education/primary.html>).

Another reality is that research has shown that teaching often focuses on content, but not the ability to master content. Learners are often coached to pass at school level, but not taught to learn. When they are then confronted with the need for independent study after school, coupled with masses of content to be learnt, they are not adequately equipped to master the work and complete their qualifications. Those who make it through further and tertiary education and who enter the job market, often need further training to be able to perform their duties.

Challenges industry experience are that knowledge has a sell-by date, and that the ability to learn is becoming as important as core knowledge. Arie De Geus, head of planning for Royal Dutch/Shell once said, “The ability to learn faster than your competitors, may be the only sustainable competitive advantage in the future.” (De Geus, 1988).

“When Frederick Taylor published his pioneering principles of scientific management in 1912, the repetitive and mundane nature of most jobs required employees to think as little as possible. Breaking down each task into basic components and standardizing workers’ behaviours to eliminate choice and flexibility could help managers turn employees into productive machines, albeit with alienated spirits. Fast forward to the present and we see that most jobs today demand the exact opposite from employees: the capacity to keep learning and developing new skills and expertise, even if they are not obviously linked to one’s current job. As academic reviews have pointed out, people’s employability – their ability to gain and maintain a desired job – no longer

*depends on what they already know, but on what they are likely to learn.”
(Chamorro-Premuzic & Swan, 2016)*

They add “In other words, higher career security is a function of employability, and that in turn depends on learnability. Thus Eric Schmidt notes that a major pillar in Google’s recruitment strategy is to hire “learning animals,” while EY recruiters observe that “to be a standout, candidates need to demonstrate technical knowledge in their discipline, but also a passion for asking the kind of insightful questions that have the power to unlock deeper insights and innovation for our clients. Sadly, most organizations have yet to wake up to this reality, so they continue to pay too much attention to academic qualifications and hard skills, as if what entry-level employees had learned during university actually equipped them for today’s job market. Although learnability does boost academic performance, just because someone is job-ready when they obtain their educational credentials does not mean that they are also learning-ready.” (Chamorro-Premuzic & Swan, 2016).

In similar vein, Bersin (2016) adds “Since we now expect learning to be as simple and compelling as watching YouTube, hundreds of video-based content providers and MOOCs offer free bite-sized content for us to consume on our phones while sitting in the coffee shop or standing in the subway. But corporate learning management systems remain slow, hard to use, and difficult to maintain. They’re getting in the way of employee development instead of supporting it. At the same time, the demand for learning is greater than ever: Bersin by Deloitte’s latest research with Glassdoor shows that learning and career opportunities are the biggest drivers of employees’ willingness to recommend their company as a great place to work for people under age 40.”.

What industry wants is people with the ability to learn.

What Management Wants: Timeous Completion

The prestige but especially funding of institutions of higher learning is linked to students who graduate successfully and in an acceptable timeframe.

Challenges to management and their institutions are the high drop-out rate, especially of distance education institutions (Kritzinger & Looock, 2012). According so Simpson (2013) “there is a ‘distance education deficit’ with many distance institutions having less than one-quarter of the graduation rates of conventional institutions. ... one reason for the deficit is the ‘category error’ of confusing teaching with learning, and that institutions have focused too much on the provision of teaching materials, especially online, and too little on motivating students to learn.”

Linked to this is a mixed, almost confusing, bag of results. Effective learning does take place – sometimes in spite of inadequate teaching, sometimes as the result of good teaching, and often as the result of brute brain power. Confusingly, ineffective learning also occurs – sometimes in

spite of good teaching, sometimes as the result of inadequate teaching, and sometimes in spite of good potential.

What management wants is predictability of students who learn effectively, thereby passing and graduating. On several university websites see bibliography) there are *study methods tips*, and with that it is seen that they did their duty in terms of student support.

Learning, however, is much more than *study methods*. Learning is a disposition towards life and living, a set of character traits and resulting habits which creates a self-directed, lifelong learner. As such, learning support should be a priority as part of student support, as well as part of continuous professional development of staff – for their own learning as well as to be able to support their students by including learning as part and parcel of their teaching.

What Lecturers Want: Mastery of Subject Knowledge

Lecturers want proven mastery of subject knowledge. They themselves are appointed on the strength of their subject knowledge, and want their students to become similarly informed and knowledgeable.

There are, however, serious challenges to effective subject mastery, namely a knowledge explosion and democratisation of knowledge

We are faced with an information overload as never before. Every two days we create about five exabytes of data. That is as much information as humans discovered from the dawn of civilization up until 2003, according to Eric Schmidt, CEO of Alphabet-Google (Siegler, 2010). In the light of this and while talking about executive function in education, Diamond and Lee (2011; p.959) wrote

“Children [as well as students and adults - IG] will need to think creatively to devise solutions never considered before. They will need working memory to mentally work with masses of data and see new connections among elements, flexibility to appreciate different perspectives and take advantage of serendipity, and self-control to resist temptations and avoid doing something they would regret.”

Add to this the fact that lecturing staff is appointed for subject knowledge, and not pedagogical prowess.

“...there is an impressive body of evidence on how teaching methods and curriculum design affect deep, autonomous, and reflective learning. Yet most faculty are largely ignorant of this scholarship, and instructional practices and curriculum planning are dominated by tradition rather than research evidence. As a result, teaching remains largely didactic, assessment of student work is often trivial, and curricula are more likely to emphasize content

coverage than acquisition of lifelong and life-wide learning skills.” (Knapper, 2010; p.229).

