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World News 3

Study finds e-learning as good as traditional training for health professionals

DTI

LONDON, UK: Electronic learning could enable millions more students to train as doctors and nurses worldwide, according to the latest research. A review commissioned by the World Health Organization (WHO) and carried out by Imperial College London researchers concluded that e-learning is likely to be as effective as traditional methods for training health professionals. These new findings support the approach to continuing education Dental Tribune International (DTI) has adopted with its free online education platform for dental professionals.

The Imperial team, led by Dr Josip Car, carried out a systematic review of the scientific literature to evaluate the effectiveness of e-learning for undergraduate health professional education. They conducted separate analyses on online learning, which requires an Internet connection, and offline learning, delivered via CD-ROMs or USB flash drives, for example.

The findings, drawn from a total of 108 studies, showed that students acquire knowledge and skills through online and offline e-learning as well as or better than they do through traditional teaching.

E-learning, the use of electronic media and devices in education, is already used by some universities to support traditional campus-based teaching or to enable distance learning. Wider use of e-learning might help to address the need to train more health workers across the globe. According to a recent WHO report, the world is short of 7.2 million health care professionals, and the figure is growing.

The authors suggest that combining e-learning with traditional teaching might be suitable for health care training, as practical skills must also be acquired.

According to Car, from the School of Public Health at Imperial, “E-learning programmes could potentially help address the shortage of healthcare workers by enabling greater access to education; especially in the developing world the need for more health professionals is greatest.”

While the study focused on the education of students, DTI follows a similar approach to continuing education, offering webinars via its Dental Tribune Study Club, which it launched in 2009. The platform regularly offers free online courses and in several languages. The wide range of topics includes general dentistry, digital dentistry, practice management, as well as specialties, such as implantology and endodontology. The webinars are presented by experienced speakers and participants are awarded continuing education credits.

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Opinion

Je suis Charlie

Daniel Zimmermann

A few weeks ago, this simple French expression brought people around the globe together in solidarity. Unfortunately, a dear friend of our French editor was killed in the terrorist attacks against the Charlie Hebdo newspaper on 7 January and a Jewish supermarket in Paris on 9 January. Our thoughts are with her family and the bereaved of the other 15 victims.

What remains now after these horrific events? Obviously, there is the revealing fact that security, wherever you are, is an illusion. Barbaric acts of violence are not things that happen to someone else somewhere else; they can affect you directly and without warning.

Do we persist and go on or do we give in and play the game of the devil? My sincere hope is that, whatever happens, people will remain a subject of controversy.

In my practice, I stopped performing tooth restorations with amalgam 15 years ago, not because of its toxicity, but because it is not a naturo-mimetic and such restorations require more invasive tooth preparation. Now, we have various tooth-coloured adhesive restorative materials at our disposal as an alternative to amalgam. Therefore, its use in clinical practice largely depends on the mindset and choice of the dentist and patient. I personally believe that, if a dentist considers do no harm dentistry his or her practice philosophy and adopts minimally invasive restorative techniques to achieve naturo-mimetic clinical results, then silver amalgam restorations no longer have a place in clinical dentistry.

When discussing banning mercury-containing restorative materials in dentistry, we must consider what we have been teaching our students at undergraduate level. If we carefully look at the restorative dentistry syllabus in Asia, we see that almost every dental department member of the Asian Academy of Aesthetic Dentistry and a regular contributor to Dental Tribune. Dr Koizala can be contacted at dsushilkoirala@gmail.com.

The use of mercury in dental restorative materials has a long history. While amalgam fillings are still popular among dentists in both developed and developing countries, the toxic effects of the metal remain a subject of controversy.

Unless we reconsider restorative techniques and materials science in dental curriculums, it will be difficult to induce practical changes in clinical practice. As a practitioner and advocate of minimally invasive cosmetic dentistry, I have been effectively promoting tooth-coloured adhesive restorative materials. I strongly urge young dentists to perform minimally invasive and naturo-mimetic dentistry for the long-term health and beauty of teeth and smiles.

No place in clinical dentistry

Dr Sushil Koizala
Nepal

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A man of humour and humanity

Dr Yatoro Komiyama
Japan

When I met Prof. Per-Ingvar Brånemark in his workroom at the University of Gothenburg at the beginning of the 1980s, my introduction to him was not good. I was overly formal because I thought he would be difficult to approach. Luckily, he was not.

