In Remembrance: The Life and Legacy of Michael T. Turvey (1942–2023)

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Michael T. Turvey passed away on August 12, 2023 at the age of 81. This obituary aims to honor his life and career by highlighting some key events in his personal and professional life, noting some of his many remarkable accomplishments, and emphasizing his exceptional mentorship, friendship, and generosity.

Professor Michael T. Turvey passed away peacefully on August 12, 2023 at the age of 81.

It is impossible for this tribute to capture all of Michael T. Turvey’s immense contributions as a scientist, teacher, mentor, and friend. Many other commemorations of Michael have already occurred or are forthcoming, including special issues in at least two journals (Ecological Psychology and Brazilian Journal of Physical Therapy). Each of these efforts contributes to telling different parts of Michael’s incredible story. We, two of his former graduate students in the 1990s, want to honor Michael’s life and career by shining a light on him as a life-long mentor and friend. Like so many others, we miss him dearly.

Life and Education

Michael was born in the poorest part of London’s East End during World War II, the youngest of three children of the late Nel and William “Bonky” Turvey. His excellent academic performance earned him the opportunity to attend rigorous Jesuit schools, where his interests included math, physics, and history. He went on to attend Loughborough College to study Physical Education—a choice that followed naturally from his prowess in athletics. Michael indeed became a world-class athlete in track and field, competing most successfully in the triple jump. He became the team captain at Loughborough and was poised to compete in the 1964 Tokyo Olympics until he was sidelined by a torn hamstring. But athletics continued to stir Michael’s mind; the practical question of how to teach people motor skills in athletics eventually led him to ponder more theoretical questions about how skilled
movements are learned and controlled. Not surprisingly, Michael excelled academically at Loughborough, graduating with First Class Honors in 1963.

One evening toward the end of his time at Loughborough, over the course of a double-digit Guinness pub session lamenting the end of his athletic career, he was convinced by a track-and-field connection (a Professor of Biology at Birmingham University) to pursue graduate studies in the United States. Michael landed at Ohio State University where he earned a master’s degree in Physical Education in 1964. During his studies, Michael discovered that “as long as you pay your money, honey” you could take courses in almost any subject—one of many reasons for his oft-repeated exclamation “America, what a country!” He took a course on learning in the Psychology Department. His performance in the course tremendously impressed his instructor (and eventual mentor) Delos Wickens—so much so that upon learning Michael was planning to return to England, Wickens secured, right on the spot in a matter of minutes, a graduate teaching assistantship to support Michael’s training. So Michael continued his graduate studies in Experimental and Physiological Psychology and obtained his doctoral degree in 1967.

**Early Career**

Following his PhD, Michael accepted a faculty position at the University of Connecticut (UConn), where the lure of a higher salary and the opportunity to run his own research lab outweighed the possibility of a position at a prestigious institution back in England. (Had he known at the time that there was not a single pub in Storrs, Connecticut, things may have turned out differently.) Soon after, he also joined Haskins Laboratories in New Haven, Connecticut, a multidisciplinary research center that was world-renowned for pioneering work on speech and reading. He would remain at UConn for the entirety of his career, making a difference in the education, careers, and lives of innumerable undergraduates, graduate students, postdocs, faculty, visiting scholars, and even friends, family, and loved ones of those he impacted more directly. Figure 1 captures Michael giving the 2010 commencement address at UConn.

Michael’s scientific record includes seminal contributions in three distinct areas of research—cognitive/information-processing psychology, psychology of language (reading, in particular), and the ecological-dynamical approach to the study of perception and action. His early papers, beginning with his first published journal article in 1966 and continuing well into the late 1970s, explicitly adopted an information-processing perspective and focused on topics such as sensory memory, short-term memory, proactive interference, and masking. His acclaimed 1973 *Psychological Review* paper “On peripheral and central processes in vision: Inferences from an information processing analysis of masking with patterned stimuli” (Turvey, 1973) remains one of his most highly cited works, ranking presently as his sixth most-cited publication (Google Scholar: 1,214 citations, January, 2024). It led to Michael receiving an inaugural Distinguished Scientific Award for an Early Career Contribution to Psychology from the American Psychological Association. Soon, though, Michael would abandon this way of thinking about problems of perception and action.
After joining the ranks at Haskins Laboratories, Michael’s research interests expanded to include the psychology of reading. A great deal of this work was conducted with his long-time collaborator and friend from the University of Belgrade, George Lukatela. This work, too, explicitly adopted an information-processing approach. Unlike his early-career foray into cognitive psychology, Michael did not abandon this work later on, publishing on this topic well into the 2000s. Many of us found this “other side of Michael” puzzling, because he was so deeply committed to the ecological-dynamical approach. As Michael himself put it,

Once I was thoroughly ecological, my main motivation for continuing this kind of research was so that I could work with my dear friend George Lukatela . . . . But we didn’t try to reconcile the reading research with ecological notions. (We even joked that we should write a paper attacking ourselves.) (Szokolszky et al., 2022b, p. 193)

This quote speaks volumes about Michael. He cherished his friends and was so profoundly loyal that he was willing to adopt a theoretical viewpoint antithetical to the one he worked so hard to create—the ecological-dynamical study of perception-action.