Lecturers might be experts in their fields and are usually aware of their students’ lack of academic skills, but they often do not know how to remedy the situation. According to Berrett,

“A growing body of evidence from the classroom, coupled with emerging research in cognitive psychology and neuroscience, is lending insight into how people learn, but teaching on most college campuses has not changed much, several speakers said here at Harvard University at a daylong conference dedicated to teaching and learning.

Too often, faculty members teach according to habits and hunches, said Carl E. Wieman, a Nobel Prize-winning physicist and associate director of the White House Office of Science and Technology Policy, who has extensively studied how to improve science education. In large part, the problem is that graduate students pursuing their doctorates get little or no training in how students learn. When these graduate students become faculty members, he said, they might think about the content they want students to learn, but not the cognitive capabilities they want them to develop.” (Berrett, 2012)

Lecturers want students who learn effectively, but they need to develop the know-how to teach their students not only subject knowledge, but also the ability to master knowledge long after they move away from the presence of the lecturer.

What Students Want: Successful Learning

How do students actually learn? Many students underperform or even fail, not because they lack the ability, but because they lack the skills necessary for successful study. It is therefore an educational and pedagogical responsible imperative to not only teach course content expertly, but to include in the teaching critical skills necessary to master the content.

The above statements are the results of cognitive and metacognitive research at international academic institutions. They stress the need for the teaching of metacognitive strategies to students mainly because many students in South Africa are ill prepared for autonomous study as the result of a compromised school system. In short, students do not have adequate self-knowledge, and they do not know how to listen, they do not know how to read properly, they do not know how to study effectively, and they do not know how to perform in assessment.

In a document published by the Commonwealth of Learning titled “Creating learning materials for open and distance learning: A Handbook for Authors and Instructional Designers” (Freeman, 2005) the authors discuss instructional design, learning theories and how adults learn, but then add the following: “Whilst the above principles are widely quoted

and followed in designing post-school courses, it has to be admitted that our knowledge of how people learn is very patchy. Much of the research on adult learning has been conducted on very small groups, often of middle-class learners in the developed world. The limitations of our knowledge are discussed further by Brookfield (1995)."

Most of us have heard and agree with the age-old and well-known proverb of Chinese origin: "Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime." Having heard that, do we listen to this advice when teaching? Often in teaching and learning the focus seems to be on mastering course content. Knowledge expands at such a pace, however, that qualifications have a limited life span before they become outdated. Hence the need for students to become life-long learners, in order to initially master prescribed content, but then also to keep up to date by learning and re-learning. Successful life-long learners display certain characteristics, with certain meta-skills part and parcel thereof. Meta-cognition is the ability to plan, monitor and evaluate self, tasks and strategies in pursuit of meaningful goals (Flavell, 1976). Strategies crucial for successfully completing learning tasks are listening, reading, writing and study skills. The reality is that these skills are seldom taught or being taught continuously. Students are expected to study the subject matter and course content, but how they are supposed to do it, is not attended to systematically or even not at all. It is for this reason that students often arrive at college or university as rote learners, as well as poor readers and listeners. In similar vein, good writing seems to be an endangered skill.

What is needed, is support programmes for students. Anderson and Dron (2011; p.80) state "It is clear that whether the learner is at the centre or part of a learning community or learning network, learning effectiveness can be greatly enhanced by applying, at a detailed level, an understanding of how people can learn more effectively: Cognitive, behaviourist, constructivist and connectivist theories each play an important role."

A challenge to effective learning, is the availability of many popular programs claiming to teach effective learning strategies, but which are in actual fact promoting neuromyths. Neuromyths are ideas that are popularly believed, but that are lacking any scientific support, and that do not really make a difference for the better, such as left-brain right-brain distinction, VAK learning styles and Mozart music. Students and staff need to be able to discern what is good science and what is pseudo- or pop-science, and put that into practice (Dekker et al., 2012; Tokuhamas-Espinosa, 2015).

What is interesting, but extremely difficult to explain conclusively, is a downward trend in the search for terms on the Internet regarding *Learning* and *Learning how to learn*.

A Google Analytics search for the term *Learning* with the focus of interest over time, pints to a downward interest. Numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. Likewise, a score of 0 means the term was less than 1% as popular as the peak.

Learning Reprioritised: Supporting the ODeL Student by Developing a Personal Information Management Systems and Strategies Program (PIMSS)

