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WHY SOCRATES SHOULD BE IN THE BOARDROOM IN RESEARCH UNIVERSITIES*

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ABSTRACT

There is an extensive literature on the productivity of universities. Little is known, however, about how different types of leaders affect a university's performance. To address this question, this paper blends quantitative and qualitative evidence. First, I establish that the best universities in the world are led by respected scholars. Next, by constructing a new longitudinal dataset, I show that the research quality of a university improves some years after it appoints a president (or vice chancellor) who is an accomplished researcher. To try to explain why scholar-leaders might improve the research performance of their institutions, I draw from interview data with twenty-six university heads in the United States and United Kingdom. These findings have policy implications for governments, universities, and a range of research and knowledge-intensive organizations.

INTRODUCTION

Around the year 870, a bridge was built across the river Cam in England. In 1209, in that location, by then named Cambridge, one of the world's first universities was established. Nearly 800 years later, Cambridge University appointed its 344th President, or Vice Chancellor¹, Alison Richard. Richard is the first woman to lead Cambridge University. She is a distinguished anthropologist who spent her academic career at Yale University, where she left the position of Provost in 2003 to join Cambridge. Just one year later, in 2004, another venerable English university installed its 270th Vice Chancellor, John Hood.² Hood became the first head of Oxford University since the year 1230 to be elected to the Vice Chancellorship from outside the University's current academic body. Indeed Hood, a New Zealander, is not an academic, instead spending most of his career in business.

Why did Cambridge and Oxford choose two such different individuals to lead their ancient institutions?

The same year that Alison Richard boarded an east-bound jet, the Nobel Prize-winning biologist Paul Nurse left England for New York to become Rockefeller University's ninth President. He is not the only Nobel laureate to run a top American institution. David Baltimore, who stood down as President of the California Institute of Technology in

* This paper is adapted from Amanda Goodall's recent book, *Socrates in the Boardroom: Why Research Universities Should be Led by Top Scholars*, Princeton University Press (October 2009). It summarizes the book's key findings. The technical details and evidence, such as in the regression equations, and much of the in-depth analysis have been excluded.

¹ A vice chancellor is the principal academic and administrative officer or CEO, akin to a university president or rector. In this book the term president will normally be used to denote the head of a university though other titles may also be referred to interchangeably.

² Interestingly, at the time of writing it was announced that John Hood will be replaced as head of Oxford University by Andrew Hamilton, another former provost from Yale University.

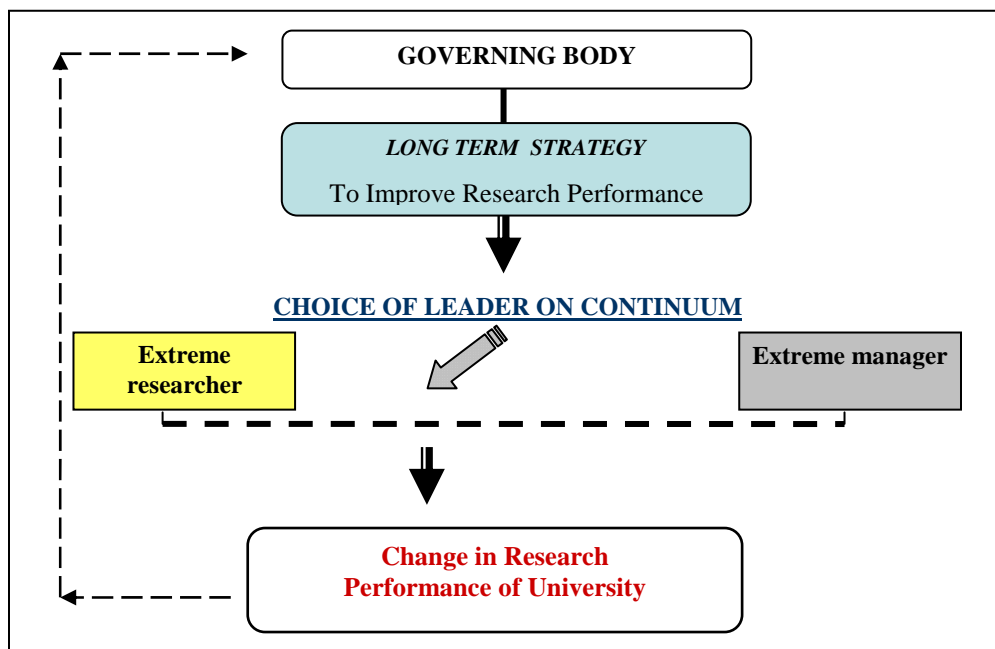
2006, is also a Nobel Prize-winner, as is J. Michael Bishop, Chancellor of the University of California, San Francisco. Indeed California has some of the most distinguished scholars in the world leading its universities. John Hennessy, at Stanford, is a prominent computer scientist; Robert Birgeneau, a Canadian who heads Berkeley, is a top physicist.

At the University of California (UC), San Diego, Chancellor Marye Anne Fox is an eminent chemist, and at UC Irvine, the renowned atmospheric scientist Ralph Cicerone was Chancellor until he left his position in 2005 to head the National Academy of Sciences. The University of California is arguably one of the best public university systems in the world (although it is currently enduring major financial cutbacks by the state government). The success of UC is often attributed to its founding President, Clark Kerr, who was himself a distinguished economist.

Could it be that the high achievement of California's universities today is explained partially by the academic standards introduced by Kerr, and partially by the legacy left by a string of noted scholars who have led many of California's top institutions?

This study asks the question: is there a relationship between university performance and leadership by an accomplished researcher? The central conclusion, supported by evidence, is that research universities should be led by top scholars.

Figure 1. Appointment of a Scholar on a Continuum between Extreme Researcher and Extreme Manager.



This research is motivated in part by the recent emphasis on 'managerialism' in universities and more widely in the public sectors of a number of countries. There has been a suggestion that managers should be preferred as leaders. This work argues that in universities, where the majority of employees are expert workers, having a leader who is also an expert is likely to be beneficial to the institution's long-term performance. The counterargument takes the following form: a leader in a university or knowledge-based sector primarily needs excellent managerial ability allied merely to some acceptable minimum level of technical ability. By contrast, the data in this study suggest a fairly close relationship between the leader's level of scholarship and a university's overall quality. The greater is the first, the greater is the second.

