THE FIRST CHIROPRACTIC HACKATHON: REIMAGINING CHIROPRACTIC EDUCATION

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ABSTRACT

The concept of a Hackathon is presented with reference to chiropractic education. A number of critical observations are given of the stasis evident in global chiropractic education. Issues related to this are presented and briefly discussed. These will form tracks around which brainstorming will be undertaken at the first Chiropractic Education Hackathon to be held late 2018. The participants will be ⅓ leaders in chiropractic education and ⅔ experts from diverse non-chiropractic fields such as virtual reality, engineering, social science, software development, designers, entrepreneurs and the like. The challenges will be accreditation, program models, academic productivity, knowledge explosion, learning styles, learner assessment, and 'anywhere, anytime' flexible learning. (*Chiropr J Australia 2018;46:151-161*)

Key Indexing Terms: hackathon; learning; methods; students; chiropractic; education.

INTRODUCTION

Within the title of this paper are two matters to clarify. First the term 'hackathon'. Hackathons commenced in 2014 at Yale (1) and are now active in Australia (2) and many other countries. A hackathon is a way of reimagining a problem by persons remote from the problem. Hackathons are creating new solutions in Japan (3) and a global initiative is in place for Hackathons to advance mental health. (4) A major International event was held in Tokyo in March 2018 and to demonstrate the nebulous nature of the Hackathon the translation says 'it is a new kind of thing.' 'Thing' it may be but the 2017 event gave rise to innovations in Robotics, Sustainable Development, Logistics and Storage, and new uses for a piece of IBM software. (5) The country of Malaysia held its first in early 2018, 'Reimagining Healthcare'. (6) Hackathons have been studied and best practices identified. (7) The Hackathon concept is in its ascendency and the first global hackathon within chiropractic is scheduled for late 2018. The healthcare world is changing around us and if educational programs do not follow suit they will become less relevant. The Web now hosts lists of upcoming Hackathons (8).

The whole idea of the Chiropractic Education Hackathon is to gather developers, designers, entrepreneurs and chiropractic's educational leaders to create a enactable vision for the future of chiropractic education.

The second is the phrase 'reimagining chiropractic education.' It is past the time of sophistry that chiropractic education is in a stable, healthy condition. Any chiropractic academic who fails to grasp the tenuousness of their educational future is doomed to not see it. The basic model of chiropractic education has remained unchanged since Nugent's curriculum developed in 1945 (9) for CMCC. There is something deeply wrong with matters such as programmatic and institutional accreditation that punishes institutions who want to compete on their own merits. Ultimately accreditation denies choice to students and the curriculum fails to advance.

It is not necessary to worry about whether the retardation is caused by accrediting bodies, institutional inertia, or other factors. History shows that over 70 or more years the approaches to education have changed, the healthcare market has changed, and the market for students has changed. Chiropractic education has not. The best way to think about a Hackathon for chiropractic education is of it being a brainstorm by more 'others' than 'chiropractors'. The

latter bring chiropractic baggage and the former have none but are experts in their field, be it software design, computer programming, engineering and so on.

The output has operatives such as ‘build’, ‘create,’ ‘learn’ and results from a fun environment. There are no keynote presentations, no invited presentations and no posters. The currency is creativity with no fear of the unknown. In fact, a hackathon creates the new known.

DISCUSSION

Participants

The total attendees at the first Chiropractic Hackathon will be limited to 21 or 42. Should interest be sufficiently strong two parallel tracks will operate, each working on the same challenges with a final face-off between the two tracks on each challenge to distill the strongest concept.

Each track will consist of just ⅓ or 7 (14) chiropractors, preferably organisation leaders and heads of educational institutions. The remaining ⅔ or 14 (28) will be a mix of a diverse group of non-chiropractors bringing their best thought to answer the question of how to teach chiropractic in today’s environment. Yes, people who are plugged in and switched on to contemporary living and learning telling the profession how they think chiropractic can best be learned.

Do they need to have experienced chiropractic? No, familiarity brings experiential blinkers; “my chiropractor did ‘this’ therefore all chiropractors do ‘this’.” To include such people would limit the talent pool, finding an ace software designer who knows nothing about chiropractic or education will produce a better input than a software designer with pre-conceived ideas.