Ignatius G.P. Gous

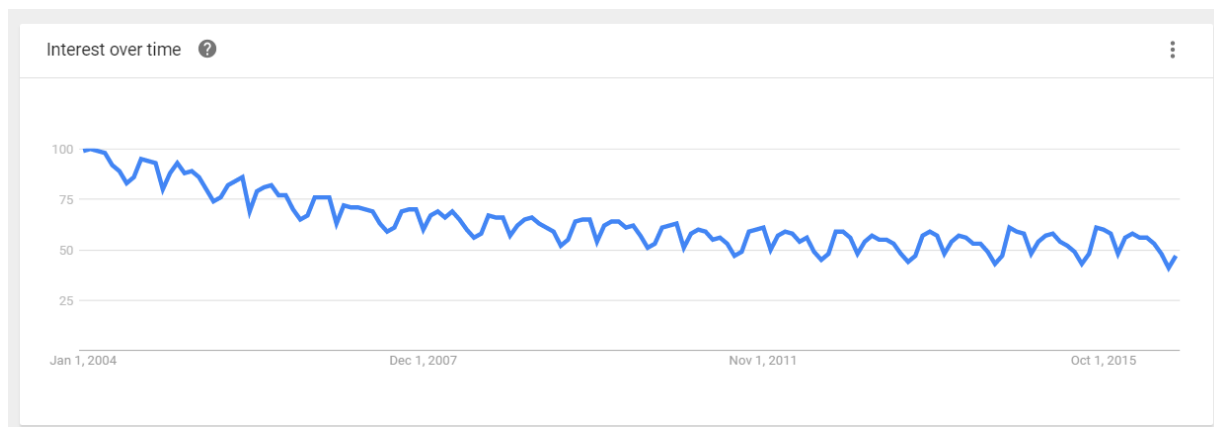
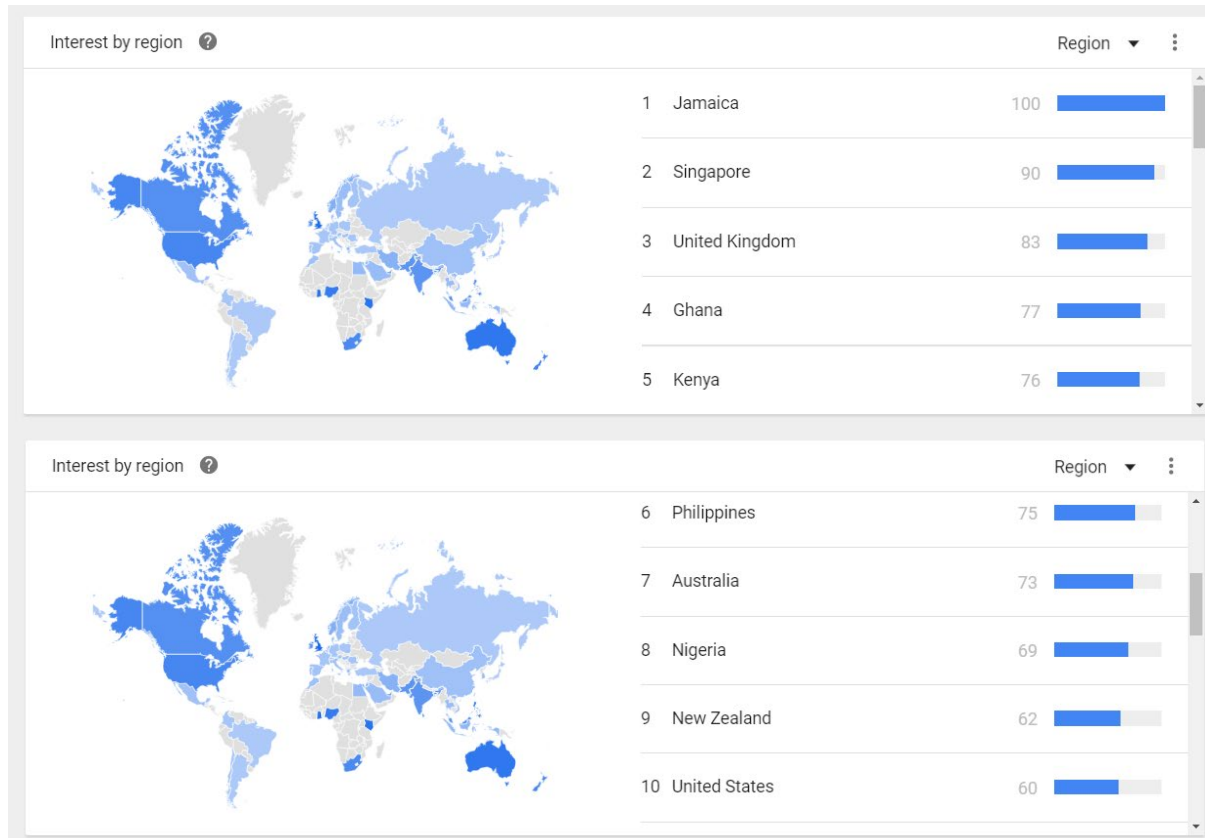


Figure 2.

A similar search regarding interest in the term *Learning* by region, returned the following results. Values are calculated on a scale from 0 to 100, where 100 is the location with the most popularity as a fraction of total searches in that location, a value of 50 indicates a location which is half as popular, and a value of 0 indicates a location where the term was less than 1% as popular as the peak.

Note: A higher value means a higher proportion of all queries, not a higher absolute query count. So a tiny country where 80% of the queries are for *bananas* will get twice the score of a giant country where only 40% of the queries are for *bananas*.