Figure 1 presents my central argument in a schematic model that links the appointment of a scholar with the performance of a university. It suggests that if a governing body has decided upon a strategy of raising or maintaining the research performance of their university, then hiring a leader who is a scholar may be the right choice. The diagram over-simplifies a complicated process but serves to illustrate the point and introduces the main conceptual claim.

The present research draws from four separate datasets. It starts by looking at who currently heads the world's top 100 universities. Next I explore whether the characteristics of a leader in position today can tell us something about the future success of their institution. Finally, using interview data from twenty-six university leaders in the United States (US) and United Kingdom (UK), I present possible explanations for why better scholars may make better leaders. Figure 2 below lists the university heads interviewed.

It is important to emphasize that scholarship will not be viewed here as a proxy for either management experience or leadership skills. An 'expert' leader must have expertise in areas other than scholarship. Also, it should not be assumed that all outstanding researchers will inevitably go on to make good managers or leaders. Before their step to the top position, most university presidents have gained management experience as provosts, pro-vice chancellors or deans, or by running major research centers or labs. This was the case with virtually all of the four hundred leaders examined in this study.

This study focuses on research performance, because it is research quality that top universities prioritize. That is not to say that brilliant teaching is unimportant but that it alone will not usually lead to promotion in most research universities. This situation may differ in colleges and universities that prioritize teaching.

There is a link between teaching and research. The material that is taught to students has come first from research. Interestingly, there is somewhat limited evidence that better researchers also make better teachers. A relationship has been shown to exist between a university's success in the UK Research Assessment Exercise and the standard of its teaching instruction, as established by scores obtained in Teaching Quality Assessment (TQA). TQA scores correlate highly with RAE scores³. In other words, those institutions that perform best in research tend also to obtain the highest teaching scores⁴.

LEADERS OF THE WORLD'S TOP UNIVERSITIES

The most prestigious and wealthiest universities arguably have the widest choice of leadership candidates. If it can be shown that they appoint top scholars as their leaders, this could be one form of evidence that, on average, better researchers may make better university presidents. Economists would call this a form of 'revealed preference' (about the organizations' underlying objectives). As suggested earlier, scholarship is not viewed here as a proxy for either management experience or leadership skills but something *in addition* to those attributes. However, *a priori*, if what really matters in a leader is managerial ability, it would not be expected that universities would be led by successful researchers.

In this section I use statistical tests to identify whether the world's top universities currently appoint top scholars to the position of president⁵. When looking at the individuals who run these institutions, it is possible to find both a handful

³ Shattock (2003).

⁴ I recently analyzed data on the teaching scores of faculty in a Canadian university with a view to addressing this question (are good researchers also good teachers?). As a first step I was sent only data on those academics who received the highest teaching scores, and those who received the lowest scores. The sample included around 50 faculty, approximately half in each group. Immediately it was clear that those in the 'bad teachers' group were overwhelmingly scientists – mostly chemists and physicists; whereas, the opposite was true for those in the 'good teachers' group, which was dominated by faculty from the humanities and social sciences. This is interesting, if not unexpected given what we know about students' preferences for these subjects in North America and Europe. To attempt to answer the original question, we will need to control for discipline.

⁵ This work draws upon Goodall (2006).

of heavily cited scholars and a handful of leaders with few or no research citations. This fact might indicate that there is no systematic link between research output and university leadership. Yet, as I will show, there is a pattern. A significant correlation exists between the research background of a leader and the position of their university in a world league table.

In the quantitative analyses I focus on one set of measures of a university leader's research performance, namely, the person's lifetime scholarly citations. Citations are generally viewed as a reliable indicator of research achievement over an individual's whole career. I gathered the bibliometric information by hand-counting the lifetime citations of each leader in my dataset -- just over 400 individuals.

Figure 2. Interviews with University Leaders.

US Universities	UK Universities
Derek Bok, Former President, Harvard	George Bain, Former Vice Chancellor, Queen's U Belfast
Kim Clark, Dean, Harvard Business School	Glynis Breakwell, Vice Chancellor, Bath U
Amy Gutmann, President, U of Pennsylvania	Bob Burgess, Vice Chancellor, Leicester U
Patrick Harker, Dean, Wharton School	Yvonne Carter, Dean, Warwick Medical School
John Heilbron, Fmr Vice Chancellor, Berkeley	Ivor Crewe, Vice Chancellor, Essex U
Jeremy Knowles, Former Dean, Harvard	Howard Davies, Director, LSE
Paul Nurse, President, Rockefeller U	Anthony Giddens, Former Director, LSE
Henry Rosovsky, Former Dean, Harvard	Alan Gilbert, President, Manchester U
David Skorton, President, Cornell	David Grant, Vice Chancellor, Cardiff U
Lawrence Summers, President, Harvard	John Hood, Vice Chancellor, Oxford U
Shirley Tilghman*, President, Princeton	Andrew Pettigrew, Dean, Bath School of Management
	Richard Skyes, Rector, Imperial
	Eric Thomas, Vice Chancellor, Bristol
	Nigel Thrift, Vice Chancellor, Warwick U
	Bill Wakeham, Vice Chancellor, Southampton U

* I did not interview Shirley Tilghman; instead she was asked questions about my research by the Princetonian Newspaper.

Publishing conventions differ across academic disciplines. For example, scientists publish many more articles than social scientists, and subsequently they tend to accrue higher numbers of citations, whilst far fewer are assigned in the humanities. To adjust for this discrepancy, each leader's lifetime citations have been normalized into what I call a citation's 'P-score' = president's individual lifetime citations normalized for discipline⁶.

Thus, citation scores are used here as a measure of how research-active and successful a president has been in his or her academic career. Most academics that go into administrative positions reduce their research output. This depends, somewhat, on their discipline. The data generated in this study make it clear that university presidents accumulate the overwhelming majority (approximately 90-95%) of their citations before they become institutional leaders.

