Hello, friends and colleagues. Thank you very much for bestowing on me the title Doctor Honoris Causa of the Fundación Universitaria Konrad Lorenz. I have been active in research on conditioning and learning for a long time, 55 years to be exact. During that long career I have received many forms of recognition and a number of major awards. But, none is more significant and none will mean more to me personally than this honorary doctoral degree. I am especially grateful for being named Doctor Honoris Cause here at the Fundación Universitaria Konrad Lorenz because this University was named after the pioneering ethologist Konrad Lorenz. One of the major themes of my research has been an effort to integrate the study of conditioning and learning with the field of ethology. The doctoral degree that you have bestowed on me recognizes the significance of my research on an ethological approach to the study of learning. I am pleased that you recognized the importance of this research and I selected me to receive this recognition.

If you had asked me to help you decide who is deserving of this honor from your prestigious institution, I would have suggested a number of other people. It would not have occurred to me that I should receive this honor myself. I am humbled and grateful that you have judged me to be worthy of this great honor. Thank you very much. I would also like to extend a special thank you to Doctor Aldo Hernández Barrios, Rector of Fundación Universitaria Konrad Lorenz, Sonia Fajardo Forero, President of the Foundation, and Dra. Vanessa Sánchez Mendoza, Vicerrectora Académica.

It is wonderful to be here, among colleagues and friends, new and old. This is my third visit to the Fundación Universitaria Konrad Lorenz. Each time that I visited, I have been impressed with the growth and development of the University, the warm hospitality of all of the students and the faculty, and the great enthusiasm and eagerness of everyone associated with the University. This is a wonderful place and marvelous environment for professional and personal growth.

I will always remember today as one of the highlights of my life. As was the case for many of the previous major events in my life, this was unexpected and not the result of a long-range plan. I did not work all these years so that I would receive an honorary doctoral degree. Organizing one's life with such goals in mind is certain to lead to disappointment. I organized my life around the goal of making important contributions to science and advancing knowledge as best I could. What happened along the way depended on my efforts as well as many major events that were beyond my control.

Today I think of myself as a scientist, an educator, and a musician. If I were asked to list these in the order of their relative importance, I would list them in that order: scientist, educator, and musician. But, that is not the order in which I developed expertise in these areas. It is also not how I thought of myself during most of my adult life. In particularly, only in recent years have I come to think of my contributions as teacher to be one of my major

legacies. I never intended to be a prominent educator. That legacy just evolved almost as if by chance.

I was born in Budapest, Hungary. All of my relatives on my father's side died during World War II. The same was true of cousins and uncles and aunts on my mother's side, but I knew my maternal grandparents. My grandfather was a gentle and kind man, and he loved playing the violin. After my siblings and I were born, he took pride in teaching us to play the violin. Hungary at that time was under communist rule, in the Soviet sphere of influence that included much of eastern Europe. There was a lot of political tension, and in 1956 Hungarians revolved against Soviet domination. The revolution was successful but the success lasted just a couple of weeks. Russian tanks then surrounded Budapest, and the revolution was crushed. In all of the chaos and turmoil, my parents decided that we should leave Hungary. I was nine years old at the time. I was told that we had to leave home perhaps never to return, but that I could take whatever I wanted that would fit into my backpack. My brother and I both elected to take our violins. My sister left her violin behind.

We ended up in Austria and then Switzerland. After that, we received permission to enter the United States and moved into an apartment in New York city. I did not know English. Many of my schoolmates were from Puerto Rico and they did not know English either. If I had learned Spanish from them, I could give this speech in Spanish. But, I was more concerned with learning English.

Riding the bus in New York one day, my mother looked out the window and saw a building that was called the Juilliard School of Music. She got off the bus and inquired whether her sons could sign up for music lessons at Juilliard. After a brief audition, my brother and I ended up in the preparatory division of the Juilliard School of Music, not knowing that this was one of the most prestigious music conservatories in the world. We spent six years at Juilliard. We learned a lot but neither of us ended up becoming professional musicians. Our parents were artists and were concerned that is was very difficult for musicians to make a living. Given their concerns, I ended up becoming an experimental psychologist and my brother became a physician.