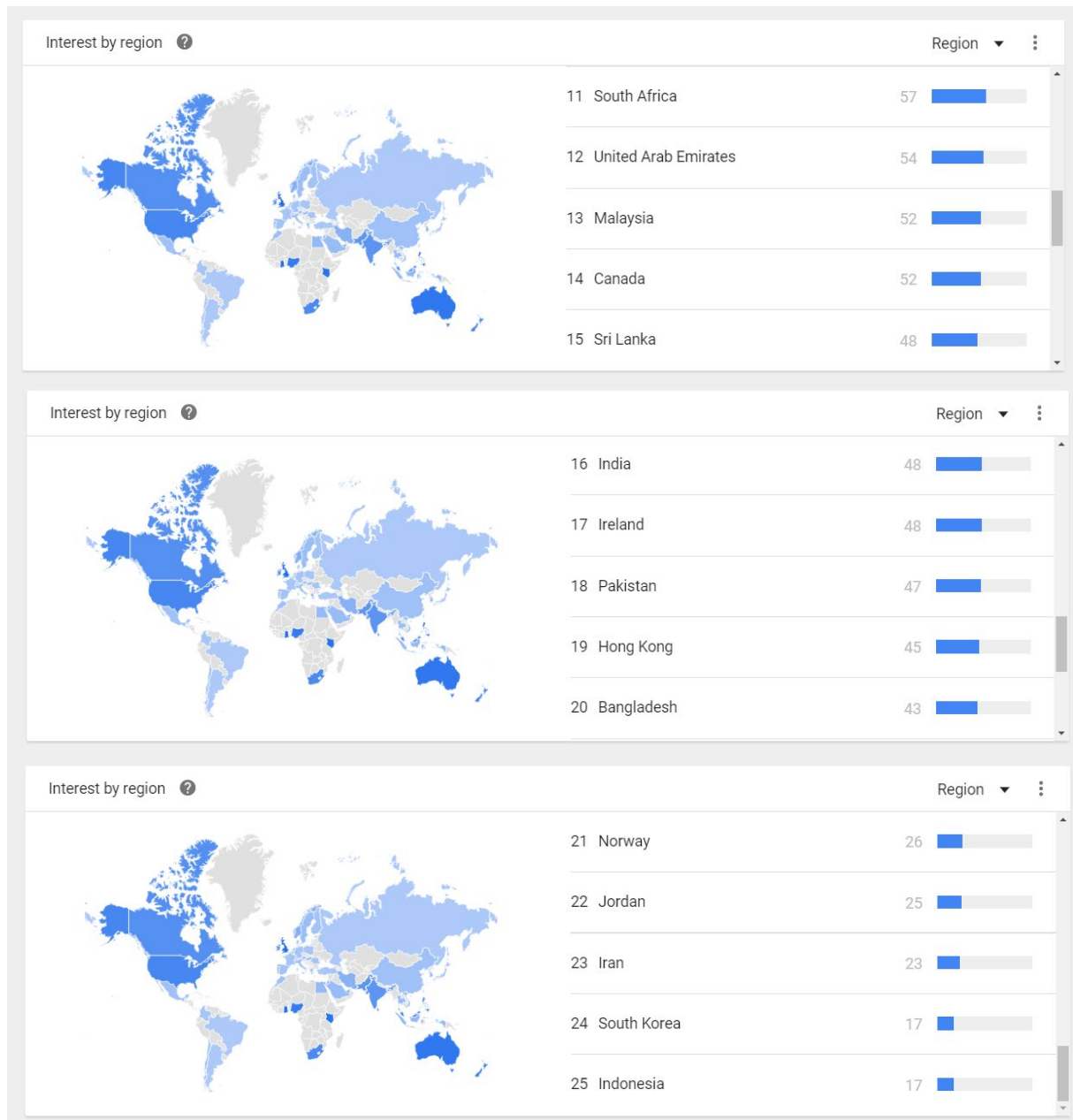


Figure 3.

A similar search on the worldwide search for the term *Learning how to learn* points to a similar downward trend. (Numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. Likewise, a score of 0 means the term was less than 1% as popular as the peak.)

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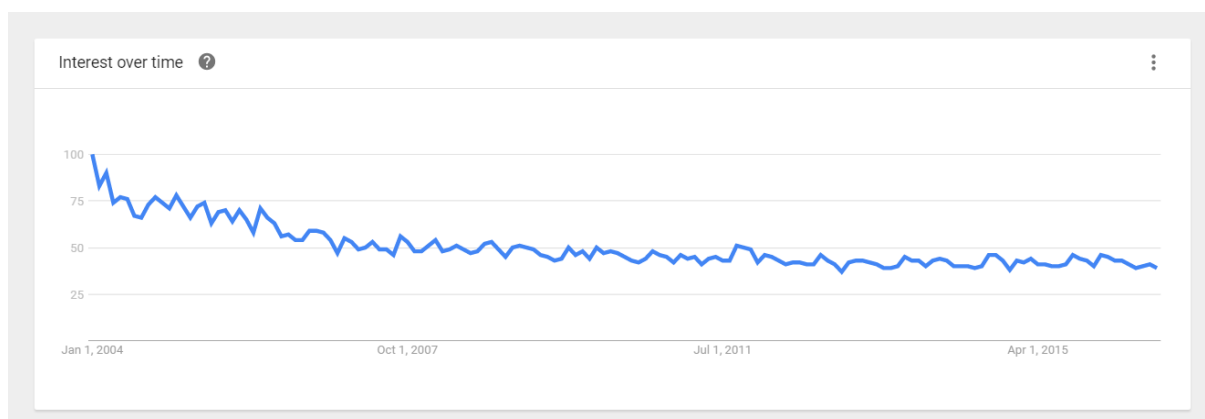
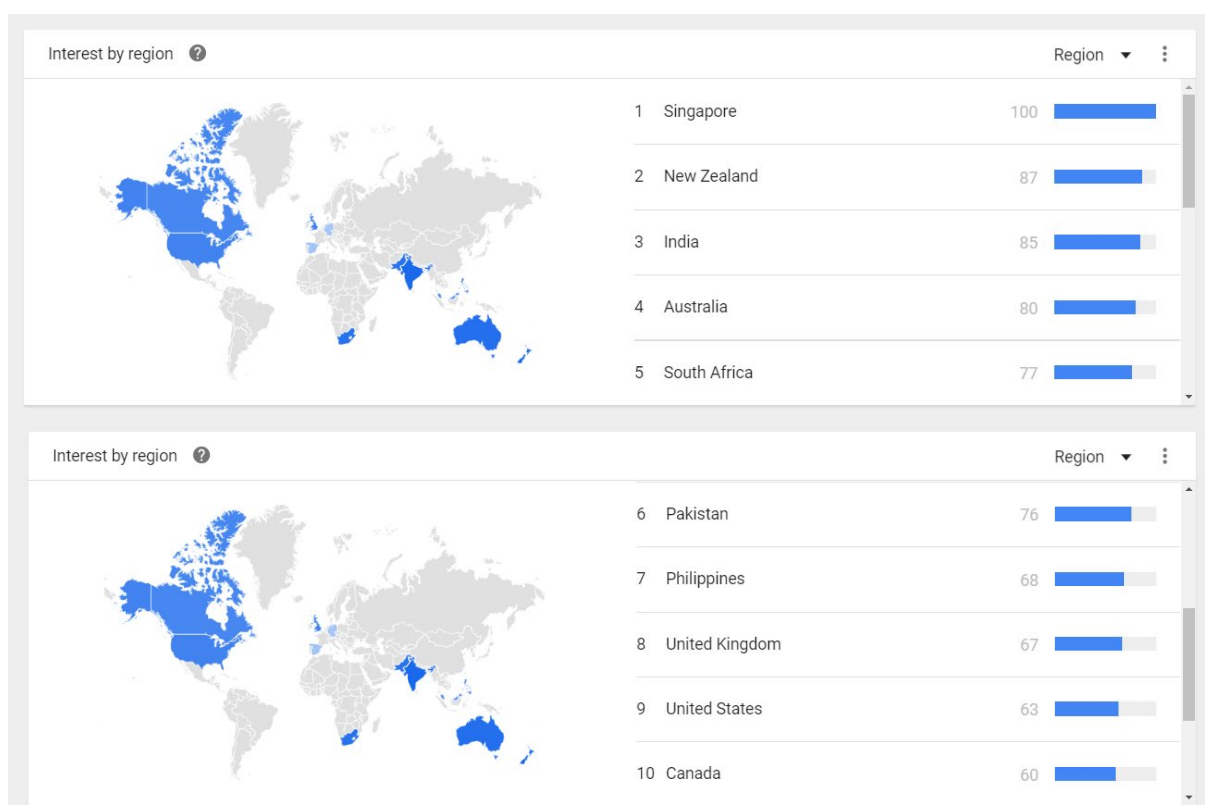