THE TOP-100 UNIVERSITIES

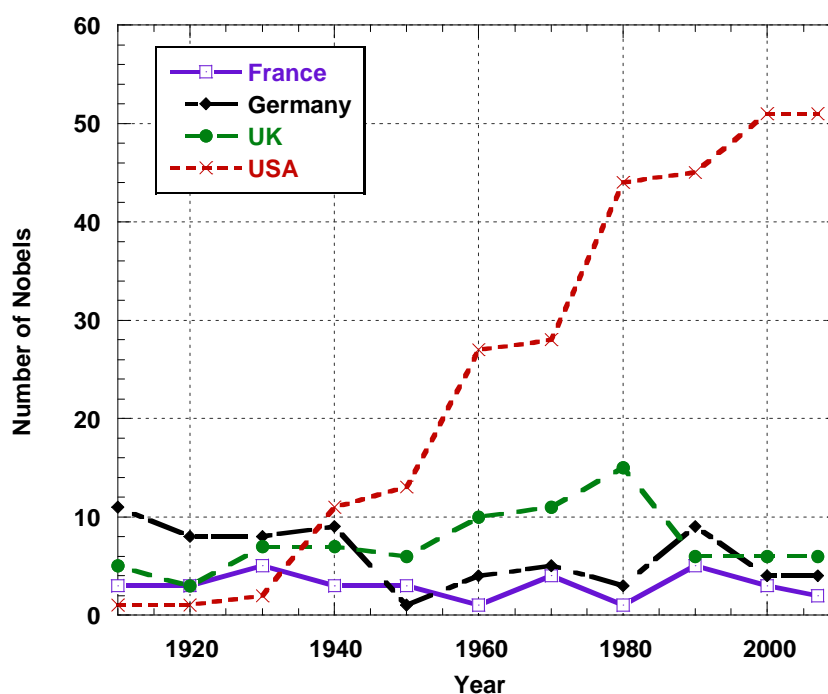
Identifying whether better universities select reputable scholars as presidents tells us something about the actions of top institutions, and also gives us a starting place for trying to understand whether universities might actually perform better under their leadership. If there is no association between the characteristics of scholarship and university quality, then my hypothesis that research universities achieve more when led by distinguished scholars is unlikely to be correct.

⁶ Information about citations, the normalization process, and how bibliometrics data compare to journal articles are available in Goodall (2006, 2009a,b).

To discover which universities occupy the top positions requires the use of rankings. League tables are ubiquitous and have a long history. Reputational rankings were used in the United States at the turn of the 19th Century. Clark Kerr, Chancellor of Berkeley in the 1950s, talks in his book *The Gold and the Blue*⁷ of how he and others at Berkeley used rankings to motivate change and improve the university. Kerr's yearning was to overtake Harvard, Yale, Princeton and other top US institutions -- a desire that was eventually met in 1964, when the American Council of Education placed Berkeley at number 1⁸.

As higher education has become global in the recruitment of international students and staff, so have rankings. In 2003 the first global league table of universities was produced by the Institute of Education in Shanghai at Jiao Tong University (SJTU). It was generated by Jiao Tong scholars to help them assess how Chinese universities compare with those in different nations. To identify the top 100 universities in the world, I use the 'Academic Ranking of World Universities' 2004⁹.

Figure 3. Number of Nobel Prizes Awarded to Individuals in Institutions in France, Germany, UK and USA, Between 1900-2007.*



* Nobel Prizes awarded in chemistry, medicine, physics and economics (after 1969).

The top research universities in the world are overwhelmingly located in the United States (US). In the top-100 table, 51 institutions are to be found there. That so many outstanding universities are located in the US is notable if not surprising (given its wealth and large population). The US attracts the highest number of international academics of any nation, focusing specifically on the very best. In the top-10 departments of economics, 75% of assistant professors did their first degree outside the US, signifying that it is unlikely they are American by birth.¹⁰ As can be seen in Figure 3, Nobel Prizes are far more likely to be awarded to scholars in US institutions.

⁷ Kerr (2001).

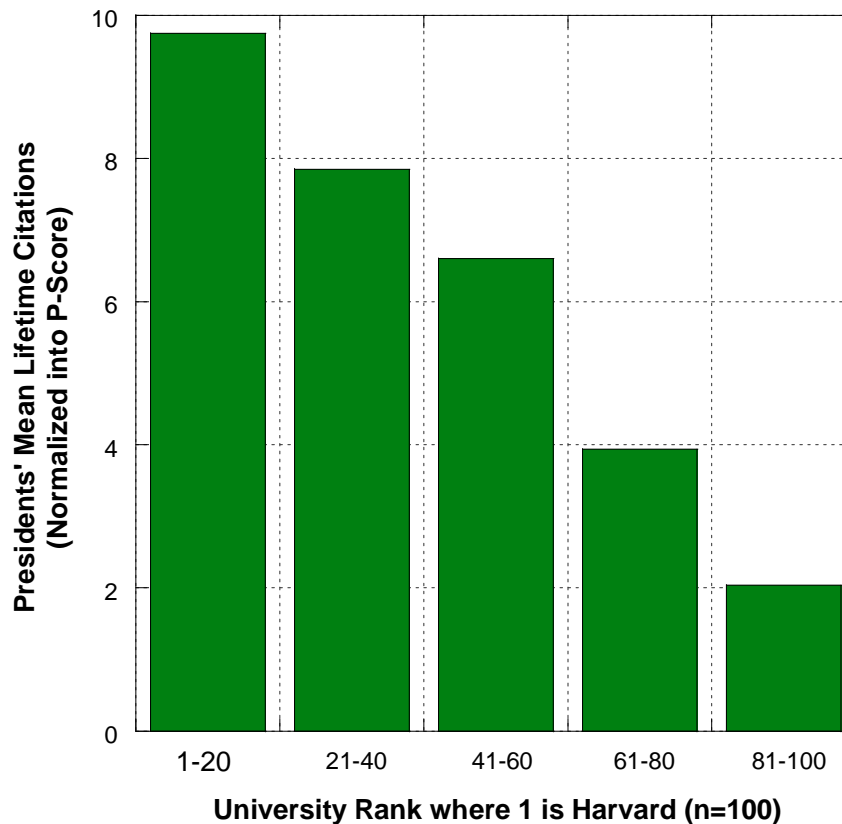
⁸ An Assessment of Quality in Graduate Education (1966), by the American Council of Education, Washington DC, USA.

⁹ The methodology used by Academic Ranking of World Universities and full list of institutions included for the years 2003-2009 are available at <http://www.arwu.org> or see Goodall (2006, 2009b).

¹⁰ A recent paper that looks at the international brain drain is produced by University of Warwick (2007).

