Abstract

The challenge of universities is to be more engaged with adding value to the competencies of their students in a supportive research environment. Competencies are broader than cognitive skills and extend also to the behavioural side. I question whether Governments always provide the right funding and the right legal basis for organizing universities. Better funding is likely to contribute to more value added in competencies, provided the right incentives are created in the legal structure for universities to deliver. A good funding and the "right" incentives in the university organization make the university key for sustainable growth, through a process in which teaching-effectiveness comes on par with research productivity.

Motto

"The more pity that fools may not speak wisely what wise men do foolishly".

Touchstone in “As you like it” (Shakespeare, I,2,216)

About Prof. Jo Ritzen

Jozef Ritzen, (Dutch national, physics engineer, economist and politician) was Minister of Education, Culture, and Science of the Netherlands from 1989 to 1998. He became one of the longest-serving Ministers of Education in the world. During his term, he enacted a series of major reforms throughout the Dutch education system. Then he was Vice President of the World Bank’s Human Development Network. Thereafter he became President of Maastricht University. During his period in Office Maastricht University grew out to become one of the leading international teaching research universities, with almost half of its students coming from abroad and with problem based learning as its distinct style of education. He is now amongst others honorary professor of Maastricht University, senior advisor to the International Institute of Labor Studies IZA in Bonn, special adviser to RAND Europe and Member of several International Advisory Boards of Universities throughout the world.

1 I have benefitted greatly from the advice and insights of Maximiliano Tani and from the comments of Paul Wellings on an earlier draft.
Point of departure
The Universities Australia Policy Statement for the March 2016 conference: “Keep it Clever”.

Australia is at an economic and productivity crossroads. In an era of sweeping change, other nations are seizing the future with investments in higher education, research, innovation and skills.

Australia now faces a stark choice: we either make our own investment—or we fall behind those nations that do.

Equipping ourselves for the dramatic economic transformation ahead is an urgent task. Indeed, our future prosperity depends on it. That’s why we need a new contract with the Australian public—supported by political bipartisanship—that grasps the direct link between our national investment in education, research and innovation, and Australia’s economic fortunes in the years to come.

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1. **Universities and Australian universities do well (or not?)**

Touchstone is the Shakesperian fool. He (or is it a she?) can observe critically without being put in danger by the authorities, because he is only just a fool. Touchstone’s cloak fits me perfectly to critically discuss universities in general and Australian universities in particular. You happen to find inside the cloak the longest serving Minister of Education and Science in the EU (in the 90s), the President of Maastricht University of the first decade of this century when Maastricht rose to become the number 6 in the “50 under 50” and a former Vice President for Human Development of the World Bank.

Do not despair about this morning. My point of departure is that universities in the OECD countries (including those of Australia) function well. Your “Universities Australia Policy Statement 2013 – 2016” (2013) bears that out:

“Universities make an essential contribution to creating a more diverse, sustainable and vibrant economy with opportunities for better jobs and more fulfilled lives and, through research and innovation, the creation of new products and industries”.

Australia is part of the developed English speaking world which has been a pole of attraction for foreign students. Australia is the world’s third most significant destination for international tertiary students, behind the United States and the United Kingdom. International education is in Australia a major export product with $15 billion in exports annually. It comes third after coal and iron, but first when it comes to service exports. At the same time universities in Australia have been a major contributor to the competencies of the graduates in Australia and to the knowledge available in Australia. This knowledge is amply used for innovation and sustainable economic growth. A double success: mainstay of economic growth and major export earner! The Australian citizens will put you on a pedestal.

You state: “investment in the sector lags behind that of our competitor nations. Australia’s total investment in research and development is below the OECD average, and public investment in universities is around two-thirds of the OECD average” (Policy Statement, 2013-2016 (2013) and also: “To guarantee a prosperous and rewarding future for our children we need a smarter Australia”. I fully agree even though I am the party’s jester who is supposed to criticize. Your message to the Australian society is clear “support us” so that we can contribute to your welfare. It is also a commitment to deliver even more to the smartness of the country.

