

PERSPECTIVES

EDITOR'S NOTE: This contribution to our "Perspectives" section is an unusual yet significant one that celebrates an exceptional pair of educators and at the same time explores deep insights into education. It is a speech, given at the University of South Carolina, that honours an Emeritus Professor of the McGill Faculty of Education, Professor Eigil Pedersen. At the same time it pays tribute to an extraordinary Grade One teacher, "Miss A." who was the subject of a famous study by Professor Pedersen. We are delighted to have been given permission by Daniel Fallon of the Carnegie Corporation in the United States to publish his speech in this form.

NOTE: Cette contribution à la section "Perspectives" de notre revue est inhabituelle mais importante. Elle rend, en effet, hommage à la fois à deux éducateurs et nous fait jeter un regard profond sur l'éducation. Il s'agit d'un discours en l'honneur d'Eigil Pedersen, professeur émérite de la Faculté des Sciences de l'éducation de l'Université McGill. On y célèbre une enseignante exceptionnelle de 1^{ère} année, Mlle A., qui fut un sujet d'étude du Professeur Pedersen. Nous sommes ravis d'avoir reçu de Daniel Fallon de la Carnegie Corporation aux États-Unis la permission de la publier sous cette forme.

THE AMAZING MISS A AND WHY WE SHOULD CARE ABOUT HER

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I know that my remarks are supposed to provide a summary, of sorts, of your activities today. I deduce also that good taste requires that I not work you too hard. So I hope you'll extend to me your confidence that I do understand the rules, even as I tell you now that what I'm going to do is conduct an academic seminar. I'm going to describe a major research study in a leading research journal. We can draw several lessons from this exercise, and there will be time for you to ask questions when we are done. Let me proceed by describing the article.

As presidents of independent-sector colleges you'll appreciate that the senior author of the article came from a background of poverty and perse-

vered. He obtained a teaching certificate at an independent-sector junior college, and later earned his B.A. degree during the evenings and summers at an independent-sector four-year comprehensive institution, while serving as a full-time teacher in an elementary school. It was obviously in these places that he learned the problem-solving skills that proved valuable to him later in life. Ultimately he earned a doctorate at Harvard, and then took up a faculty appointment at McGill University where he later became Vice-Principal (Academic), serving in that position for nine years. Had he been at an American university, his title would likely have been Provost and Academic Vice President. Being blessed with high intelligence, he chose then not to pursue a presidency, but to return to the faculty, where he continued his research and teaching.

Professor Eigil Pedersen is the senior author of the lead article in the *Harvard Educational Review* from the issue of February 1978. He had already been Vice-Principal for six years at the time the article appeared, so it is all the more remarkable for having been completed while the author was laden with heavy administrative responsibility. Although the editors of the journal saw the obvious significance of the study, it was nonetheless largely ignored because it ran against the prevailing orthodoxy of the time. A few discerning scholars, however, were impressed with the elegance of its writing and the exceptional genius of its scholarship. Therefore, since its appearance it has been assigned occasionally in graduate seminars along with other articles, which is how I found it last year. Current cutting-edge research has now validated Pedersen's essential findings, making his contribution of high importance today, more than 23 years after its publication.

Pedersen and his co-authors focus on a particular elementary school as the subject of their research. Let me read you the description of the school as it appears in the article.

"Our research setting, the Ray School (a fictitious name), was located in a large northeastern city in North America. Situated in one of the poorest areas of the city, the fifty-year old building that housed its students stood out like a fortress in the streets. During the period when the subjects attended Ray, freight terminals of a large railway, as well as a steel-fabrication plant, were located in its immediate neighborhood, and most of the pupils had to cross at least one major traffic artery to get to the school. Across the street from the front entrance, the buildings of a brothel, thinly disguised as residences, blocked the view of a junkyard. Crowded tenement houses were interspersed with an automobile repair shop, a dry-cleaning plant, and an armature-wiring factory. The asphalt schoolyard was enclosed by a chain-link fence and the ground-floor windows were protected with vertical iron bars."