There are 15 female presidents in the sample. Interestingly, 6 are in the top-20 group. This shows that women have been selected as leaders into some of the best universities in the world. Every president in the group of 100 universities has a PhD. The majority have been academics, although two presidents spent most of their careers in industry or government, and a small group went almost directly into academic administration.

Figure 4. Presidents Who Lead Universities Higher in a World University Ranking have Higher Lifetime Citations (in quintiles).



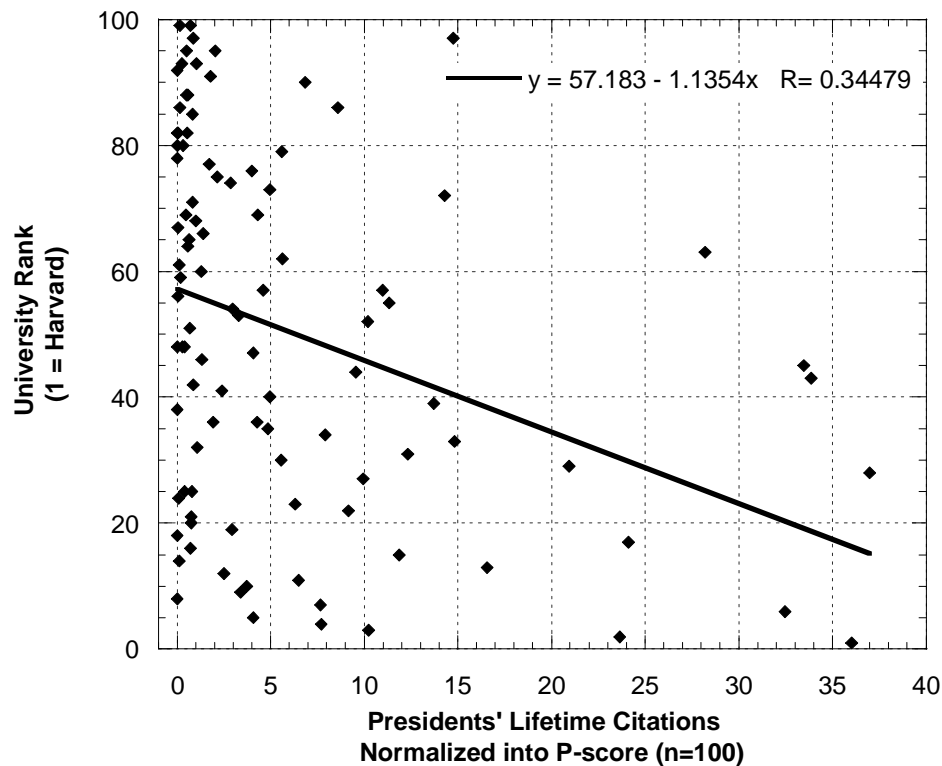
ARE LEADERS IN THE TOP-100 UNIVERSITIES MORE HIGHLY CITED?

If we look at the evidence presented in this section, the answer is yes; leaders of the most respected universities are more highly cited. A simple representation of the results can be seen in Figure 4. The bar diagram shows the average P-scores (lifetime citations normalized for discipline) of each president by the position each university is ranked in the Jiao Tong global league table. Here I have grouped the 100 universities into quintiles (the '1-20' group always refers to the top of the SJTU table and 1 equals Harvard).

Figure 4 confirms that highly ranked universities have leaders who are more highly cited. Indeed, there is a clear monotonic decline in presidents' citation levels as the universities go down in world rank. Those leading the top 50 universities are approximately two and a half times more highly cited than those in the bottom 50. A president in a top 20 university typically has 5 times the lifetime citations of a leader in the bottom quintile.

This relationship is statistically significant. Figure 5 shows the statistical finding in the form of a scatter plot.

Figure 5. Presidents' Lifetime Citations are Higher in Universities Ranked Higher in Global League Tables. ($p < 0.001$)



The statistical relationship also exists between presidents' lifetime citations and university quality in tests run on subsamples of the cohort of 100 university presidents. For example, women presidents with higher numbers of lifetime citations are more likely to lead institutions higher in the global ranking. When the relationship is examined among the 51 US institutions, again the pattern reveals a clear correlation. Those leading the top US universities have higher levels of lifetime citations than those in institutions ranked lower.

So far I have identified a strong positive relationship between the citation levels of university presidents and the position of their institution within a ranking of 100 universities. This association exists amongst the 100 presidents in total, the group of 15 women leaders, and the 51 US presidents. However, this pattern does not exist for the remaining group of universities in other countries. Presidents in universities in the rest of the world appear to have less-established research backgrounds when compared with US leaders, who have significantly higher levels of lifetime citations. Thus, the evidence demonstrates that presidential selection committees in universities outside of the US appear to make different decisions about who should lead their institutions.

Universities perform a central role in society and the global economy. This is particularly true of the prominent research institutions that top most league tables. That these universities appoint better researchers to lead them is an important finding.

IS THERE EVIDENCE THAT SCHOLARS IMPROVE THE PERFORMANCE OF THEIR UNIVERSITIES?

It has been established that, on average, better scholars lead better universities. What we do not know from the patterns discussed above is whether more cited leaders are actually more effective. It may be that scholar-leaders

are being picked for reasons other than their academic past as researchers. Scholarship might just be a proxy for management ability or leadership skills. Alternatively, elite universities, like those in the US Ivy League, might choose distinguished faculty as leaders for reasons of status. But even if they do, it is important to try to understand why. Maybe all universities would like highly cited leaders but cannot afford them; maybe they would not.

To try to uncover whether a connection exists between scholar-leaders and university performance I adopt a longitudinal research design. Its aim is to establish whether universities that are led by more cited leaders go on to perform better in the future. I calculate each individual's level of scholarship, then, a number of years later, I measure the performance of their institution. This relies on time-lags to help uncover whether better scholars may actually *cause* research universities to improve. To truly prove causality would require leaders to be randomly assigned to universities, which would in principle make it possible to isolate the leader effect from other unobservable influences. This, of course, cannot be done in organizations, or in many other social science settings. I take the view that we should try to get as close to a causal explanation as is possible with the available data -- hence, my use of a longitudinal research design that supports the cross-section correlations and interview evidence.