That commitment is my focus as touchstone. My serious jests concentrate on the four following challenges for Australian universities (as for most of the Worlds’ universities, see Tayeb et al., 2016):

- How can we (universities) add more value to the competencies of the youngsters who are enrolled?
- How can the focus of universities on research excellency be (better) balanced with that of teaching excellency so that teaching and research excellency go hand in hand?
- Focus incentives in the university organization on long term achievements rather than achievements on the short run.
- Focus additional university research on the “grand questions” of Australia.
I would suggest that the better you deal yourself, as universities Australia, with these challenges, the easier it is to find the support of society for a smarter Australia. This requires that you also look at yourself critically.2

How well is Australia doing on the international scoreboard of the Shanghai ratings? You must know this better than I do. Per capita Australia “scores” in 2014/2015 among the top 10 worldwide with universities among the top 200 as number 7, after Switzerland, the Netherlands, Denmark, Hong Kong, Singapore and the UK and ahead of the US and Canada, with (then) 8 universities in the top 200. You also know that the University of Melbourne, Australian National University, the University of Queensland, the University of Western Australia, Monash University, the University of New South Wales, the University of Sydney and the University of Adelaide are ranked among the top 200.

Is this a glass half-full or half-empty? I am sure that the country would prefer an even better place in this race.

QS Top Universities highlights the top 100 universities under 50 years old. More full than empty is the glass on the Australian score for that list. Australia figures prominently with 16 entrants in the list.

But remember how the rankings are made up. The research performance of the alumni is the criterion for the quality of education (10% of the score), the research performance of faculty the measure for faculty quality (40%), with another 40% for the research output and a last 10% for academic performance (the previous indicators divided by the academic staff in full time equivalents). In other words: the Shanghai ranking is a research ranking and does not say anything about the value added in learning by the students.

The QS ranking does have an approximation of education output, namely employer reputation (10%). It has added education input measures to score, namely faculty/student ratio (20%), proportion of international faculty (2.5%) and proportion of international students (2.5%) as well as the proportion of inbound exchange students (2.5%) and the proportion of outbound exchange students (2.5%), on top of 60% research measures. Yet “learning” let alone “value added in learning” is not an education output measure.

The Shanghai and the QS rankings indicate that Australia has managed the storm of the massification of higher education well. Massification is the term used for the rapid increase in participation rates of youngster in universities. In many countries massification has been accompanied by a decline in the quality of education and research. The expansion implied rapid hiring of new staff which might not always have passed the same quality criteria compared to the period of elite university enrolment. Not so Australia. Australia has clearly overcome the staff quality concerns in its top universities, as staff quality is included in the ranking indicators. At the same time the percentage of PhD’s in the not so research intensive universities (not included in the ranking tops) seems to be at the low side.3

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2 That is what you did in the Policy Statement 2013, critically evaluating Australian universities against those of Switzerland, Denmark, the Netherlands, Singapore, South Korea, Malaysia, the United Kingdom and Canada

3 This is similar to the Netherlands.
Rapid expansion was seldom accommodated by the same expenditures per student. Australia is no exception. The big Australian reforms reduced Government funding for universities from 100% in 1996 to 30% in 2015. These reforms may have put the system at risk to provide its vital role for Australian society.

The title of this section includes a question mark (Australian Universities are doing well (or not?). That question mark is derived from a concern about the quality of education. For Australian Universities as a whole the message from the Project International Assessment of Adult Competences (PIAAC) must have been somewhat disheartening. In Figure 1 I show that Australian graduates of 24-30 years old score as number 17 out of 23 countries on literacy scores in 2011. 

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Figure 1. Distribution of literacy among graduates 20-34-year-olds.

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The Figure requires explanation. The PIAAC project was undertaken by the OECD. Substantial numbers of adults were approached to answer questions assessing their literacy, their numeracy and their problem solving skills. The questions were made so as to be internationally comparable. The Figure only relates to literacy scores based on the answers to the questions. However, as it turns out, literacy and numeracy scores are closely correlated in the different age groups.

If it were cricket this would be declared a national scandal. The scandal would have been greater if a rather weak performance in the cricket league would go along with a top performance in the junior league some 5 years earlier. PIAAC in 2011 can be compared to the results of the Project International Student Assessment (PISA) some 10 years earlier. PISA measures competencies of 16-17 year olds. In PISA Australia is the number 5 country. All top PISA countries are also top PIAAC countries. With one exception: Australia. The main focus of touchstone is precisely there: adding value in competencies through Australian universities.