Figure 4.

In terms of region, the following results were obtained. (Values are calculated on a scale from 0 to 100, where 100 is the location with the most popularity as a fraction of total searches in that location, a value of 50 indicates a location which is half as popular, and a value of 0 indicates a location where the term was less than 1% as popular as the peak.)



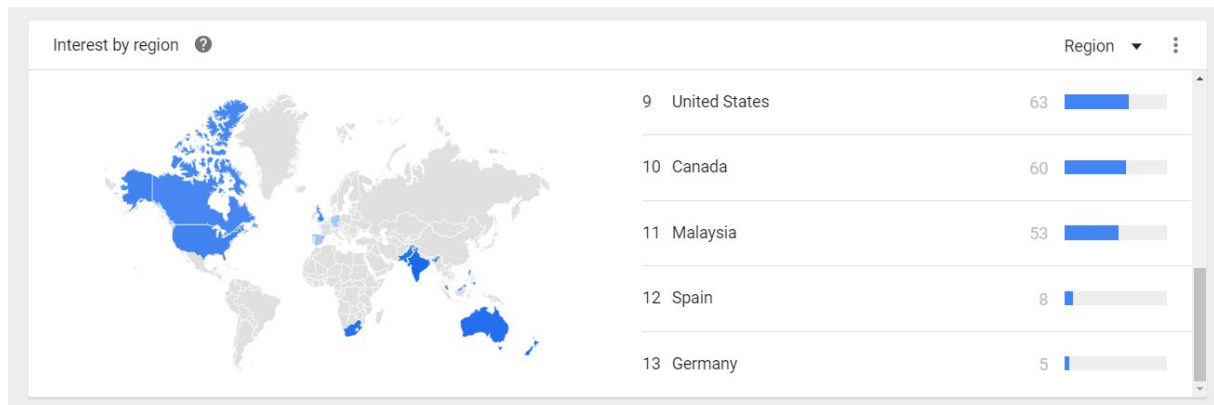


Figure 5.

There is not enough search data available to show search statistics for some countries who are seen to be doing well academically, such as Finland and Hong Kong. A possible reason might be that these countries have a culture and/or systems in place that provides for *learning to learn* skills. The fact is, not enough people search for *learning to learn* to be considered statistically relevant.

Web users (which may include students) therefore either feel they know well enough about how to learn, or they do not realise the importance of learning how to learn.

Bottom line is, learning how to learn does not come naturally – it is an art and skill that needs to be taught in order to be learnt. Therefore, dedicated programs about this should not only be available, but also needs to be actively endorsed, promoted and taught, preferably part-and-parcel of course content.

Summary: Everybody Wants Effective Learning, for Different Reasons

Effective learning is not merely a case of having a good old study method course going. It is about a comprehensive program aiming at the personal development of staff and student, attending to three aspects, namely Identity, Mastery and Legacy.

- Identity focuses on the person, whether staff or learner – his or her passions, characteristics, inclinations and abilities. Self-image and self-knowledge is brought into play with meaningful life goals, grit and perseverance as well as mindset and resilience.
- Mastery is about effective learning skills and strategies. Aspects such as listening and reading skills are addressed, as well as how to memorise large volumes of work in limited time frames. Effective learning strategies are being taught and trained, while ineffective strategies are being identified and discussed. Attention is also given to neuro-myths, which are widely-held beliefs about learning, many of which do more harm than good.
- Legacy is how people show what they know. This may be in formative and summative assessments such as tests or exams, but also and especially in daily performance and repeated innovation.