In the longitudinal results presented below, I attempt to control for other factors that might influence a university's performance. Realistically, the quality of a leader can only account for so much. The control variables I include are university income at different time periods (which is a proxy for size), the age of leaders, and their academic discipline (to identify whether there is any effect from having a scientist at the helm compared to a social scientist or a scholar in the humanities). These are incorporated to check the robustness of the relationship between university performance and a leader's level of scholarship¹¹.

Institutions from the UK are used because of the unique method of assessment that has been available in that country for a number of years -- the Research Assessment Exercise (RAE). The RAE was set up by the UK Government in 1986 to assess, with the aid of expert peer review, the quality and quantity of research being generated in UK universities. It offers unusually valuable data and makes the United Kingdom a natural laboratory¹². I use a panel of 55 UK research universities and observe the performance of each three times in the Research Assessment Exercise (RAE) -- in RAE 1992, 1996 and 2001. There are 157 university presidents, or vice chancellors¹³, in the sample who together led the 55 UK institutions approximately three times in succession. Once again, the lifetime citations of vice chancellors (VCs) have been hand-counted from data provided by ISI Web of Knowledge, and normalized for disciplinary differences into a P-score.

Some universities moved up in these RAE rankings more than others. The question that I am trying to uncover is: have the mover universities prospered in part because their leaders were better scholars? To understand whether university performance in the Research Assessment Exercise can be explained partially by the leader-characteristic of scholarship, the study correlates a vice chancellor's lifetime citations, normalized into a P-score, with the later movement, up or down, in the number of excellent departments in his or her institution. In short, I try to find evidence on whether universities that improve in the RAE do so because they were earlier led by a distinguished scholar.

Age, size, wealth, and reputation are all major contributing factors to the long term success of a university. But it is important to mention that success over the last 40 years among UK research universities has not been confined to one particular group. There has been movement up and down in RAE performance, and also in various league

¹¹ This work is published in Goodall (2009a).

¹² The Research Assessment Exercise (RAE) takes place every four to five years. It was designed to help inform funding bodies' decisions about how to distribute public money for research. Selectivity is focused on quality, in that institutions that conduct the best research receive a larger proportion of the available grant. There is much discussion in the UK about the strengths and weaknesses of the RAE, soon to be redesigned into the Research Excellence Framework.

¹³ In this section where the sample of leaders is all UK-based, I refer to them as 'vice chancellors' or the abbreviated version, VCs. I may also interchange with the title 'president'.

tables, if they are to be believed (see for example league tables in *The Guardian* newspaper, *Times Higher Education*, among others).

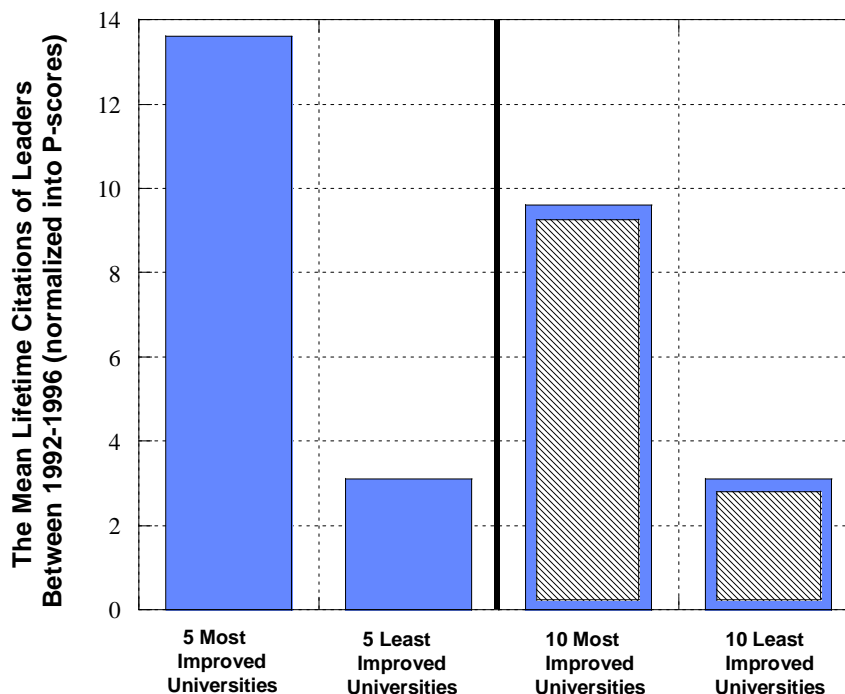
SCHOLAR-LEADERS AND UNIVERSITY PERFORMANCE

Here I present a summary of the evidence showing that universities led by more cited vice chancellors *go on* to perform better in the Research Assessment Exercise. Central to this type of analysis is the important role of time lags. These allow me to make some judgments about future performance whilst also somewhat protecting against reverse causality.

The first set of results can be found in the bar diagram in Figure 6. These suggest that the research history of a vice chancellor may affect the future performance of a university in the RAE. The focus in Figure 6 is on the leaders of those universities that made the greatest gains, and the smallest gains in the RAE between 1992 and 2001. The vice chancellor's P-score figures are for the means in lifetime citations between 1992 and 1996 (thereby allowing for a lag).

As can be seen in Figure 6, the universities that advanced the most during this period -- increasing their number of excellent departments -- were led disproportionately often by vice chancellors with higher lifetime citations. The mean P-score of leaders running the top five mover-universities is 13.6, while the mean P-score of those heading the top 10 mover-universities is 9.6. But of the universities that accumulated the least top-fives across the nine year period -- indeed some actually reduced their number -- the P-score of leaders for both the lowest 5 and 10 universities is 3.1. Therefore, vice chancellors heading the top 10 mover-institutions have three times the lifetime citations of those who led universities that performed less well. Leaders in the top-5 best performers have over four times the lifetime citations of those running universities that improved the least.