My choice of psychology over music came during my junior year in high school. I was faced with two incredibly special opportunities. One was a scholarship to the Malboro Music Festival in Vermont, which was led by some of the best musicians in the world, including Pablo Casals. The other option was to attend the Behavior Science Institute, which provided an introduction to the experimental analysis of behavior. The Behavior Science Institute had visiting speakers that included Murray Sidman, Nathan Azrin, and Jack Michael. These people were also the best of the best, but in Skinnerian behaviorism rather than classical music. I elected to go to the Behavior Science Institute, and that choice set me on the path that turned me into the scientist and teacher I am today.

I have often revisited the choice between the Malboro Music Festival and the Behavior Science Institute. Few people have such incredible opportunities to select between. I did

not appreciate at the time how special these opportunities were. I knew the world of classical music better than the world of behavior science. In fact, I did not know where studying behavior science would take me. I knew that it would take me away from music, but I didn't know for how long and whether I would ever regret having chosen that path. I try not to dwell on possible regrets. We can only live life forward and life does not provide do-overs. Therefore, instead of dwelling on regret, I have tried to explore ways in which being among world-renowned musicians at Juilliard made me a better scientist. In fact, I wrote a brief essay on that subject a few years ago.

The Behavior Science Institute was a summer science program for high school students funded by the National Science Foundation of the USA. After attending the program as a student, I returned for the following five summers as a member of the staff. I looked after the students in the dormitories, attended the visiting lectures, and taught some of the basic classes. During the course of those summers, I got to meet and listen to the work of the leaders of the emerging field of applied behavior analysis. I also got to know major figures in the experimental analysis of behavior. When it came to select a Ph.D. program to continue my education, I considered applied behavior analysis as an option but at the end I decided against that and went into pure science instead.

My decision to reject applied behavior analysis was based on my discomfort with their approach to science. That may seem like a strange thing to say, since the emphasis in applied behavior analysis is to base applications of operant conditioning on a firm empirical or scientific foundation. I am highly sympathetic to that goal. But, I was not comfortable with the rather rigid conceptual system that became the foundation of applied behavior analysis. I talked about some of that in my first lecture during this visit, when I talked about what B. F. Skinner got right and what he got wrong about conditioning and learning. There were a number of things that Skinner got wrong, and that is OK. All scientists get some things wrong. The problem with Skinner is that he was unwilling to change his mind in the face of contrary evidence. Skinner's views did not change after publication of his book *Science and Human Behavior* in 1953.

I was at Western Michigan University during this period. Western Michigan University was and continues to be at the forefront of applied behavior analysis. The major professional organization in this field, the Association for Behavior Analysis International, was founded by faculty and staff from Western Michigan University. One of the major professors at Western Michigan was Dick Malott. Dick Malott said something while I was at Western Michigan that had a significant impact on my career choices. He said that we should stop doing basic research on behavior and just concentrate on applications. He argued that we knew enough about the basic science of behavior and did not need to study that any further. That did not sound to me like a serious scientist.

Malott's claim that we no longer needed to pursue basic research convinced me that I should not go into applied behavior analysis. When it came time for me to select a Ph.D. training program, I decided to go to a program that concentrated on basic science. That

goal landed me at McMaster University in Canada, with Shepard Siegel as my dissertation advisor. Siegel was a specialist in Pavlovian conditioning, basing his thinking and research on the work on eastern European scholar who had continued Pavlov's investigations. I followed Siegel's lead but took the research in a different direction, so much so that to this day people are surprised when I tell them that Siegel was my dissertation advisor.

You might well ask why I went to study at McMaster University. I knew little about the University and knew nothing about Shepard Siegel. I went to McMaster on the recommendation of Ron Hutchinson who was a dedicated scientist at Western Michigan University studying aggression in squirrel monkeys. Earlier in his career, he studied aversive control with Nathan Azrin, whose name is probably more familiar to people in the experimental analysis of behavior community. I trusted Hutchinson's judgement and took his advice that I would be well served by getting my Ph.D. training at McMaster. As it turns out, he was entirely correct about that. Incidentally, Ronald Hutchinson received a Golden Fleece Award from US Senator Proxmire who thought his research was not serious science and not worthy of being funded by the government. I got the same Golden Fleece Award some time later for my research on sexual conditioning. Fortunately, the scientific community had a different opinion of my research than Senator Proxmire.