Effective Learning Explained

Mind, Brain, and Education Science is a relatively young interdisciplinary science which developed from combining insights from older, established disciplines such as Neuroscience, Cognitive Science and Education Science. The discipline focuses on how credible research on the mind and the brain can inform and impact on teaching and learning, but also the inverse, namely how teaching and learning research and practice can inform neuroscience and cognitive science.

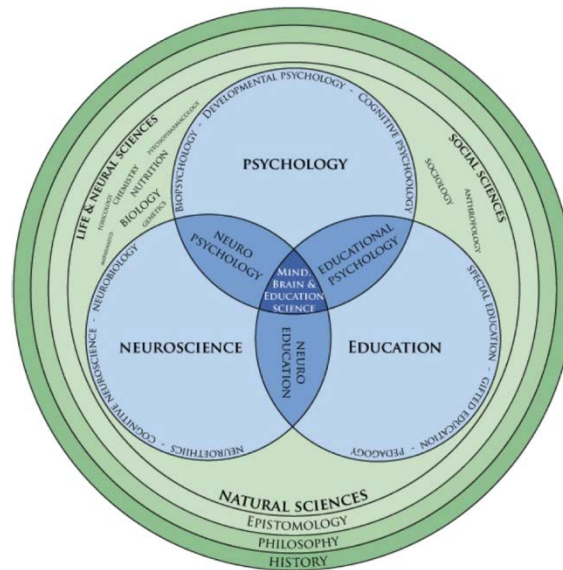


Figure 6. Source: Tokuhamma-Espinosa, 2015

The theoretical basis of MBES is neuro-constructivism, which views development as the progressive elaboration of increasingly complex structures, starting with genes, which grows a brain. The brain creates representations, which fosters behaviours in specific contexts. (Karmiloff-Smith, 2009; 2015).

A basic starting point is research on how brains interact with where they function – in their bodies, families, communities and the world. Questions are being asked about how this happens. Are brains at birth empty vessels which are filled with experiences and information as they grow and mature? Are they made up of special “organs of understanding”, almost like the task-specific blades of a Swiss army knife? Are they initially open, ready and waiting for specific inputs, and when that happens, become specialized to attend to and work with that as we grow older, while those areas that are not stimulated, slowly become inactive? The latter seems to be the case, and is the point of departure for MBE Science. In scientific terms, this is the domain-general, domain-specific, and domain-relevant approaches, and the thinking about it is described in a theory called neuro-constructivism.

Mind, Brain, and Education Science evaluated learning strategies, and identified which were effective and which not (Dunlosky, Rawson, & Marsh, 2013; Doyle & Zakrajsek, 2013; Brown, Roediger III, & McDaniel, 2014).

Effective learning strategies are the following:

- Practice testing;
- Varied Repetition;
- Application Oriented;
- Integration (self-explanation);
- Mnemonic strategies (e.g. Memory Palace);
- Sharing and Teaching;
- Mindfulness;
- Focus without multitasking;
- Interleaved, Spaced.

Learning strategies with moderate utility are the following:

- Write concepts out;
- Old papers and memoranda;
- Mnemonics.

Ineffective learning strategies are the following:

- Read and re-read;
- Highlighting and Underlining;
- Summaries;
- Cramming.

Reputable science gives clear indications how students should learn. It seems this is still a best kept secret, not reaching students and staff.

The PIMMS Program Explained

In order to translate the theories and research into practical guidelines for effective learning, a project was registered at UNISA. It is called the “Mind-Wise Edu-Engagement – Metacognitive Teaching and Learning strategies in ODeL”, and the objectives are as follows:

- Objective 1 (Year 1): Establish a baseline of how students at Unisa actually study.
- Objective 2 (Year 2): Develop support programmes for students based on the newest cognitive and metacognitive research. Adapt and refine the provisional MindWise Edu-Engagement program and pilot it in chosen courses and at regional offices.
- Objective 3 (Year 3): Develop training programmes for Unisa lecturers on how they can incorporate cutting edge study skills strategies as an integral part of their course delivery. Develop training programmes for lecturing and support staff, based on the findings on how Unisa ODL students actually learn, as well as on the experience gained during the piloting of the MindWise Edu-Engagement Program, and present them in seminars. Based on the experience of this, develop a online program, short course, or MOOC for Unisa staff but also for ODeL practitioners further afield.

This lead to the development of the PIMM Program, with the following characteristics:

PIMM Map: It is Personalised (P)

There is not a one-size-fits-all recipe available for how to study. It is true that there are universal learning goals that need to be pursued, such as mastery of language and numeracy, social skills and societal norms, our shared histories and experiences, and many more. However, the way in which these learning goals are being mastered and managed to suit our own unique life goals, is very personal and is different for each individual. Humankind may share many aspects of their lives but we are unique in the way we live and learn, and especially our reasons for doing so.

PIMM Map: It is about Information (I)

If you know where and especially how, you can access any information you want or need to. The challenge is that this data and information needs to be synthesised and changed into useable and valuable knowledge.

PIMM Map: It is about the Management (M) of information

This over-supply of information could lead to people feeling overwhelmed and giving up on trying to master it. Only those who have the ability to carefully sift through, choose and channel information that is relevant to them will be able to manage to become proficient in acquiring the relevant information that they need.