It is his work on perception and action for which Michael is best known. His interest in this topic flowed from his interests in athletics and human performance. The ideas of Gibson made an early and lasting impression on him, but they needed to mature until he felt ready to conduct experimental research on such newly cast
problems. As a graduate student, Michael struggled to see how information processing psychology could explain skilled performance. While studying one night, he came across a chapter on perceptual psychology by James Gibson. From that point forward, his thinking was changing. He even wrote his doctoral exams from a Gibsonian perspective, despite his “day job” as an information-processing experimentalist. As Michael himself described it: “I’d already turned that corner a long time ago . . . at Ohio State. I’d already made my path. I knew where I was heading. I knew what I needed” (Turvey, 2016, p. 24).

It was during his sabbatical as a Guggenheim Fellow in 1973–1974 at the University of Sussex that Michael finally linked his nascent ecological views on perception with his long-standing interest in action. During this time, he discovered and immersed himself in the Russian literature on movement, published in the journal Biofizika, that was available in translation at the University of Sussex. First and foremost Bernstein’s writings, but also those of Feldman, Gelfand, Tsetlin, and Kots, engendered Michael’s unique merging of ideas of perception and action. Following Bernstein, he pressed that action is not a static prescription from the brain, but a consequence, constantly unfolding or becoming. Again following Bernstein, Michael recognized that the control of action was necessarily abstract—perceiving the letter A and writing the letter A have much in common, as there is an equivalence class of actions for writing A as there is one concept of A, an invariance that both share. Michael also astutely pointed out the core problem in understanding action, the degrees-of-freedom problem, dubbed “Bernstein’s problem.” The seeds for the ecological-dynamical theory of perception and action were set.

Michael began to champion this still skeleton of a theory in a series of theoretical and position papers and chapters that became the springboard for a radical rethinking of the scientific status of perception and action (e.g., Kugler et al., 1980; Turvey, 1977a, 1977b, Turvey et al., 1981; Turvey & Carello, 1981). At the same time, he started to convert the ideas into experiments to build an empirical footing for this emerging approach. A group of like-minded students, postdocs, and faculty arose at Haskins and at UConn, including Carol Fowler, Betty Tuller, Hollis Fitch, Peter Kugler, Scott Kelso, Elliot Saltzman, and many others. Their interactions, still mostly focused on speech production, made it possible that these unorthodox ideas started to gain ground.

The next big step was to seek a theoretical framework with sufficient generality that could provide the scaffolding for these new concepts. In the late 1970s, a new kind of physics started to emerge that offered exactly what was needed: The physics of self-organization (and its companion mathematical enterprise, nonlinear dynamics). Michael and his students and colleagues, including Peter Kugler and Scott Kelso, laid out their new insights in a pair of programmatic papers, both with the root title “On the Concept of Coordinative Structures as Dissipative Structures” (Kelso et al., 1980; Kugler et al., 1980). They underscored that both biological and nonbiological order of varied degrees of complexity are a posteriori facts, the lawful consequences of irreversible (dissipative) processes. These ideas were further extended by new experimental advances in the 1987 book, co-authored with Peter Kugler, Information, Natural Law and the Self-Assembly of Rhythmic Movement (Kugler & Turvey, 1987). As a side note, it was this book that stirred the mind of one of the authors (Sternad)
to leave her life in Germany behind and fully immerse herself into the study of rhythmic coordination as coupled oscillators that resonated with her experience of dance movements.

Following these ground-breaking conceptualizations, two decades of systematic and diligent experimental and modeling work would follow. New procedures and analytic methods were based upon advances in the burgeoning physics and mathematics of complexity, bringing animate and inanimate systems under the purview of natural law. A new wave of graduate students in the 1980s and 1990s solidified these advances in rigorous experiments coupled with modeling work. This research, with Richard C. Schmidt and Larry Rosenblum leading the way in shifting the focus from speech articulation to rhythmic limb movements, then grounded bodily movements, postural organization, and interpersonal coordination in the principles of self-organizing systems. Work on perception led to ecological optics, acoustics, and mechanics, that is, the patterns of mechanical forces that support the multiple achievements of haptic perception.