Herein lies the secret of a Hackathon. In this case there will be 14 or 28 new sets of eyes with 14 or 28 new minds focusing on creating novel solutions to an issue alongside 7 or 14 ‘discipline experts’. The challenge is to identify such people and in the case of the first Chiropractic Hackathon a small team is working through East Asia and China to identify potential invitees. Invitations to chiropractic leaders will be extended globally. Why not draw the non-chiropractors from the Americas or Europe? Simply put, ⅔ of the world’s population live in Asia (10) (actually 59.63%). (11) Asia is home to progressive universities, leading-edge healthcare and successful commercial institutions. It is the paddock for prime choice of participants. It is also the location for the World Bank Group’s Policy forum 2018, ‘Learning to realise education’s promise’ (Manila, March 2018). (12) Asia also conducts very successful hackathons.

The Challenges

Seven challenges are nominated per track to allow 7 groups of 3 (1 with a chiropractic connection as in organisational or academic leadership) and 2 from the real world. Four is the recommended maximum number of members for any single team. Droll topics such as the ‘flipped classroom’ (13) are *passé* and will not be included; if an institution has not already well and truly implemented this approach then they would not have the ability to conceive of or contribute to future directions. Following are the nominated challenges. One will be allocated to each team, then an open share of the challenges will be spread among the teams. Therefore, each team will have their key challenge to work on, and their choice of other challenges to contribute to.

A Hackathon eschews the rigid boundaries of traditional conferences where, when all is said and done, a lot more is said than done. There are no keynote presentations and no invited presentations. There is no hierarchy among attendees, a 60-year-old college President may well find him or herself working alongside two 20-somethings, male or female, as equals. The nominated challenges are:

Accreditation

It is possible the model applied by accrediting bodies perpetuates the status quo and suffocates educational innovation. The rapidly changing worlds of technology and communication are leaving chiropractic educational programs in their wake, wallowing in a rising tide that is stifling the important indicator of academic health, publication (also a challenge and explored below).

Accreditation imposes a fear-factor on institutions that forces avoidance of innovation. Any institution that really shook the status quo would face inquisition by an accreditation inspection team, the members of which are selected for their experience and not their progressive grasp of the world emerging around us. Most lack even a meagre publication record yet they act as judge and jury on experts in the field, albeit with 'training' (a current development by the CCEA which offers six on-line training modules, the CCE-US requires attendance at one session per period of appointment). (14) The outcome to an institutional challenge outside *sama sama* or ほとんど同じ (almost the same but not exactly the same) would be a shortened time period of accreditation during which the accrediting body elects to 'watch closely how it goes.' The writer states this from experience.

The challenge to address is the relevancy of external accreditation of government-accredited educational institutions in the 21st Century. Accreditation was relevant when it was first conceived and implemented in the last Century, but now with so many programs housed in universities there is no longer a need for the profession to fuss about external impositions. Under statute universities are accredited by a higher authority, government. They maintain processes of quality control and every program proposal is considered for approval at the highest level of the Academic Board. Less significant changes such as updating subject/course/unit guides are typically considered and approved by a discipline-specific advisory committee and then a School or Faculty academic committee, within a government accredited academic institution. Internal review processes and the ever-watchful eye of government renders irrelevant the additional layer of external discipline-specific review and accreditation. Accreditation may have some currency for some stand-alone private institutions but its relevance today to legally-established universities is a serious challenge for the Hackathon.

It must also be noted that 1 successful chiropractic institution in Europe holds accreditation and approval from its country's higher education authority and has no need to seek approval from the ECCE. Their view, expressed privately to me, can be considered a critically informed stance that recognises where true value and importance lies for an educational institution.

Do the above views have substance? After all it is only the opinion of one educator, albeit experienced, however it must be tested in the crucible of a Hackathon.