I’ll develop my jests along the following lines:

Universities matter for economic growth (section 2). This relation has mostly been studied from the vantage point of university research. However, competencies are at least equally important for economic growth (section 3). It would then be smart to make universities accountable for value added in competencies (section 4), while ensuring equity (section 5). The organization and funding of universities have a decisive impact on delivering competencies and research output (section 6). Both organization and funding are highly dependent on Government policy. I venture here to question whether politics is sufficiently well organized in several countries to take the long run interests of university’s contribution to economic growth into account (section 7). I summarize this treatise in “touchstone’s ballad” (section 8).

2. Universities and sustainable growth

Innovation and knowledge stand at the heart of Australia. The country would never have developed to its present form if it were not for Captain James Cook’s and dr. James Lind’s invention of nutrition (citrus drink, bouillon extract) to fight scurvy around 1770. This demonstrates the power of analysis and experimentation to solve a problem (long sea travel to Australia with the crew remaining alive). It also shows a particular characteristic of innovation, coming about from the combination of knowledge and opportunity/necessity.

The role of universities in generating economic growth has mostly been studied for research. Path breaking was the study by Jaffe (1989). It showed that university research in the US contributed substantially to commercial innovation through so-called spill overs from university research to innovation. This set the stage for a large volume of studies, underscoring the earlier findings. Moreover they demonstrated that the impact of university research on economic growth depended in part on the organization of university research. Subsequently Governments in several countries

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5 The Survey of Adult Skills was conducted in Australia from October 2011 to March 2012. A total of 7 430 adults aged 16-65 were surveyed. http://www.oecd.org/site/piaac/Country%20note%20-%20Australia_final.pdf
(e.g. the UK and the Netherlands) promoted what would become known as the triple helix: university-industry-government cooperation (see for example: Etzkowitz, 2010).

In a study for 32 European countries we found that the relationship between the research performance of universities and labor productivity (or economic growth) is strong (Hoareau et al., 2012). This underlines the Universities Australia statement: “Australia is at an economic and productivity crossroads. In an era of sweeping change, other nations are seizing the future with investments in higher education, research, innovation and skills. Australia now faces a stark choice: we either make our own investment—or we fall behind those nations that do”\(^6\). The “cross-roads” metaphor is consistent with the mismatch between on the one hand GDP per capita (where Australia ranks no 5\(^{th}\) in the world) and on the other hand the rank on the innovation index (no. 10)\(^7\) – a good predictor for future economic growth.

Innovation is especially important for the countries with a high dependency on natural resource exploitation, like Australia. Fossil fuels are likely to become less attractive on the world market because of the carbon dioxide emission associated with their use. Other natural resources are prone to substantial fluctuations during the business cycle as Australia has experienced. Increased innovation is the way to offset the odds of natural resource exploitation.

Note that innovation is not just a “STEM” thing, it is not only about technology. It is also about organizing production processes, motivating people to bring out the best, about empowering people, about using talents and competencies as well as about risk taking by individuals to engage in new endeavors.

This is my bridge to address the prime function of universities: education. I realize that my choice of the adjective “prime” did not always go well in discussions with university leadership worldwide. Some university leaders allege that research is the prime function and that education is –to state it far more bluntly than my interlocutors would have expressed it- a handy byproduct because it brings in money for research. The rankings mentioned earlier lend support to such a position. However, the jester can ignore that point of view. He takes it for granted that education is the prime task and goal of the university, while research is allocated to the university (and not only to separate institutions) because it enriches education.

To our surprise we then notice that the relation between university education and innovation has been much less well studied. I ignore the “rate of return studies” on (university) education. These studies show to what extent incomes earned by individuals with a certain level of education, like university education, reflect the costs made to attend that level of education. I ignore them because I am interested in the spill-over of education towards labor productivity at large.

The relationship between (university) education and labor productivity is –like that between university research and labor productivity- complex. Investment in physical capital was in the past viewed as the dominant force for labor productivity. Then something called “technological progress” entered the field to “explain” why labor productivity rose faster than investments in machines and buildings.

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\(^6\) “Keep it Clever: Policy Statement 2016”.