The CESPA Years

The UConn research enterprise quickly gained momentum, and that momentum was accelerated by the formal establishment of the Center for the Ecological Study of Perception and Action (CESPA) in 1987. Claudia Carello would serve as Director of CESPA from its inception until her retirement in 2014. But Claudia was much more than the Center’s director. First and foremost, she was Michael’s soulmate and steadfast partner in all realms of life. Together they successfully headed the center that became the home of innumerable graduate students.

Michael and Claudia oversaw two primary, sustained lines of inquiry at CESPA, in addition to concurrent research foci on optic flow and Bob Shaw’s intentional dynamics. One focused on perception by dynamic touch, and the other on coordination dynamics (respectively, funded by 25 and 19 consecutive years of National Science Foundation grants). The research on dynamic touch identified the inertia tensor as the basis for haptic perception of different object properties and haptic proprioception. The coordination dynamics work established a primacy of rhythmic movement, systematically exploring quantitative predictions of dynamic models of coordination. In the years just before and following his official retirement, many of the ideas that fueled the CESPA research program coalesced into a new enterprise aiming to elucidate the principles of physical intelligence—an approach to understanding the lawful, physical basis of intelligent behavior of all kinds of epistemic systems—human, animal, or otherwise, including nonliving systems (Turvey & Carello, 2012).

The CESPA years were extraordinarily prolific; many dozens of papers were published and many PhD degrees were obtained—the launch pad of many successful careers. Our efforts were often encouraged by Michael roaming the hallways by the graduate student offices and asking, “Made any discoveries today?” Sternad once overheard a colleague commenting (with unconcealed awe and astonishment) that during that period there was not a single issue of Journal of Experimental Psychology: Human Perception and Performance that did not have a paper by CESPA in it.
The intellectual climate at CESPA was reinforced by strong social bonds among the faculty and students. A primary mechanism for this was Sweet William’s Pub, an authentic British pub built by Michael and Claudia in the basement of their home to provide a gathering place for CESPA folks, visiting speakers, departmental colleagues, and friends from all walks of life, including their long-term landscaper Yves. The pub was named after a famous race horse (Michael’s father earned his living backing horses). Friday nights at Sweet William’s Pub were filled with exciting discussions of science and new ideas right into the wee hours of the morning. Perhaps the most “hard-core” pub attendee was Bob Shaw, Michael’s long-term colleague and friend, who was always full of inspirations and always ready to share them with a beer in hand (always a cellar-temperature Guinness for Bob). After spells at other institutions, Claire Michaels, one of Michael’s first PhDs, returned “home.” Later, Bruce Kay returned and became a core member of CESPA.

It is in those days that the two authors were graduate students (Sternad from 1989 to 1995 and Riley from 1995 to 1999), thoroughly infused by the spirit of CESPA. We would often come prepared to share our latest results and maneuver to talk one-on-one with Michael about our work as he tended the bar, pouring a Guinness, Boddington’s, or a (preferably local) pale ale and directing the (preferably pre-World War II) musical soundtrack for the evening. But Michael always took time to also talk about you. He wanted to know about your background and about your family. He would also regale us with captivating stories from his youth. Riley fondly (although fuzzily) remembers leaving one Saturday morning as the sun was rising, after the drinking had stopped and Michael had cooked some sausages for the remaining few of us while we all listened to the Rolling Stones. Those were incredibly special moments, and Michael and Claudia’s generosity in hosting these weekly gatherings was astounding.

While Michael’s home became more and more beautiful with Claudia’s secondary calling as interior designer, there was one invariant in the house: a cat (over the years, the nonbinary Daisy-Danny, Ralph, FloJo, or Coco). These family members needed care when Michael and Claudia were traveling to conferences. Sternad warmly remembers how she was frequently invited to house-sit with the one directive: Look after Ralph! We viewed it as a stroke of good fortune when we were chosen to cat-sit—an opportunity to escape our humble abodes for something more plush. There was the beautiful garden, the amazing library of all the books we wanted to read, and the hill with the uncountable trees that Michael loved so much.