PIMM Map: It is about the Mastery (M) of information

If you are building a wall, but each time have to walk some distance to fetch each and every brick, you are going to build for a very long time. If, however, the bricks are readily available within reach on site, your construction will progress speedily. Even though information today might be just a click away, we still have to know many facts and skills by heart in order to be successful.

The PIMM Propel-Learn schema sets the scene for life-long learning actions, by guiding activities and directing decisions. It creates the space which learners can fill with specific activities and strategies, many which have been known to humankind for several centuries. Learners need to choose their strategies wisely, based on the latest evidence and research which has been carried out, as well as their own personal strategies that they know appeal to and work for them.

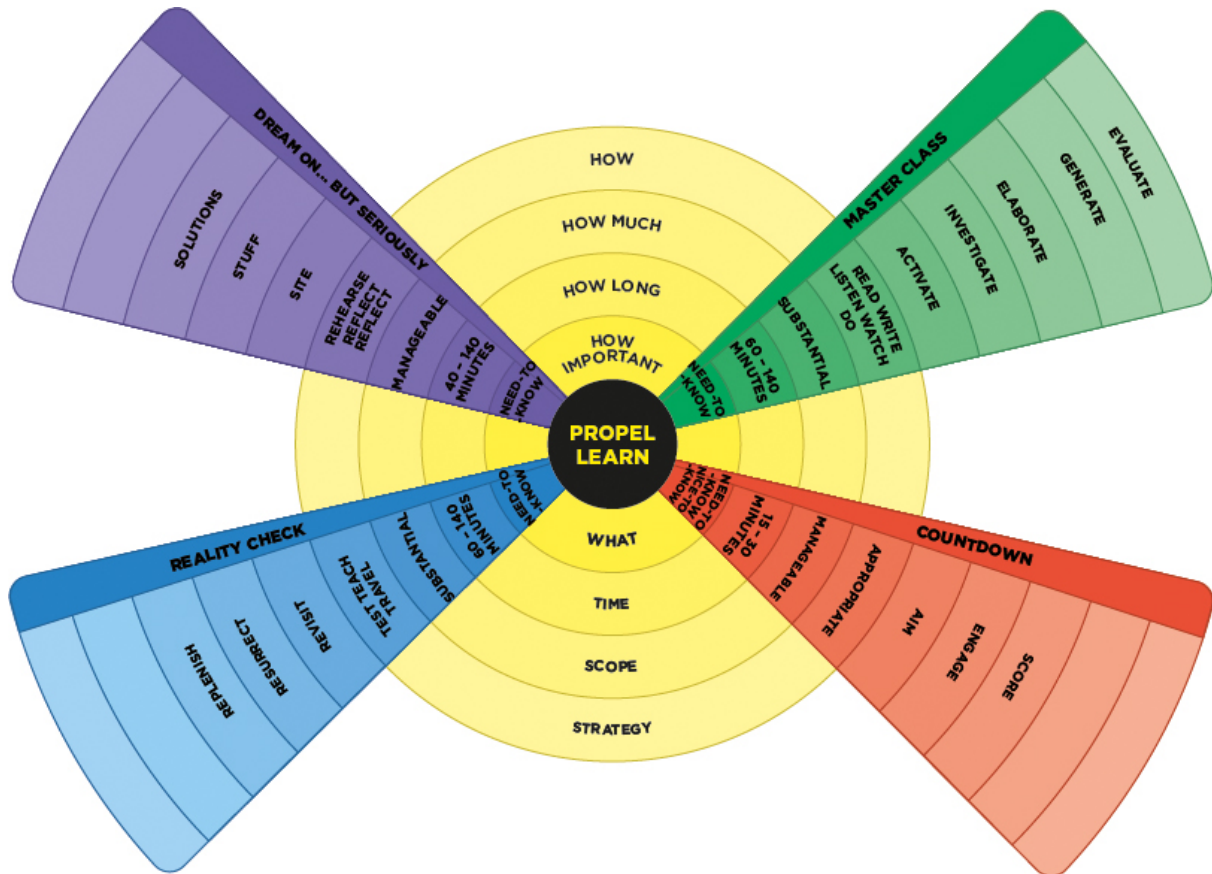


Figure 7.

Pilot and Roll-out

In a pilot project the program was presented in face-to-face seminars with medical, dentistry and veterinary students. It was established that they use the following learning strategies:

- Read and re-read;
- Highlighting and Underlining;
- Write concepts out;
- Summaries;
- Old papers and memoranda;
- Mnemonics.

Exposure to the program resulted in positive experiences by the students, which was reported elsewhere.

Currently it is being rolled out to students at the University of South Africa, and results will become available towards the end of 2016.

In order to make it easily available, the program is accessed via QR code on mobile devices.



Figure 8.

Propel-Learn Lesson Layout

The layout of the sixteen-day course on the PIMM Propel-Learn Tool is as follows:

Session 1. Introduction (which you completed yesterday)

Session 2. Overview of the course.

You need a map to know where to go and to understand how each aspect fits into the bigger picture. This session is the Big Picture.

Session 3. Decision time - the four How's (How important, How much time, How much work, and How to study)

Decision Time is about four crucial questions, namely How important is the information what you are spending time on, How much time you have available, How much work you want to complete in the time available, and How you are going to manage and master the content. Your answers to these questions will steer you to choose one of four directions, namely Master Class, Countdown, Reality Check, and “Dream on,... but Seriously!”. But first, it is Selfie time (to see what is important to you)!