Program Models

Does it really take 5 calendar years to learn chiropractic? Or in some states of the USA, seven? Is there really a need for a Baccalaureate prior to admission to a 4-year program in

some jurisdictions? Most of the educational world applies the Germanic model of a university Bachelor degree followed by a Master for a 5-year learning period. Why is this not so in the Americas?

Is there a problem with teaching psychomotor skills and surface anatomy in the final year of Senior High? Any argument that the age of learners is 'too young' to comprehend these complex skills-sets is put in its place by challenging the dis-believer to compete against 16 and 17-year olds in the Snowboarding Half Pipe at a Winter Olympics. Gold is won by fractions of points by teenagers. Arguments of the need to be a 'certain age' to enter a chiropractic educational program represent simple reverse age-discrimination and is completely unacceptable.

Examining the current program models more often than not binds accreditation expectations, institutional procedures, and market demand. It must be remembered that a program of chiropractic education generates income, in some cases the only income for an institution. Therefore, the longer a fee-paying student can be strung along, the greater the revenue.

Is this a fair and equitable way to view education? Or am I being unfairly cynical? Has external accreditation ever been tested? Where is the evidence in the form of peer-reviewed, indexed studies documenting the period (formerly 10 terms/semesters, CCEA) it takes for a learner to go from 0 to competency with adjusting skills? Should the output of a program be stepped from chiropractic assistant, chiropractic 'apprentice' or intern/resident, chiropractor, and chiropractic specialist in, say, paediatrics, sports or family health? This model will challenge after-market providers who are cashed-up from delivering seminars to up-skill 'chiropractors'. A Hackathon will sort out these issues as a challenge and the findings may not be as expected or wanted by traditionalists.

Academic Productivity

The chiropractic profession has a heavy dependence on educational content and an institutional capability to generate content that is professional, engaging, and indeed, educational. It is easy to level criticism at chiropractic academics for their collective lack of scholarly writing as evidenced by publication in peer-reviewed, indexed journals. This writer compared 2 issues of the profession's peak journal, the *Journal of Manipulative and Physiological Therapeutics* (July 2007 and July 2017). Over this 10-year period the frequency of papers by chiropractic academics was found to be static. Extending the window to 20 years (July 1997) did not change the view that only a few chiropractic academics are currently publishing or have a track record of publication in the discipline's most influential journal, as it became under the astute editorship of Lawrence, an FCER Researcher of the Year. (15)

However, the past 20 years has seen the number of colleges more than double, from around 20 or less to now 45 or so. With the commensurate increase in employed academics one would reasonably expect to see a graph of publications that trended upwards. Why is this not so?

There are multiple possible reasons for the literature productivity of chiropractic academics to be so low. A Hackathon challenge is to sort these out. Perhaps colleges are sabotaging the profession by hiring academics without a publication record? Perhaps chiropractic academics can't write? Or don't want to write? Perhaps the argument is they do not have time, which is the argument of failure as an academic; 'real academics' make time to wash, cook, eat, play with the kids, do chores, teach, create knowledge *and* publish.

Knowledge Explosion

This topic is a no-brainer as anyone who recalls the early moon missions or has read the history of IBM will appreciate their extremely basic nature. We have advanced from shooting men inside tin-cans into space and from a few computers each the size of a house, to smart watches (16) that outperform many desk-tops and all previous space-craft. I used to travel with a slide carousel, then a MacBook, a Mac AirBook, then an iPad. Now my presentations are made from Smart Phone in the classroom as well as at conferences. For nostalgia, one fondly recalls using Harvard Graphics to produce slides which were photographed from the screen. And then there were celluloid overheads …

Knowledge in health-care has also exploded exponentially. Chiropractic knowledge grows at a slower pace and usually by demographic and utilisation studies which repeat known findings but with a twist, or animal models that never seem to make it to humans. We remain ignorant of what a subluxation is, or could be, in fact, starting in the UK in 2010 (17) it has become officially denied as other than an historical artefact.

Given the knowledge explosion one must ask how often is content re-written? Should physics be the classic physics or the biophysics which we apply in practice? Do academics deliver material that is already authored by others and available on-line in multiple forms? Does an academic become a gatekeeper to their own teaching materials or a genie with the key to unlock the magical journey of discovery?