His heart was filled with benevolence for his patients. He always wore a smile and encouraged communication. “The optimal hardware and software are very important factors in order to establish osseo-integration and to maintain it for many years. Minimal tissue violation is the most valuable factor of software,” this is the advice he gave me in 1982. I always bear it in mind.

During a lecture he gave in Dallas in 1989 as the first honorary member of the Academy of Osseo-integration, he dropped the pin microphone. “Maybe I should install a tooth fixture in my rip to hold this mic,” he joked.

Brånemark was a genuine mentor to all dentists. May his soul rest in peace and watch over us forever.

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Clinical governance—
A system for better health care

Dr Kashif Hafeez
UK

While accountability and improvement have been eminently
in health care systems for quite some time, there is probably no other
time in history when the relevance and importance of these have been more advocated.
Learning from our shortcomings and improving our health care
system towards better patient care is the goal of clinical governance. I refer to it as the democracy
of the health care system, in which all members of the health care team have the right to bring
about positive changes.

Accountability and learning from self-criticism forms the basis
of clinical governance, which provides the framework for taking all
we can provide the best care possible for our patients. It is a structural
framework that incorporates all pillars of the health care system.
There are channels for the health care team, management and patients alike. Particularly for the last,
clinical governance provides an environment free from potential hazards. In addition, patients are
given a voice in the system through patient feedback, ensuring that if they draw attention to any wrong-
doing, lessons are learnt and such mistakes are not repeated.

For our staff and team members, clinical governance ensures
that they will be inducted into the system effectively in the beginning and be a part of that system through
organisational meetings and their annual appraisals throughout their whole career. This way, they
will have the best opportunity to improve their skills and advance their professional development.
Moreover, this allows them to better judge their clinical effectiveness and communication skills.

Since training and career development are integral parts of clinical governance, it helps the clinicians
to identify their learning needs and plan their continued professional development accordingly. Continuing
in this loop, they are able to develop improved awareness about the safety of their work environment,
and risk management is one of the basic pillars of clinical governance. Through research and development opportunities, they can also learn new skills and treatment protocols.

Clinical governance is the girdle of an organisation in a health care system: it encompasses all aspects
of improved patient care and keeps all involved units in the loop. The management of an organisation can
monitor the quality of care provided by it. It can also rate the clinical effectiveness of a particular specialty
or clinician. With patient feedback, it can furthermore identify any shortcomings in the system. It will
compel the organisation to strive for the professional development of its employees, safeguarding the
clinician’s right to develop professionally. The impartiality of the system opens the organisation to scrutiny and maintains the absolute system of checks and balances.

Audit is an indispensable part of clinical governance, as it allows the system to self-analyse and induce changes, corrected, that is, we make improvements and then re-audit. Once this cycle has been initiated, it will become a continuous process of reanalysis and improvement. The prime feature of this system is that the whole process is self-sustainable once the system has been implemented. The checks and balances in the system will keep it going and evolving.

The process of clinical governance is quite well established in the Western world, but it is time that this essential system of health care delivery become established in developing economies. After all, it is all about the patients: it is to ensure their continued good care that we study intensely and pursue professional development.

“...it is time that this essential system of health care delivery become established in developing economies.”

Contact Info
Dr Kashif Hafeez
is currently in private practice in Carterton in the UK. He can
be contacted at hafeezkashift@hotmail.com.
“Bowie’s teeth were like everything else about him: different”
An interview with German tooth artist Jessine Hein

David Bowie was undoubtedly a major figure in popular music in the 1970s and 1980s. He is also one of the many celebrities who have undergone cosmetic dental treatment and had his characteristically crooked teeth replaced with a set of crowns in the early 1990s. Inspired by Bowie’s unique original look, Jessine Hein, a German painter and sculptor, made a reproduction of the singer’s natural teeth. Dental Tribune had the opportunity to speak with Hein about her denture sculpture and her perception of beautiful teeth.

Dental Tribune: Ms Hein, how did you come up with the idea of recreating David Bowie’s teeth?

Jessine Hein: Bowie’s teeth were like everything else about him: different. Not the aesthetic norm, not perfect, but they were strikingly beautiful in the context of his whimsical and miraculous being. His smile revealed an imperfection that made him seem more real, more human, someone to identify with.

An imperfection worn confidentially inspires sympathy. Bowie was a role model for many people and I think his teeth contributed to that. The vast variety of talents, iconic style and incomparable physique that make up Bowie, and the different universes he created around himself, have always impressed and inspired me. I have been incredibly fascinated with teeth for many years and I was very conscious about the loss of the Ziggy Stardust choppers.