Figure 6. Universities that Improved the Most Between 1992-2001 Were Led by Vice Chancellors With Higher Lifetime Citations. (n=55 universities)

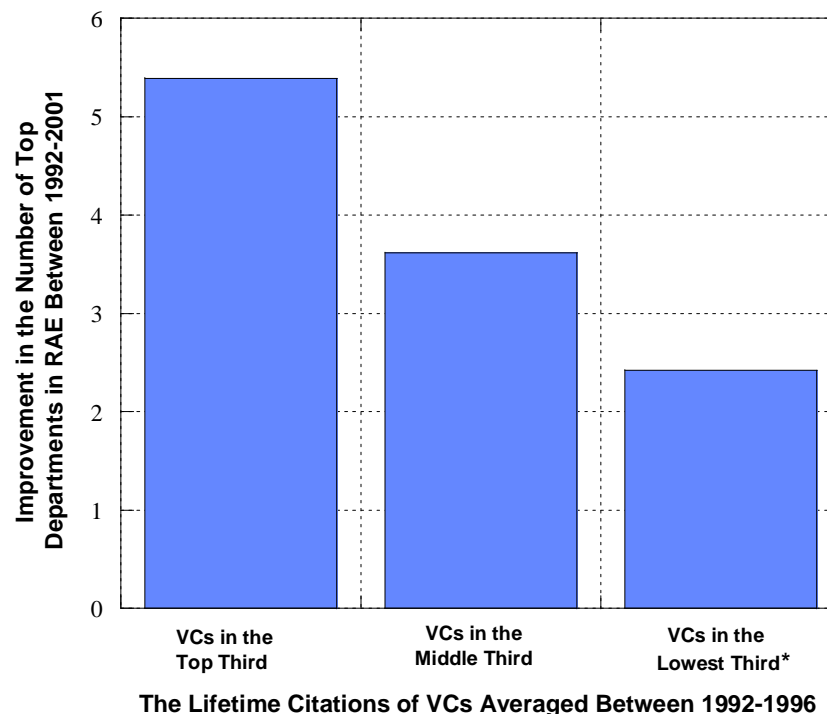


The same pattern is captured in a second cross-sectional diagram, in Figure 7, but this time the axes have been reversed: the X-axis gives vice chancellors' lifetime citations, again averaged between 1992 and 1996, allowing for a lag, and then ranked. Improvement in university performance in Figure 7 is on the Y-axis.

As can be seen, universities progress further under leaders with more established research histories. Figure 7 shows that there is a monotonic decline in the number of excellent departments as a leader's lifetime citations decline. VCs in the first column have over two and a half times the lifetime citations of leaders in the third column.

The bar diagrams represent simple cross-sectional correlations incorporating lags. When I run the regression equations, again using lags but also controlling for the influence of other factors -- size of institution, age and discipline of leader -- a leader's research success continues to be significant. The size of the effect of P-score on university performance is strongly associated with the number departments awarded top scores in the RAE. In other words, a hypothetical 10 point move in a vice chancellor's P-score is estimated to generate three excellent departments in a future Research Assessment Exercise¹⁴.

Figure 7. Universities Led by Vice Chancellors Who Were More Accomplished Scholars Improved the Most between 1992-2001. (n=55 universities)



* Extra observations are included in column 3.

Using lags, these results demonstrate that the universities that were led by more cited scholars went on to perform more strongly in later Research Assessment Exercises. The evidence is consistent, therefore, with the idea that having a better scholar at the helm leads to better future performance. This does not mean that every scholar-leader turns their institution into a research powerhouse. It means that, on average, after holding constant the institution's income, or size, the age of VC, and his or her discipline, there is evidence that scholar-leaders seem to help the RAE performance of their universities.

¹⁴ The full statistical results are available in Goodall (2009 a, b).

QUALITATIVE EVIDENCE - *Why Scholar-Leaders Might Improve the Performance of Research Universities*

The quantitative evidence above suggests that hiring scholar-leaders into research universities can result in improved research performance. In this section I will draw upon interview material with US presidents and UK vice chancellors to try to bring us closer to potential explanations as to why scholar-leaders might improve the performance of their universities. It is interesting to hear from leaders themselves and to conjecture why it might be beneficial for universities to select presidents with strong research records. The full qualitative material exceeds the space available; therefore, only a representative sample of interviewees' statements appears (for list of interviewees, see Figure 2. All leaders' statements are unattributed).

Four explanations emerge from interviews with the twenty-six heads -- that better scholars appear more credible as leaders, that they have expert knowledge of the core business of universities, that they are standard bearers, and finally, that leaders who are scholars signal organizational priorities. Each point will be dealt with separately.

- *Credible Leadership*

"You have to know the game; if not you lack credibility. Being a distinguished researcher gives you legitimacy in either a business school or a university. And legitimacy gives you authority as a leader."¹⁵

That leaders must be credible to followers was the most common assertion made by those I interviewed. It was suggested that, in the context of a university, an accomplished scholar communicates his or her credibility, and specifically, that he or she shares the same value system and priorities as those who are being led. As suggested by one leader, credibility legitimizes authority. This approach focuses on the social interactions between leaders and their followers¹⁶.

In the words of one US dean:

"You need to engage the hearts and minds of faculty. Being a researcher means you have equal status, offer faculty support, speak the same language, have academic resonance and credibility, and finally, trust; trust is very important to have as a leader."

Credibility can perhaps be defined as an external factor in that it must be assigned by others. It is noticeable that all those who emphasized credibility and intellectual values were leaders with traditional academic backgrounds. None of the non-academic leaders presented these kinds of arguments. The noted educationalist Birnbaum¹⁷ claims that presidential candidates with a traditional academic career path confer the greatest legitimacy. This is particularly true for those being selected into the most prestigious institutions.

One US university president put the same argument in terms of gaining faculty respect:

"The rationale for ranking academic excellence very highly is the enormous importance we place on the president having the respect of the faculty. Without that, it is very difficult to lead a research university."

A president being credible and also having empathy for the life of scholars was viewed as important by a majority of interviewees. Five statements are presented below; the first is from a US president.

¹⁵ Former UK business school dean and university president.

¹⁶ This reflects the early work of Bass (1985) and Bennis & Nanus (1985).

¹⁷ Birnbaum & Umbach (2001). The importance of 'legitimacy in the academic presidency' is a key theme of (Bornstein 2003), and the idea of credible leadership is also raised by Kouzes & Posner (2003).

"An academic researcher-leader understands the culture of the place and particularly he or she understands the incentives. What motivates faculty and how one can get them to do what you want them to do - which is what leaders have to do."

A UK vice chancellor said:

"It is important that a leader's value system is not too far from the values of those who are being led."

From a second UK vice chancellor:

"Non-researchers do not have an affinity with researchers – they have little understanding of the culture, no credibility and therefore an engagement problem, and, finally, they cannot talk research."