The Hackathon will bring expertise to bear on the question of how best the academic can harvest and reflect the knowledge explosion. Should all course-ware be committed to Smart Phones? Why do didactic lectures remain the favoured form of knowledge transmission in some institutions? How can chiropractic academics remain current with the growth in knowledge and technology? Why are conventions such as ACC-RAC (18) pinned to the USA, arguably the world's smallest market for growth in the number of chiropractic institutions? After all, ACC-RAC is self-billed as "The Premier Educational Chiropractic Event of 2018". (18) It may be so for one country, but not in a global context.

Learning Styles

Every educator knows the various forms of student learning styles and appreciates that any one class will present a rich mixture. The first class in a semester typically has 90 to 100% attendance but by mid-term this drops to 30 or 40% unless naïve tools are applied such as an attendance roll-call. For adult learners? Why this drop in attendance? In which way are the learning needs of the student not being met? How are different learning styles catered for?

The real challenge is that in the majority of classes, the teacher is from a generation or more beyond the millennials forming the main group of learners. Teaching techniques that worked 30 years ago no longer have currency. What will address this?

An appreciation of learning styles includes an understanding of preferred assessment styles. One way to achieve these knowledge pieces is for the academic to be receptive to feedback, which may be specific and directed to the individual, or generic and directed anonymously to the institution. A forward-thinking academic will also be receptive to murmurations and will intuit adapted responses and action changes.

Learner Assessment

To become a licensed chiropractor, a student is required to pass the institution's 'exit' examination and then in some jurisdictions, a state board exam. American students are also required to pass a raft of NBCE (19) exams. Has the utility or validity of these examinations ever been seriously tested? Where is the evidence they achieve a meaningful and useful outcome? Have there been longitudinal outcomes studies? How does one assess critical thinking and scholarship by multi-choice and short answer questions?

While not knowing the validity of the NBCE assessments, studies have been published documenting how students prepare and reporting that academic performance is an indicator of performance on the NBCE tests. If, as McCall and Harvey (20) and Kenya et al (21) report, "Internal training and educational assessments, e.g. course grades and practice exams, proved to be strong determinants of NBCE performance above and beyond initial levels of preparedness", then why isn't internal assessment (22) sufficient, as it is in a majority of non-US institutions? Is strategy a better predictor than academic performance? (22) Are 'smarts' before entering a chiropractic program a better indicator of performance? (23) Indeed, as Zhang noted, "GPA is a better predictor of class performance than NBCE scores." (23) So why is the NBCE still in existence?

Assessment has slowly evolved to test understanding as opposed to memory and recall and there is opportunity for this evolution to move faster and be more flexible to adapt to student learning styles. Consider setting an assignment in Chiropractic 101 for first-term students. The learning outcomes are designed to achieve capability with on-line searching, the ability to make an argument, the ability to enunciate counter views, and so on. So, does the academic offer one topic and expect a multiple return of the same or similar essays? Or is a free choice offered, such as allowing the learner to chose any topic relevant to chiropractic that interests them, and to then explore it in a scholarly manner? A strategy than enhances teamwork and eliminates plagiarism?

The Hackathon will address this and more, including whether or not the NBCE and State boards stifle innovation in the chiropractic curriculum. In a merit-based world academic institutions need to be convinced of the educational merit of this type of external assessment, otherwise the cycle of irrelevance is perpetuated. Perpetual motion can be defined as a closed system. (24)

'Anywhere, Anytime' Flexible Learning

The most recent innovation in education is the flipped classroom, despite its failing of remaining anchored to a time and place even though it expects students to prepare outside and before scheduled class hours. This is like dancing with one's brother or sister; it gets both onto the dance-floor but goes nowhere.

Commutes of 2 hours each way are not unheard of in Asia, nor in some Western cities for that matter. This time-window provides a perfect opportunity for extended engagement with the learner, whether they are on a bus, train, ferry or plane, and whether it is morning or night.

Curriculum content must be available for active engagement and learning during the commute. The questions relate to the optimal way to achieve this, how to measure it, and how to progress 'anywhere, anytime learning.'