Now, you might ask how a researcher could come up with such a vivid and arresting description. It turns out that Professor Pedersen was himself a pupil

in that school. As he points out, the research is unusual in many ways, not the least of which is that the senior author had a relationship with the setting since the age of four.

The research was conducted on subjects who were pupils in the school at various times over a 25-year period, which I've deduced began some time in the late 1930's. Although Ray School was located in Canada, where there was no policy of "separate but equal" segregation, most Montrealers of African ancestry lived in its district; hence, in Ray School, about one third of the 500 pupils there were African-Canadians. The school's reputation was as the most difficult school among the 80 elementary English-language schools in Montreal. Group IQ tests were administered to all schools in the system in the third and sixth grades, and year after year, Ray School students consistently had the lowest mean IQ in the city. Physical discipline was a common pedagogical tool, resulting in about 500 strappings of pupils on average each year. Less than 50% of the pupils on average who graduated from the Ray School went on to complete the first year of high school, then 8th grade in Montreal, and less than 10% of the pupils who attended Ray actually graduated from high school. As you might imagine, few teachers wanted to work at the Ray school and the turnover among the teaching staff was high. Of course, there were also some teachers who had settled in to serve out their careers there.

Professor Pedersen was among those who dropped out of high school, serving a five-year apprenticeship to a silversmith. He later earned an equivalency credential at a night school, then attended McGill's School for Teachers where he obtained a teaching certificate, and returned to the Ray School as a fifth-grade teacher. He and another teacher taught two fifth-grade classes together. Between them they shared 75 pupils during his first year of teaching. He came to know these children well and followed them as they grew up. He was disheartened to see how many failed their first year of high school, some even after winning scholarships, and how few completed high school. He thought if he could interview graduates of the Ray school as young adults they might be able to give him valuable information about their experience as elementary school pupils, and this might help him devise more effective teaching strategies at the school. So, he began reviewing the permanent record cards of the former pupils, looking for addresses to try and locate the students. But something unusual caught his eye.

There appeared to be many very dramatic shifts in IQ scores between the administration in the third grade and the one in sixth grade. Of course, he had learned in college that IQ scores are supposed to be stable, but some of these changes were dramatic. The largest he saw was of a girl whose IQ was 93 in third grade and 126 in sixth grade. That led him to design an elegant study to examine the influence of school characteristics on IQ change.

Pedersen and his colleagues conducted several studies. In the final one they chose at random three groups of equal size, which differed in that one group was selected from those pupils showing a large mean IQ increase, another from those showing no change, and the third from those showing a large mean IQ decrease.

You should read this wonderful piece of research yourself to see all of the interesting findings the authors were able to tease from their data. Intelligent researchers, however, know how to look at evidence, and to shift from quantitative to qualitative analysis when appropriate. Even more importantly, a good researcher understands that sometimes when you see something interesting you just have to drop everything and look at it, even if it takes you in a different direction. That is what happened to Pedersen. His research methods cleverly made wonderful use of permanent record cards to gain estimates of such concepts as self-esteem, reinforcement delivered by teachers, self-fulfilling prophecies and many other phenomena. His primary dependent variable was IQ change between grades three and six. Along the way, he wondered whether the academic achievement of pupils in the first year of schooling was an indicator of later IQ scores, and IQ change. So, he decided to look at how the pupils performed in the first grade.

There were three first-grade teachers at the Ray School who were permanently employed throughout the period when the pupil records were sampled. They are presented in the research paper as Miss A, Miss B, and Miss C. Then there were many other first-grade teachers who stayed for only a few years. They are presented in aggregate form as "Others." Pedersen was surprised to see distinct differences between the three permanent teachers, compared to each other, and to the random variation represented by the aggregate others.

Miss A had taught a high proportion of pupils who showed an increase in IQ score between the third and sixth grade, and it made no difference whether the pupils were male or female. Miss C had taught a high proportion of pupils who showed a decrease in IQ score, and it made no difference whether they were male or female. Miss B had taught a high proportion of female pupils who showed an increase in IQ score, and a high proportion of male students who showed a decrease in IQ score. Further inquiry revealed that Miss B clearly favored girls, seating them in the first four rows in her classroom, while seating the boys in the rear.