McMaster University was part of a network of scientists working to re-define the field of conditioning and learning. The blocking effect was discovered at McMaster University, as was the phenomenon of sign tracking. Much of the early work on conditioning of drug responses took place in Siegel's lab at McMaster. Being a graduate student there was exciting. Vising speakers included major figures in biopsychology and the new field of ethology. As you may know, the Nobel Prize in Medicine in 1973 was awarded to three pioneering ethologists, Konrad Lorenz, Nikolaas Tinbergen, and Karl von Frisch. Of the three, Niko Tinbergen visited McMaster University and gave a talk about his work with sea gulls.

Listening to Tinbergen's talk made it clear to me that ethologists or scientists studying behavior from an evolutionary perspective are interested in three forms of behavior: feeding, defensive behavior, and sexual behavior. Of these three areas, feeding and defensive or aversively controlled behavior were also studied by experimental psychologists interested in learning. However, learning psychologists were not studying sexual behavior. I made a note to myself that at some point I should develop a research program on how learning is involved in sexual behavior. I did not get a chance to start on that line of work until about 10 years after I became a professor at the University of Texas. As some of you know, sexual conditioning became one my most extensive lines of research. In fact, some of the experiments that we did about 20 years into the sexual learning project tested ideas that I first thought about as a graduate student.

Although I had the good fortune of meeting Niko Tinbergen, I never met or saw Konrad Lorenz. He lived for about 15 years after I got my Ph.D. but by that point, he did not travel much. I did hear a great story about him. Evidently, he was fluent in English. At various

international meetings concerned with ethology, some of the speakers presented their work in German. Whenever this occurred, Lorenz would provide a translation of the speech in English. On one occasion, the speaker presented his work in English. Not realizing that all the English speakers in the audience had understood the presentation, Lorenz got up and provided a summary of the presentation in English. The story goes that Lorenz's summary was much more elegantly presented than the original speaker's version.

There was considerable tension between ethologists and experimental psychologists during the middle of the twentieth century. Ethologists did not respect the work of experimental psychologists because the laboratory methods used by psychologist were artificial. In contrast, ethologists studied behavior in the wild. One of my professional goals has been to clarify why experimental psychologists studied learning in the laboratory. My argument has been that learning cannot be studied with observational techniques or in field studies because field studies do not provide proper control conditions against which to measure a learning effect. I have been arguing this point for about 40 years in all of the textbooks I have written, but I don't have much confidence or evidence that I have succeeded in changing how ethologists view the study of learning.

Another issue raised by ethologists concerns the artificial or arbitrary nature of the stimuli that are used in conditioning experiments conducted by psychologists. In my laboratory, we have used both arbitrary and naturalistic stimuli in our studies of sexual conditioning, and we have examined differences in learning as a function of this variable. I think we have extended the study of learning in very interesting ways in this line of work, but again, I am not sure that ethologist have taken much notice.

A more fundamental argument that I have made in recent years is that much of Pavlovian conditioning outside the laboratory occurs as a natural phenomenon, not forced by experimental manipulations or artificial laboratory procedures. I have pointed out in several publications that even the original laboratory experiments that demonstrated salivary conditioning in Pavlov's laboratory involved a naturalistic learning procedure that involves learning to link or associate various stimulus features of a naturally occurring object. I am convinced that Pavlovian conditioning is as much of a natural phenomenon as anything that ethologists study in the field.

My development as a scientist was a deliberate and intentional effort. That is not the case with how I became a prominent teacher. In fact, I never intending to become a prominent teacher. My prominence as a teacher started with the first edition of my textbook, *The Principles of Learning and Behavior*. This book was originally published in 1982 and has been used in classrooms around the world ever since. That is a period of about 40 years, during which the book has informed thousands of students through its various editions and translations. My smaller book, *The Essentials of Conditioning and Learning*, has been available only for about 30 years but has also reached many students in many parts of the world, including Turkey and Iran. I never anticipated that my writings would reach such a broad audience for so many years.