A prime outcome from the Hackathon will be recommendations on how to fully shift to mobile learning, including preferred hardware and software. The arguments can be heard already, 'you can't learn practical skills by not being in a class and doing.' Fair enough, so the

Hackathon will ask how much time allocated to practical learning is wasted with transmitting theoretical concepts?

Once it was thought that labs in chemistry, physics and similar basic sciences could only be taught by creating pretty colour change in a test tube, in a lab. Central Queensland University (25) with a student base covering most of Australia, has proven this wrong with an impressive series of on-line labs in these and many other subjects/courses/units.

Another argument will be that the learner must be in a lab for the purpose of tactile feedback, especially for palpation and adjustive set-ups. This is argument is seriously weakening in the face of haptic gloves and virtual reality. (26) An important challenge is how to create the software to provide this learning experience.

The Frog

Chiropractic education can be likened to the frog in two apocryphal tales. In the first the frog is in the bottom of a well. He or she is fat, lazy and content. There is ample food from the insects that fly and fall in, plenty of water, and a couple of other frogs for company and to reassure him or her that he or she is a frog. The meaning is simply that the frog is comfortable in this limited world with his or her own colleagues and is incapable of imagining change, thus does not want change.

In the second the frog is in the pan of water that is slowly heating. As every reader knows, the frog remains comfortable by adapting to the rising temperature until zippo, frog soup.

The Hackathon comes from the starting point that most chiropractic academics are frogs, in both forms of the story. The changes in the real world, the technical world, the learner's world and the academic world are fast and furious and can be uncomfortable. There is no embarrassment with finding it hard to keep up. The Hackathon is the place to draw a new line in the sand from which chiropractic education moves forward, faster, stronger and more connected than now.

The debate on the future of chiropractic education must take a much higher profile within the profession. It seems many have lost sight of the big picture. Institutions must act to create policy certainty at a time when education continues to grow while the profession remains under a critical spotlight.

A Chiropractic Hackathon is a diverse group of non-chiropractors with a few chiropractors bringing their best thought to answer the question of how to improve the teaching of chiropractic in today's environment. Participants must be people who are plugged in and switched on to contemporary living and learning with the freedom to tell chiropractic educators how they think chiropractic can better be learned.

Chiropractic is practised in uncertain times. There are two unrelated events a half-century ago in the US that shed light on how we can overcome the challenges we face as a profession of educators in 2018. (27) The dawn of the third industrial revolution in the 1960s saw new computer technologies start to automate manufacturing. This unleashed fears of joblessness. The National Commission on Technology, Automation and Economic Progress reported to the President of the day "The basic fact is that technology eliminates jobs, not work." (27)

Also, in the 60s "The Master Plan for Higher Education in California stratified and interconnected tertiary education from vocational skills through to PhD research. At its core

were the principles of diversity, access and quality." (27) In 2017 "California was the sixth largest and arguably the most innovative economy of the planet." (27) It is indeed possible to create the future we want.

CONCLUSION

Chiropractic educators seem to have lost sight of the big picture. Instead of publishing about how to improve, strengthen and in some cases, provide life support to chiropractic education, we simply expect students and, in Australia's case the taxpayer, to continue to fund education. Chiropractic is an elitist field from which the majority of graduates become wealthy. In fact the very nature of the outcomes alone of our teaching demand a reimagining of what, how and when we deliver our product.

This paper has put argument to the effect of intellectual inputs and outputs but every chiropractic educator has to also be aware of the need to identify efficiencies and cost-savings in their teaching. (28)

There are as many if not more challenges embedded in chiropractic as a professional discipline. It is imperative for a bold mind to develop and lead a Chiropractic Practice Hackathon. The author does not pretend to have the answers but can see a clear need for global action in the field of chiropractic education. The Chiropractic Hackathon as referred to in this paper will, when it occurs, resolve some challenges and offer a direction for global chiropractic education to move strongly forward.

DISCLAIMER

This paper is written as an academic exploration of an event in process for 2018. It is not a promotion for that event and no details of the event are given to ensure no conflict of interest with the opinions expressed herein.

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