Teeth are an integral part of interhuman communication. They are inevitably involved in laughing, talking, screaming and of course singing. Bowie sang to us through his crooked gaps and it was enchanting! So the idea for the sculpture evolved while I was nostalgically longing back to Bowie’s old teeth.

Have you done any other artistic projects related to dentistry that inspired you to create a denture sculpture?

In the past, I have done small projects at a dental laboratory, such as a tooth pendant for my necklace, which I have worn ever since and never taken off. As well as another sculpture: Tooth Nuckles. With the knowledge and experience acquired during those projects, I gained an idea of how I could actually construct this replica.

In your opinion, what drove David Bowie, who was celebrated as a nerd, to have his crooked teeth made into a “perfect” Hollywood smile?

I find it noteworthy that a pioneer of individualism, the archetype of “acting out oneself”, decided to “normalise” his mouth. It seemed paradoxical. However, the dental change was parallel to a change in his image and music. It accompanied his development and I assume that was not purely accidental, owing to the Hollywood set of teeth that was chosen rather than recreating a natural look when medical intervention was needed.

I cannot imagine that a person like David Bowie willingly left the interior design of his mouth to someone else, so I interpret the pearly whites he got as a bold statement that signalled a new chapter in his career—maybe a comment on the beauty obsession of our society: “You want regulated perfection? Here you have it!” The transformation was part of his development from alien hero of the heart to world star. My sculpture intends to underline this, as well as pay homage to the era of the crooked-toothed miracle who fell to earth once upon a time.

Could you believe that Bowie was not satisfied with his teeth and underwent cosmetic dental treatment for that reason? Perhaps, his crooked teeth were a source of suffering, as it is the case with many other people.

I do understand how orthodontics can improve one’s self-confidence, as I went through years of tooth alignment myself in my teens. There are four teeth missing in my maxillae. Besides having had trouble chewing properly, I looked like a freakish vampire. It was not very helpful to have an odd-looking set of teeth in this awkward phase of adolescence. Back then, I did not appreciate the beauty in the difference because I was too concerned with trying desperately to survive as a shy teenager at school.

Today, however, I celebrate teeth that are not the norm. I love the diversity and character they bring to the human head. I find it quite sad that these days almost every child undergoes some kind of dental treatment to align his or her differences solely for aesthetic reasons. Some of them might grow up wishing they still had their characteristic natural look.

I have heard Bowie talk about his old teeth in a confident way. He stated they looked fine to him. So, no, I do not think he felt uncomfortable about them at the time, quite the opposite; he was famous for celebrating his striking body in all its otherworldliness.

What do you intend to do with the sculpture? Have you been approached by collectors and fans of the singer who would like to purchase it?

The sculpture is currently with me and will be until an opportunity for exhibiting comes up. I have various kinds of sculpture and painting projects in the making that will need some more time to develop. Once they are completed, I envision the David Bowie dentures being presented in the context of the new pieces.

I have been contacted by several potential buyers, but the sculpture is not currently for sale, as I would like to have the option of putting it on display.

Thank you very much for this interview.
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Per-Ingvar Brånemark, an innovative genius

Prof. Tomas Albrektsson, Sweden, remembers the man who changed dentistry with the discovery of osseointegration of dental implants

Per-Ingvar Brånemark passed away on 20 December 2014 at the age of 85. Throughout his career as a researcher, he overcame fierce opposition to dental implants and revolutionised methods for treating edentulous patients.

An extremely gifted scientist, Brånemark was also as witty and quick on his feet as they come. Various language editions of Reader’s Digest, hardly considered a medical journal of note, published an article in the late 1960s about his research on microcirculation. At the end of his first lecture about dental implants in Landskrona in Sweden in 1966, a member of the audience, who turned out to be a senior academic, asked him, “This may prove to be a popular article, but I simply do not trust people who publish themselves in Reader’s Digest.” As it happened, that senior academic was well known to the Swedish public for having recommended a particular brand of toothpick. Brånemark immediately rose and struck back, saying, “And I don’t trust people who advertise themselves on the back of boxes of toothpicks.”

Young and naive as I was, I thought they were just poking fun at each other, but it turned out to be the opening shot of an early battle with the dental profession. When someone cast aspersions on dental implants several years later because Brånemark was not a practising dentist, he simply answered, “Teaching them anatomy is good enough for me.”