As interesting as these findings are, they seemed a sideline at the time, and the study proceeded to its most ambitious phase. Here the researchers managed to locate 60 adults, by then in their early thirties, who had attended the Ray School as children. These adults were interviewed in depth and their contemporary life was then compared with their elementary school records. One of the most valuable and interesting dependent vari-

ables Pedersen and his colleagues created was a measure of "adult status." Six different factors were carefully placed into categories, from low to high. The factors were: the highest grade of high school completed; the amount of rent they were paying for their living quarters; the type of housing they occupied; the condition of the housing; their personal appearance during the interview; and, finally, their occupational status. So if you scored high on each of these six factors, you would have earned a high adult status score.

To give you an idea of how this was done, consider occupational status. Each interviewer wrote down the subject's occupation and placed it on a card. These ranged from "unemployed, has never worked," to "professor of sociology at a junior college." Two experts in job classification, otherwise unconnected with the study, then sorted these cards into ranks from highest to lowest occupational prestige, ending with five ranks. The agreement between the two experts was very high, and where differences occurred they were on the margin and easy to reconcile.

Once all six factors had been classified, they were aggregated into one composite "adult status" score, which ranged from one to nine. A score of one meant a very low adult status, and a score of nine meant a very high adult status. These scores were then also collected for analytical convenience into three categories: low, medium, or high.

Now, remember that the authors were studying IQ change between third and sixth grade, and they were looking at many different variables. But one simple tabulation was so stunning it caused them to stop and look at their data differently. By now, you have probably guessed what it was. It was the cross tabulation of "adult status" with first-grade teacher.

The mean adult status score for the aggregate of transient first-grade teachers on the nine-point scale was 4.6. (That is, of course, right in the middle between one and nine, and thus an average adult status.) For Miss C, it was 4.3. For Miss B, it was 4.8. And for Miss A, it was 7.0. Even more remarkable were the results when considered simply by high, medium, or low adult status. For all other teachers together, only 29% achieved high status as adults, and almost 40% were classified as low adult status. For Miss A, however, an astonishing 64% of her former pupils now possessed high adult status, and she was unique in recording 0% among low status adults. These findings sent the researchers hurrying back to their protocols. They were able to rule out alternative hypotheses, thereby strengthening the proposition that it was the quality of Miss A's first-grade teaching that had produced these remarkable results among adults. For example, Miss A did not receive disproportionately better students assigned to her than other teachers. Her pupils also did not differ significantly from those of other teachers in terms of father's occupational status, number of children in the family, or whether the family had ever been on welfare.

Looking at interview data, the researchers discovered that the adults had difficulty remembering who their first-grade teachers were. For all of the adults whose first-grade teachers were other than Miss A, 31% could not remember who their teacher had been, and others misremembered. Fewer than half of these adults identified their first-grade teacher correctly. But every single adult who had been a pupil in Miss A's class remembered that fact correctly. Other subjects rated their first-grade teachers as good or excellent less than one-third of the time. More than 75% of Miss A's former pupils rated her as good or excellent. On effort, 25% of the former pupils of other teachers gave them an A, but 71% of Miss A's former pupils gave her an A for effort.

It was not possible to interview Miss A at the time of the study, since she was then in the final stages of a terminal illness. But many interviews with former pupils and colleagues did reveal some characteristics of her 34 years of teaching at the Ray School. It was reported that she never lost her temper or resorted to physical restraint, and showed obvious affection for the children. She generated many lessons on the importance of schooling and why students should stick to it. She gave extra hours to pupils who were slow learners. She believed every pupil could learn. That surely explains the one characteristic that emerged as a steady pattern, illustrated best by the comment of one respondent, "it did not matter what background or abilities the beginning pupil had; there was no way that the pupil was not going to read by the end of grade one."