Again, a US president focuses on shared culture and values:

"The best universities tend to have the best faculty and shared values of excellent research and teaching. If the president is a scholar they have a better sense of the culture of the academy and also they are perceived as being better able to create the right climate for academics."

The link with credibility and power is made by a UK vice chancellor:

"Having a relatively distinguished research history makes a difference to the job of VC for two reasons; you carry more weight and authority with colleagues, and second, you have an understanding of the world of research and all the pressures researchers are under."

One US dean suggested that the benefits of scholarship gave him confidence as a leader:

"Being a good scholar means that I can look a Nobel or Pulitzer Prize winner in the eye. It is very important to have been a researcher or to have entered deeply into scholarly enterprise."

Very often, interviewees stated that credibility is enhanced if the head of a research university is a respected scholar. As suggested earlier, credibility is bestowed upon an individual by others. The next factor suggests that committed scholars have a greater understanding of the core business of universities that arises from their extended period as researchers.

- *Expert Knowledge*

"Being a good researcher I have scholarly values, a deep understanding of the academic world and substantial networks"¹⁸

This factor, expert knowledge, is internal or behavioral. As suggested earlier, I propose that, in the context of a knowledge-intensive organization like a university, having been an expert or top scholar provides one with a deep understanding of the organization's core business, which may in turn helpfully influence the behavior of leaders. It could be argued that this inherent expertise and learning shapes the way she or he sees the world and, therefore, affect a leader's decision-making preferences and priorities¹⁹. It is also possible that having expert knowledge allows presidents who were better scholars to develop superior strategies for their organization since they may be able to understand universities in ways that others cannot.

¹⁸ A dean from the UK.

¹⁹ This draws from Hambrick & Mason's (1984), Upper Echelons (UE) Theory. UE theory argues that top managers make strategic choices that are reflections of their own values and cognitions, and that members of the top management team will be influenced in their decision-making by individual and group demographic factors (such as age, education, functional track and top management team (TMT) heterogeneity).

One UK vice chancellor refers specifically to his internal knowledge and motivation:

"Because I am an academic I am driven by the academy and the development of ideas and knowledge. It is my business. It is not possible for someone external to the academy to understand this."

A statement from a former UK head illustrates this also:

"I really know about the social sciences; being an expert in this field helps with being a leader. I have mastery of the subject and therefore I can grasp what is going on."

As does a comment from another UK vice chancellor:

"I am driven by a passion for science and technology. This passion influences my world."

It is likely that top scholars have prioritized scholarship in their lives, and, furthermore, that they may continue to emphasize activities related to scholarship once becoming a leader. Expert knowledge of the core business may influence a leader's inherent preferences causing a scholar-leader to prioritize, over other activities, those related to research. So, for example, a president may trade off activities so that he or she can perform a central role in faculty appointments and tenure decisions, and may favor the raising of research funds over other forms of income and expenditure. Thus, a leader continues to align his or her strategic preferences with research oriented activities once a scholar becomes head. There is evidence to suggest that strategic decisions which have been prioritized are more likely to yield successful outcomes²⁰. One statement from interview points this out:

"The best president is he or she whose scholarly priorities don't change."

The longitudinal results presented earlier might be explained by such factors. The bulk of research money from the UK government is allocated via the Research Assessment Exercise (RAE). For a university to increase or maintain its share requires dedication and focus. The central areas are in attracting new distinguished scholars to an institution and encouraging faculty already in place to produce vibrant research. It is unlikely that a university will perform well in the RAE unless the vice chancellor makes that objective a priority. Leaders who are better scholars may be more likely to focus on the RAE. The top 10% of institutions that achieved the greatest RAE success were all led by distinguished scholars. Many institutions also put in place other noted scholars to lead, internally, the university's RAE strategy²¹.

The attraction and retention of outstanding faculty is central to the success of research universities. Interviewees acknowledged that accomplished or up-and-coming professors are attracted to institutions because of other top people already there.

A former UK vice chancellor said:

"When I contacted top scholars many would ask, 'Who else is in the department?'"

²⁰ See Hickson, Miller & Wilson (2003).

²¹ The top 5 movers, or 10%, are Cardiff, Bristol, Southampton, Sheffield and York universities. At Cardiff University Brian Smith a cited chemist (VC from 1992-2001) is credited with greatly improving research performance working with his deputy-VC for research, Hadyn Ellis who was a renowned psychologist. At Southampton Howard Newby (VC from 1994-2001) a distinguished sociologist is credited with lifting their RAE performance. At Bristol John Kingman a distinguished mathematician (VC from 1985-2001) appointed Nigel Thrift, an eminent human geographer, who chaired Bristol's Research Assessment Panel from 1997 to 2001 – the period that Bristol most improved in the RAE. The vice chancellor of Sheffield University 1991-2001, was Gareth Roberts an eminent engineer and Fellow of the Royal Society; and finally, York University was led by Ronald Cooke, between 1993-2002, a distinguished geographer.

A second UK head commented:

"Good people only ever want to work with other good people."

One president of a US university puts it differently:

"Top scholars can be challenging people. They ask a lot of questions. The alternative is to shelter behind mediocrity."

Scholar-leaders may be more likely to make it a priority to hire other top researchers into their university. Similarly, if an institution is led by an eminent academic, it may look more attractive to new recruits. This point is clearly made by a former UK head:

"A leader who is an academic helps to mobilize people. People are much more important in academic institutions than conditions. Everything in a university flows from the academic value of faculty. My priority was to ensure that we attracted and retained the best academics... I spent much of my time attracting good people and trying to keep our top people."

A similar comment comes from a US dean:

"The most important part of the job of dean is the recruitment and retention of top faculty. Appointing good staff is the key to sustaining the position of a business school or university."

And by a UK vice chancellor:

"I have to inspire and motivate people, and to set targets -- to create a supportive environment and crucially to appoint the best people."

These arguments suggest that having expert knowledge of the university's core business not only influences the leader's behavior towards the prioritizing of research and the selection of faculty, but that it may also instill the confidence to assess quality. However, it is not a zero-sum game – more expert knowledge does not necessarily equal less managerial ability.