Michael’s weekly lectures in the “Action course” and the “Perception course,” his two graduate classes, were the focus of the week for new graduate students. His 2-hr long presentations of material were inspiring and illuminating, and stretched each of us to realms of thought that we never knew existed. In perfect exposition, Michael laid out the philosophical foundations, methodological approaches, seminal experiments, and theoretical frameworks of both the classical perspectives on perception and action and the ecological-dynamical perspective. Those two hours every Wednesday evening were exhilarating and exhausting at the same time. At the end of class at 10:00 pm (during Sternad’s time at CESPA), we all went out to relax, socialize, and let ideas run free—Michael always leading the way. But we also had to be ready for Friday afternoon tutorials (student-led discussions of key readings followed by critical questioning) or the Socratic hour. There Michael
would ask each student a question that could come from any of several hundred pages of weekly readings, and the student had to respond and defend their answer to probing follow-up questions. While ultimately edifying, these meetings were also not free of sheer terror. But the challenging and rigorous proceedings prepared us incredibly well, and the sense of satisfaction and accomplishment you felt when you arrived at the correct answer outweighed the suffering. And if you did not quite arrive at the correct answer, you could count on Michael’s time at pub that night to go over the issue until you understood it.

Michael was incredibly dedicated to his students and always available to them in the lab, in his office, or at his home. When we had new data or an idea, we stormed into his office to be welcomed by his broad smile. Never would he turn us away since curious graduate students were the most important thing to him. Always the best example himself, he instilled curiosity, coupled with critical thinking and hard work. After our meetings, we always left highly motivated and inspired by even more questions and ideas. He would also spend many hours working with students on tasks such as preparing and practicing presentations for an upcoming defense, job interview, or conference talk. Each graduate student’s time in the PhD program concluded with a weekend (or more) stayed as guests at Michael and Claudia’s house, where for days and long nights we refined and finalized our dissertation document and defense presentation. Michael untiringly critiqued the writing, pointed out small and large inconsistencies in our logic and synthesis, and sat through rehearsal after rehearsal to ensure each word was carefully chosen and artfully delivered. Michael always pushed students to their limit, but never beyond. The doctoral defense became an event to look forward to—a celebration of years of hard work, excitement, and the start of more scientific achievement ahead.

As PhD mentors ourselves, we now wonder how Michael could have possibly carved out so much of his time for so many students. It was hard work, but Michael relished it. It surprised absolutely none of his former students that Michael was selected to receive the inaugural Mentor Award from the Association for Psychological Science in 2013. In his acceptance speech at the award ceremony, Michael remarked that the “good side” of the very hard work of training so many PhDs was that “For any city in America, it is likely, when you stop by, there’s someone who will buy you a beer” (Turvey, 2013).

Michael received numerous other awards throughout his career, including the Guggenheim Fellowship that supported his pivotal sabbatical at Sussex, the James McKeen Cattell Fellowship, honorary doctorates from Vrije Universiteit Amsterdam and Florida Atlantic University, a UConn Board of Trustees’ Distinguished Professorship, and election as a Fellow of the Society for Experimental Psychologists, as well as that society’s Lifetime Achievement Award. Michael also received the 2009 Bernstein Prize in Motor Control from the International Society of Motor Control (ISMC). Michael served as its President from 2007 to 2011 and was a member of the ISMC Board of Directors for the entirety of the society’s existence, playing vital roles in the establishment and sustenance of the ISMC. He also served for many years on the Editorial Board of this journal, which is the official journal of the ISMC.

The 2004 Ig Nobel Prize in Physics may be the most striking award bestowed upon Michael, together with his former PhD student and now Professor Ramesh
Balasubramaniam. The Ig Nobel prize, as described by its founder Marc Abrahams, highlights research achievements that make people laugh, then think. Ramesh and Michael were recognized for their Biological Cybernetics paper reporting Ramesh’s dissertation research on the multisegmental coordination dynamics of a complex motor behavior—hula hooping (Balasubramaniam & Turvey, 2004). The awards are granted at a ceremony at Harvard, with actual Nobel laureates (in lab coats) handing out the prizes to the Ig Nobel recipients. The hilariously absurd award ceremony that Michael clearly enjoyed very much can be viewed on YouTube, with the Physics prize award starting at around 37:15 (Improbable Research, 2012).

Concluding Reflections

Michael’s greatest virtue may have been his belief in others. His default assumptions were that you were capable, that you had something important and interesting to say, that the potential for excellence was within you, and that you could make an impact. His approach as a research mentor was to provide high-level guidance on a project—he would identify and present a problem, describe why it was important, point us to the work of others on it, and, usually, provide a promising new approach. From that point on, the student was in charge. As we explored a new approach or angle on the problem, Michael wanted to learn about it from us. As new students, the fact that such a distinguished scientist placed so much trust and belief in us was almost incomprehensible. It gave us such confidence. The freedom he gave us allowed us to flourish. In describing the ecological psychology graduate program at UConn, Claudia Carello said “It had the creativity to inspire genius and the patience to encourage growth” (Szokolszky et al., 2022a, p. 230). The two authors fully support this statement and are most surely joined by numerous other CESPA progeny.

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