I did not start by writing a textbook. I started by preparing a study guide for someone else's learning book. I tried to get that study guide published but my proposal was rejected. Around the same time, a major publisher approached me to see if I might be interested in writing a learning book. I agreed to try, more as an adventure than as a career goal. I had no idea how difficult it would be to write a book, whether anyone would find the book useful, or whether it would be of interested to students outside the United States. One thing led to another, and here I am 40 years later having provided instructional materials to thousands of students. One of the more enjoyable aspects of being a textbook author is that I have gotten emails from students from places like Nepal, Singapore, and Iran.

During the COVID epidemic, universities shut down in-person classes and instruction shifted on-line. To help students using my books, I prepared a series of short videos on various topics and made these available without charge on a YouTube channel called "Learning and Behavior: Key Concepts." There are now about 40 of these videos and they have turned out to be very popular. The videos have attracted more than 90,000 views and 2,300 subscribers among students in 30 different countries around the world.

My primary professional goal was to become a great scientist. I am not a particularly good classroom teacher. I never thought that one of my most important professional contributions would be as a teacher of conditioning and learning to students around the world. Writing successive editions of my textbooks and preparing the videos has been a lot of work. Because I want my books to reflect newly emerging areas of inquiry and new directions in basic research, I have spent a lot of time reading research that other scientists in conditioning and learning are doing. The books have forced me to become a much better scholar than I might have been otherwise. As I look back on the half century that I have spent as a professor, the books and the more recent videos have turned out to be some of my most important contributions to the field of psychology. This is a major unplanned outcome.

At the outset, I noted that I think of myself as a scientist, as a teacher, and as a musician. When I decided to become an experimental psychologist, being a scientist and being a musician seemed to be incompatible activities. I was busy in the laboratory and busy trying to establish my career as a scientist. I did not have time to play my instrument, and put it away for about 35 years. I got back into music when the University of Texas established a new freshman course that encouraged faculty to teach something that was interdisciplinary. I offered to teach a class on Music & Psychology. Surely that would satisfy the call for a class that would explore connections between very different disciplines. I figured who best to teach such a class than someone like me who was trained at one of the best music conservatories in the world before becoming a prominent scientist. The University accepted my proposal and I have been teaching this class once a year for more than 10 years. Teaching this class has been a wonderful personal experience because it helped to bring together two very important parts of my life that previously I had could not integrate.

In addition to teaching the class, I regularly play in two different community orchestras and do occasional solo performances in libraries, museums, and other public places. Re-learning to play the viola after a 35-year hiatus was a slow process. I have made progress but I don't play nearly as well as I did when I was a teenager at Juilliard. Getting back to playing music and teaching the Music & Psychology class has been a personally healing process for me and makes me comfortable at this point in describing myself as a scientist, a teacher, and a musician.

Looking back on it all, I realize that I have been blessed with many wonderful opportunities and choices. I often did not know what these opportunities would bring or what would be the best choices to make. Many of the critical choice points required stepping into the unknown, putting a few things into my backpack and leaving what was familiar forever behind. I do not fully understand what brought me to the moment and the ceremony that we are enjoying here today. But, there is no other place where I would rather be.

My students often express dissatisfaction with the fact that I don't provide detailed instructions that explain exactly how to complete an assignment or project. My answer is that "life does not come with instructions." You have to figure things out on your own. You get instructions if you are hired at an entry-level job in a large company. Someone hired in a McDonald's restaurant gets detailed instructions on how to make French fries, how long to leave the French fries in the vat of hot oil before pulling them out. You are told how hot the oil has to be, and the importance of not pulling the potatoes out too soon or leaving them in too long. In contrast to all of the training a new employee receives, the president of the company is given just one instruction, make a profit. How they accomplish that is something they have to figure out. When I give my students detailed instructions, I am just teaching them how to follow instructions. If there is a lesson to learn from all of the twists and turns of my personal history, it is that "Life does not come with instructions."

Thank you again for bestowing on me the title Doctor Honoris Causa of the Fundación Universitaria Konrad Lorenz. I greatly appreciate it and will treasure this event for the rest of my life. My best wishes and blessings to everyone.