- *The Standard Bearer*

"Leaders are the final arbiters of quality. Therefore it is right to expect the standard bearer to first bear the standard."²²

A common theme among interviewees was the importance of the leader in establishing a quality threshold. Setting an organization's academic standards was viewed as a significant part of the function of president or dean. However, as a number of interviewees suggested, if you have not originally met that standard yourself, this may be difficult to enforce. Some presidents and vice chancellors also argued that it is easier to put pressure on others to perform to a high level if you, as leader, are an accomplished scholar.

One former UK vice chancellor stated:

"How can you exhort others if you haven't done it yourself?"

²² US dean.

A similar statement was made by another head:

"My job is to lead, to represent the university internally and externally and set the quality threshold. By quality-threshold I mean articulate and decide upon what level of quality the university wants to aspire to. When a quality-threshold is established, it sends out a message that no one below the threshold should be accepted into the university; it sets the quality agenda."

A US president again states that in order to set the standard you must first meet them:

"My job involves broad direction-setting and imposing standards. In order to impose standards it is easier if you have first met them yourself."

A UK vice chancellor focuses on the institution's research ambitions:

"I feel that as the VC is the one who sets the quality tone for research and the strategy generally, and also is responsible for raising aspirations, it is important that he or she has been a researcher; particularly to raise the research ambition."

In my sample, a number of UK vice chancellors had continued to do research in the run up to the recent UK Research Assessment Exercise (2008), because, again, they said it set a standard. One UK vice chancellor said:

"I continue to do research now both for myself and also the signal that it sends to others. Academics find it hard to complain about combining the pressures of administration and the demands of research when they hear that I am still managing to publish research as VC."

A second UK head agreed:

"I was submitted to the last RAE, and it gave me extraordinary weight, that I could fulfill the role of VC and still submit research into the RAE. It sends a very strong message to the community."

Thus, if the head of an institution can have this effect, it makes good sense for the leader of a research university to have been a respected scholar. Also, by continuing to do research, a head enforces a second kind of standard, namely, a demonstration to faculty that despite an enormous workload they can still publish. It is probably easier for social scientists or those in the humanities to continue with their academic work. Scientists who need labs and grant money may not have this option. This is suggested by the comment of a respected chemist who took up a leadership position:

"Once a scientist gets 'off the train' it is irreversible."

Of the twenty-six leaders interviewed, most of whom were from traditional academic backgrounds, many are still publishing.

- *Signaling Effect*

"Being a researcher sends a signal to the faculty that you, the president, share their scholarly values and general understanding. It also sends an internal signal to colleagues that research success in the institution is important."²³

Selecting a noted scholar to lead a university may send out a message to both internal and external stakeholders. A university governing body might wish to use the appointment to signal a change in institutional strategy, or

²³ US university president.

alternatively, to signal that there will be more of the same. This point is made above by a US president interviewed for this study, and also by Shirley Tilghman, President of Princeton, in the Princetonian newspaper:²⁴

"By having an academic at the helm, the university is stating clearly what it values most highly."

A former US dean suggests that the signal can come from those who select university leaders:

"An appointing board can signal a sound understanding of the culture of a research university by selecting a recognized scholar with administrative ability to a top leadership position".

These messages may be important for fundraising, alumni relations, and general PR. It is possible that better scholars raise more money. It has been shown that the top universities in the world are led by more-cited scholars; these institutions are also the richest in the world. It is quite normal for faculty who are strong scholars to be heavily engaged in institutional fundraising. It was suggested to me by fundraisers that noted scholars express passion and knowledge about their work, which can be motivating to donors. Also, scholar-presidents can creatively communicate intellectual visions which inspire alumni to give²⁵. This might be partially due to the fact that active researchers have had to consistently raise research funding during their careers.

Alumni may also approve of having famous scholars at the helm. Distinguished people tend to have their work profiled more regularly in the media. Arguably, individuals get positive feelings from hearing or reading about scholars from one's Alma Mater. Alumni also like to know that the brand value of their former university is being retained or improved.

CONCLUSION

This study examines whether university performance is linked to leadership. It first shows that the best universities in the world are led by more established scholars, and then uncovers evidence that leaders who are better scholars may be able to help improve the future research performance of their universities. By constructing a new dataset, the research shows that the characteristics of a leader in position today are correlated with the future performance of the organization.

The question of why scholar-leaders might improve performance is addressed using interview data with twenty-six heads in US and UK research universities. Four key explanations are raised by interviewees: First, scholar-leaders are thought to be more credible leaders in universities. Greater respect is bestowed on distinguished researchers by their academic peers, which enhances a president or vice chancellor's influence.

A second argument, one that is internal or behavioral, is that scholar-leaders have expert knowledge. In the context of a knowledge-intensive organization like a research university, having been an expert or top scholar may provide an administrator with a deep understanding of the organization's core business, which may have some bearing on the behavior of leaders.

Third, it was argued that leaders must establish the quality threshold of their institution. Setting an organization's academic standards was viewed by those interviewed as a significant part of the function of president or dean, and, therefore, one should expect the standard bearer to first bear that standard.

Finally, it was suggested that a leader who is an established scholar signals the institution's priorities, internally to its faculty and externally to potential new academic recruits, students, alumni, donors, and the media.

²⁴ President Tilghman was not interviewed, however she was asked to comment on my work in The Daily Princetonian (October 24, 2005).

²⁵ I consulted with a number of senior fundraisers for this research project; in particular, I am grateful to Lisa Boudreau at Harvard, Mary Blair at London School of Economics and Paula Marshall a fundraising consultant.

This study argues that in knowledge-intensive organizations, such as research universities, where the core workers are experts, hiring leaders who are also experts may improve organizational performance²⁶. It is important to emphasize that scholarship cannot be viewed as a proxy for either management experience or leadership skills. An 'expert' leader must have expertise in areas other than scholarship. Before their step to the top position, most university presidents have gained management experience as provosts, pro-vice chancellors or deans, or by running major research centers or labs²⁷. Also, it should not be assumed that all outstanding researchers will inevitably go on to make good managers or leaders. They will not.

The central argument here is that where expert knowledge is the key factor that characterizes an organization, it is expert knowledge that should determine the selection of its leader. These findings have policy implications for universities, R&D units, and other research and knowledge-intensive organizations. The evidence suggests that there are direct benefits from having leaders who are technical experts in their field.

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²⁶ Other similar organizations are professional service firms, such as law, accounting and architecture practices, R&D units or hospitals – a setting I am currently researching.

²⁷ This was the case with the four hundred leaders examined in this study.