Professor Pedersen faced a difficult challenge in presenting his research in the mid 1970's. The famous report on equality of education prepared by a team led by the eminent sociologist James Coleman had appeared in 1966, and was followed by a book-length treatise on inequality by a team led by Christopher Jencks at Harvard University in 1972. Professor Pedersen's doctorate had been earned in sociology of education. Coleman and Jencks were giants in his field. Their meticulous analysis of massive amounts of data had led them to the conclusion that gains in student achievement were to be found, not inside the school but outside of it, in poverty, socioeconomic status, and parental structure. The orthodoxy established by these reports, in fact, has dominated our thinking for more than a generation. We are only now, with the benefit of new kinds of analyses of widespread testing data, beginning to break free from the improper conclusions drawn from the data presented by researchers such as Coleman and Jencks.

Pedersen presented his conclusions cautiously. He writes, "We share many points of agreement with Coleman and Jencks. . . . We do not dispute the fact that, regardless of teacher quality, children from privileged background are more likely to achieve high adult status than children from disadvantaged backgrounds. But our research does show that the teacher can make

a difference, not only to pupils' lives in schools but to their future as well." Pedersen went on to point out that the work of Coleman and Jencks did not look longitudinally at achievement by individual students, but instead treated data as cross sections, by aggregating data on different individuals. This is a standard form of research, and it can yield useful data for some purposes, but it obscures the observation of individuals and makes practically impossible the detection of differences in quality of teaching, good or bad. Having thus modestly criticized Coleman and Jencks, Professor Pedersen observes, "By drawing attention to their oversights, we are not attempting to belittle the contributions of these researchers but, rather, we are making a plea that an important element of social life such as education should be studied with a broad range of hypotheses and methodologies." In fact, by looking at the performance of the same individual students on comparable examinations at different points of time, Pedersen was himself a pioneer in a powerful method that is now being called "Value-added assessment."

In the past five years, the world of research in education has been startled by extraordinary data emerging from studies of student achievement that link individual student achievement gains with specific teachers. William Sanders, analyzing Tennessee data, is by now the best known of the researchers in this new paradigm. He has shown persuasively that pupils matched by ability at the beginning of the third grade can be separated at the end of the fifth grade by as many as 50 percentile points, based exclusively on the quality of the teaching they received in the intervening years. John Kain, analyzing data in Texas, has shown that the proportion of the variance in student achievement gain scores accounted for by teacher quality is twenty times greater than that from any other variable, including class size and socioeconomic status. If ever there was a paradigm shift in social science, we are seeing it now. Today, because of value-added assessment studies, there is widespread consensus that the single most important factor in determining student performance is the quality of the teacher.

The profession of teaching has suffered too much from anecdotes. One of the great contributions of scholars such as Pedersen, Sanders, and Kain is that they make clear that excellent teaching is going on all of the time. It is not limited to a few angels, unlike normal human beings, who wander among us doing miracles. This research shows that the miracle makers, such as Jaime Escalante, who was the subject of the widely-praised movie, *Stand and Deliver*, are everywhere. They are even in desperate locations like Garfield High School, in the case of Escalante, or the Ray School, in the case of Miss A.

The new paradigm also puts a spotlight squarely on teacher education programs. We need to ensure that we are doing everything we can to teach teacher candidates how to gain confidence in the quality of their teaching,

and how to develop their skills to continue to improve their teaching throughout their careers. Although research-based knowledge of the essential skills for excellent teaching is incomplete, Miss A does tell us that helping children acquire reading skills is important. You will remember that Miss A's pupils were disproportionately represented among those who showed large increases in IQ scores between the third and sixth grades. We don't know exactly what the reason is for this, but we do know that you are unlikely to do well on an IQ test if you cannot read the item, or if by the time you reach grade six you really don't care anymore. Reading is fundamental to achievement in school.