Brånemark completed his medical training at Lund University in 1959 with a doctoral thesis on microcirculation in the fibula of rabbits. Grinding the bone to a state of transparency permitted the use of intravital microscopy to analyse the blood flow in both bone and marrow tissue. Thrombosis, which found wide recognition both in Sweden and abroad, landed Brånemark an appointment at the Department of Anatomy of the University of Gothenburg just a year later. He was appointed as Associate Professor of Anatomy (later received a full professorship) in 1965, which qualified him for laboratories of his own and the opportunity to surround himself with a team of researchers.

Brånemark continued to pursue his studies in microcirculation in animal models and ultimately in humans. A plastic surgery technique was used to prepare soft-tissue cylinders on the inside of the upper arm. He then inserted optical devices encased in titanium that enabled intravital microscopy of microcirculation in male volunteers.

By the late 1960s, he was able to produce the highest resolution images of human circulation in the history of medicine. Many people are familiar with Leenart/Nilsson’s photomicrographs of circulation that were taken at Brånemark’s laboratories and developed at the Department of Anatomy. Brånemark used a hollow optical device surrounded by titanium to study microcirculation in rabbit bone, permitting both bone and blood vessels to grow through a cleft where they could be examined by means of light microscopy. During such an experiment in 1962, he discovered that the optical device had fused into the bone, a process that he eventually dubbed osseointegration. He revealed his incomparable strength as a researcher at that very moment, realising immediately that the discovery had clinical potential and determining to focus on the development of dental implants, an enterprise that had hitherto been regarded as beyond the scope of medical science.

Brånemark grasped the fundamental truth that edentulousness represents a significant disability, particularly for people who cannot tolerate dentures for some reason. He operated on his first patient in 1965, a mere three years after the academic community was largely disturbed and hostile to the new approach. The debate was not put to rest until 1977, when three professors at Umeå University in Sweden announced that Brånemark’s technique was the recommended first-line treatment. Opposition in other countries eventually waned as well and dental implants, originally manufactured by a mechanic in the basement of the Department of Anatomy, scored one international triumph after another.

Nowadays, an estimated 15–20 million osseointegrated dental implants are installed every year, and a number of different academies in the field hold annual conferences attended by as many as 5,000 participants each. The University of Gothenburg features a permanent exhibit on osseointegration technology and there is a museum in Brånemark’s honour at the Faculty of Stomatology of Xi’an Jiaotong University in Xi’an in China. The P I Brånemark Institute has been also established in Bauru in Brazil.

Not only dentistry

Back in the 1970s, Brånemark began collaborating with ear specialists and technicians at Chalmers University of Technolog to explore the additional potential of osseointegrated implants for developing hearing aids inserted behind the ear. Hundreds of thousands of patients around the world have had operations based on the technology initially developed in Gothenburg under his direction. Those of us who were on the team at the time will never forget a teenage girl who suffered from the effects of thalidomide. The medicine had caused not only limb deformities, but also hearing loss in many patients. Equipped with the new hearing device, she learnt to speak flawlessly.

The team also targeted facial deformities occasioned by congenital or acquired injuries. A number of implants installed in the viscerocranium served as fasteners for silicon prostheses, a much more attractive option than attaching them to the patient’s glasses. Since the first operation in 1977, the use of the technology has become widespread internationally.

Titanium implants installed in the femur were the next spin-off of Brånemark’s research. Patients with above-knee amputations cannot have socket prostheses around soft tissue and may have to rely on a wheelchair to get around. Inserting titanium screws in the femoral stumps permitted the installation of a prosthesis and the ability to walk again. I can still remember the first patient as if it were yesterday. Another teenage girl had been run over by a streetcar in Gothenburg and had above-knee amputations in both legs. She was consigned to spending the rest of her life in a wheelchair. The operation was very successful and she learnt to walk again.

Acclaimed around the world

Brånemark was fuelled by a passion to help difficult-to-treat patients, and many of his clinical discoveries from the first dental implant on were made in response to cases that had hitherto been regarded as hopeless. His innovative genius, fortified by a large research laboratory at the Department of Anatomy, also skyrocketed Gothenburg-based pharmaceutical companies like Nobelpharma and Astra Tech into leading positions in the global market. He was devoted to the academic community’s social responsibility long before many of his colleagues were aware of, much less accepted, the concept. Ultimately, the world came around and he was awarded honorary doctoral degrees by 29 universities and honorary memberships by more than 50 scientific associations—not to mention the Royal Swedish Academy of Engineering Sciences’s medal for technical innovation, the Swedish Society of Medicine’s Söderberg Prize, the European Inventor Award for Lifetime Achievement and many other distinctions around the world.