Session 4: Decision Time (Continued)

In this session, we attend to the three remaining How-questions, as well as the directions it will steer you (the propel-blades of Propel-Learn). Prepare so long to go places - but also look out for Goldilocks!

Session 5: The Doppler Study Schedule

We all know the stress because of cramming, but not all people experience the joy because of planning. In this session, we use a creative way to plan your study schedule in a way that really works.

Session 6: Master Class (1) - how to spend your learning time well

Master Class takes place when you have an hour or more available for studying. During such a session you will focus on a comprehensive set of strategies, aimed at understanding, memorising and applying. The aspects of Master Class will help you remember what you learn, and takes you through the aspects of memory, namely Encoding, Consolidation, Storage, and Retrieval.

Session 7: Master Class (Continued) - Activate, Investigate, Elaborate, Generate and Evaluate

Master Class has five important movements, namely Activate (where does it fit?), Investigate (encode what it is all about), Elaborate (store for easy retrieval), Generate (how do I use the information in my life), and Evaluate (how do I rate my learning). Master Class gives a structured plan to make learning effective and therefore enjoyable because it will work well.

Session 8: Study Strategy 1: Travel (The Method of Loci, or Memory Palace)

Travel is an age-old strategy for remembering masses of information effectively in a relatively short period of time (also called the Method of Loci - Google or Ask Siri about this for more information). It really works well with some kinds of material, and here we show you how to use it while learning how our memory actually works.

Session 9: Study Strategy 2: Teach and Tell

Teach and Tell is a very effective way to measure what you really know and what you just think you know. If you can fluently tell someone what you have studied and are able to say and use the correct terminology, then you really know the work well. Please try this at home!

Session 10: WWW/W (What Went Well / Wrong)

In learning, we have to understand where things went wrong if we did badly in tests or exams. In this way, we can take remedial steps to prevent it from happening again. We also have to understand why things went well if it did so that we can repeat those habits, strategies, and activities. To evaluate our learning successes and failures, we have to understand what learning entails. Learning takes place in four phases, namely Encoding, Consolidation, Storage, and Retrieval.

Session 11: Countdown - Turning wasted bits of time into productive learning sessions

Sometimes we have only about 15 or more minutes available. Too short to study, you might think? Not at all. Many a worthwhile activity can be done in a short period of time if we are motivated, prepared and focused. Here we show how to get down to business in no time flat - and reap the rewards. To do that, you need to discern between G2K and N2K - Good-to-Know learning and Need-to-Know Learning. Then you need to Aim, Engage, Score - that is how you do it!

Session 12: Reality check (1) - Revisit, Resurrect, Replenish

It is really a bad experience when you think you know what you have studied, and then in a test, exam or evaluation you find out you cannot remember enough of it. What is an even worse experience, is to write an exam and you expect it to go well, and you get the result and the marks you obtain show you were totally wrong about it. Therefore, an important question is: How do we ensure beforehand that we are well prepared? This is what Reality Check is all about - but first, we need to look at the Forget Curve, which shows how quickly we actually forget what we have learnt if we do not rehearse.

Session 13: Reality check (2) - Test, Teach, and Travel

Reality check is to show what you know. Information, knowledge, and skills are there to be used. What has been stored, must be retrieved. Here we focus on how to do it effectively.

Rehearsing after initial learning during the Master Class or Countdown sessions is performed in three steps of the Reality Check session, namely Revisit (to go through previously learnt work repeatedly), Resurrect (show what you know), and Replenish (add what you forgot or got wrong).

Session 14: Dream on ... but seriously!: Reflect (1) - Site, Stuff, and Solutions

Our brains need to build new links, pathways, and networks for storing and managing knowledge and skills. This takes time, and the time it happens is when we dream - dream while we are awake and dream while we sleep. "Dream on ... but seriously!" is about how to take charge of our dreams and turn them into positive and productive events where we make sense of what we have learnt. Sometimes we reflect, which is when we just think almost casually about what we have learnt. Sometimes we have to rehearse in the sense that we think about what we have learnt in a structured way. Sometimes we have to re-imagine things, in other words, apply what we have learnt to solve problems in a novel and creative way. In this session, you will start to plan for positive and constructive daydreaming-sessions.

Session 15: Dream on ... but seriously! (2): DREAM

Data becomes information when you know how to use it. Nobody gets it right the first time round. We have to try things out and practice many times – that is why there is a saying “Practice makes perfect”.

Here we help you to practice by DREAMing. The DR stands for Dispute and Room, referring to the problem you need to solve. The E stands for Evidence, referring to relevant knowledge and facts. The A stands for Application, namely possible ways to apply the knowledge to the problem. The dream ends with an M, referring to Measurement, where you gauge how appropriate your performance was.

Dreaming is where you practice beforehand for the real thing.

Session 16: Earn your wings and keep on learning.

Learning is not our second nature, it is our first nature. We always learn, regardless whether we want to or not. However, we do not always learn optimally or in the most effective ways. Therefore, we also need to learn how to learn, and keep on honing and refining our learning skills. Here we talk about how to keep on "sharpening the sword" throughout life and living.

Way forward

What is needed to prioritise learning at ODeL institutions are scientifically sound programs that works in practice, available to students, known, supported and implemented by faculty staff, prioritised by management and trusted by industry.

Conclusions

Loose standing "study method" programs are not effective. Transfer to specific course content does not happen, and it is seen as something extra and therefore optional.

True learning only happens when it is seen as foundational to personal and professional development. Industry, management, staff and students should be educated to prioritise learning.

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