When, in 1993, Anthony J. Alvarado assumed the superintendency of District 2 in Manhattan, one of more than 30 community school districts in New York City, the student achievement scores of pupils in the schools were low. He reallocated resources to provide extensive professional development for teachers, focusing on hiring what many called "literacy coaches." These were teaching specialists who worked with practicing teachers, showing them the best methods for teaching, including the teaching of reading. Some teachers reported that indeed they did not know how to teach reading effectively and were enthused about receiving resources that helped them perform professionally. It turns out that if you provide instruction to pupils in how to read, they learn to read. The result was that within three years of the beginning of Superintendent Alvarado's intensive assistance to teachers program, test scores rose dramatically, ranging from increases of 30% to more than 50%. Test scores rose at every school in the district, at every grade level, and in every ethnic group.

With the benefit of extensive rigorous research, we now know effective techniques for teaching young children how to read for the first time. We are learning, however, that the nature of reading changes dramatically with development. A child who reads well in the second grade will not know how to read well in the fifth grade unless supplemental instruction in how to read more complex material is provided. The need to teach reading apparently continues through high school. On the most recent National Assessment of Educational Progress, more than 40% of fourth graders scored below basic proficiency in overall reading skills. Similar assessments reveal that only about one-third of 10th graders are reading proficiently, and only about 40% of high school seniors can read proficiently. Some urban school districts are now beginning to focus on helping their teachers to teach reading at all levels of school, and in all subjects. Some emerging research suggests that the principal reason for alienation from schooling among high school students results from their not being able to read the assignments given to them.

Carnegie Corporation of New York has undertaken a review of its philanthropic initiatives in education to focus on ways to build literacy and

numeracy at all ages, from preschool through higher education. The Education Division has also launched a major initiative to stimulate excellence in teacher education. The project is built around three major design principles: developing a culture of respect for evidence and for sound research; working closely with faculty from the disciplines of the arts and sciences on areas related to teaching; and treating teaching as an academically taught clinical practice profession.

Of course, it would be overreaching to attribute our current reawakening to Professor Pedersen's intelligent perspicacity, or to Miss A, but we owe a lot to the amazing Miss A, and to Professor Pedersen for bringing her to our attention. The fact is that she taught not only the students at the Ray School, but through the lens of the *Harvard Educational Review* she has conveyed to a far broader audience, including all of us, the precious covenant that enables the noble profession of teaching:

A good teacher believes in the power of teaching; presents subject-matter content with accuracy, skill and confidence; cares about every pupil as a trusted charge; conducts the enterprise with seriousness of purpose; and believes that each human being who is present in the classroom can and will learn the material.

We must remember that Miss A was not alone. She is representative of many who have taken up the vocation of teaching. The simple and clear lesson we learn from her helps us honor the career she chose. It makes her a worthy example for all the others whose commitment to teaching is strong and who labor daily in classrooms to the long-term benefit of their pupils. In this spirit we can echo the enthusiasm of one of Miss A's long-time colleagues, who said, long after her death, "We who knew and loved her must rise up and say, 'This was a *teacher!*'"

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EIGIL PEDERSEN, until his retirement, was an active teacher, scholar, and administrator at McGill University. He taught in the Faculty of Education, and served in various administrative positions (Dean of Students [1971], Vice-Principal Academic [1972 - 1981], and was a member of the McGill Senate and the McGill Board of Governors). In his long career, he has been associated with many Universities including the Harvard Graduate School of Education (1981), The Institute of Education, University of London, England (1982) and Brandon University (1992). In 1992 he received an LL.D. (Honoris Causa) from Concordia University.

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EIGIL PEDERSEN a été, jusqu'à sa retraite, enseignant actif, chercheur-boursier et administrateur à l'Université McGill. Il a enseigné à la Faculté des sciences de l'éducation et a occupé différents postes administratifs (doyen des services aux étudiants [1971], vice-principal (enseignement) [1972 - 1981]; il a également été membre du Sénat de McGill et du Board of Governors de McGill). Au cours de sa longue carrière, son nom a été associé à de nombreuses universités, notamment la Harvard Graduate School of Education (1981), l'Institute of Education, University of London en Angleterre (1982) et la Brandon University (1992). En 1992, il a reçu un LL.D. (honoris causa) de l'Université Concordia.