\(^7\) In 2000 the EU delivered a similar statement, broadly supported by the member countries: this was the Lisbon declaration calling on the member countries to invest more in university education and in research. Unfortunately, this was not implemented even before the financial crisis.
Yet, technological progress itself does not come from heaven, but is the result of new vintages of human or physical capital with higher productivity levels. This is amply shown by economists (see for example: Aghion and Howitt, 1998). New vintages of physical capital are likely to be more productive because they combine well-trained workers with new knowledge (the proceeds from public and private R&D). We are witnessing across the world that this leads to “labor saving” of low skilled workers, as routine jobs become automated away.

In OECD countries the supply of skilled workers increased rapidly due to the massification of higher education. It came as a surprise that the demand outpaced the supply. Jan Tinbergen (1975) coined this to be “the race between technology and education”. That race has been lost by education, because it was not only racing to keep up, but at the same time contributed to technology (Acemoglu, 2002), as if the runner up keeps pushing the front runner in the back.

A more educated workforce does not only facilitate the creation of new technologies, but also increases the country’s capacity to adopt technologies that have already been developed elsewhere (Vandenbussche et al., 2006). Goldin and Katz (2008) find that advances in education attainment (measured by degrees achieved) account for .33 % per year gain in real GDP per capita from 1915 to 2005 in the US. This effect would be higher if the potential impact of (higher) education and public research on the speed of “unskilled labor saving” or “human capital enhancing” technological progress had been taken into account. They furthermore note that technical change is not only skill-based: innovations in the early twentieth century were also passed on to less skill-intensive sectors, like electricity.

The positive impact of higher education increases as countries come closer to what is called “the technology frontier” – the degree to which production is within the “high tech” area. (Aghion et al., 2009). Technological change increases the demand for expert thinking and complex communication (“non-routine work”), acquired through higher education (Levy and Murnane, 2005). Australia is “close to the production frontier” so the preceding backs up the plea of Universities Australia (2014) to watch carefully the position of its universities.

2.1 Graduates on the labor market

The competencies enriched at universities can be valued against economic growth. Hanushek and Woesmann (2012, p. 275) find that competencies explain the differences in economic growth between countries for the period 1960-2000. Years of schooling are less important once competencies are taken into account. The findings of Caroll and Tani (2013) for Australia can well be placed against this background. They find that 26% of graduates were under-utilised immediately after course completion and 15% were under-utilised three years later, suggesting a graduate skills surplus and, by extension, inefficient public and individual investment in human capital. Yet, there may be also a competencies mismatch together with the education mismatch. Are we sure that the demanded competencies for the job, requiring less education are not matched by the graduate? Figure 1 at least suggests to look into this direction. Otherwise it is difficult to understand the internal process at the place of employment. If you have a graduate (even if she or he is hired for a job requiring less qualifications) wouldn’t you want to benefit as much as possible of his or her presence and adapt your processes in that direction? It appears to me that much of the graduate under-utilization or “overschooling” hypothesis is based on the assumption of a 20th century static production process, in contrast to the present highly flexible production processes with constant “reinvention” while unjustly equating years of education or educational levels achieved with competencies.
Employers of Australian graduates generally do not place salary premia on attending a high quality or prestigious university (in terms of research productivity!), at least upon workforce entry (Carroll et al. 2014). In contrast recent findings for the UK show that the education performance (the class of the degree) made a substantial difference for earnings (Naylor et al., 2015).

So there you go—as a graduate—with all your efforts to get into one of the top 8 Australian universities⁸ and there you go Government with your additional research funding of these universities, says the jester. The Federal funding of undergraduate education may vary by subject area (as does the Income Contingent fee paid by the individual Australian student after graduation), but is the same across all Australian public universities. But shouldn’t the research expenditures also add to the education competencies achieved in the undergraduate stage (aside from the research output)?

PhD’s of Australian universities are of special interest. Like many other countries Australia has expanded its PhD system, largely subsidized by Government⁹. PhD’s form a bridge between education and research. They are expected to play a substantial role in bringing about spill-overs on innovation.

Figure 2 gives an impression of the number of PhD’s in relation to the labor force for a number of selected countries. Australia is more or less in league with most of the developed world.

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⁹ Interestingly enough Australia and the Netherlands are the only 2 countries in the world where the government funds universities PhDs per completion, while the running of the system is an internal matter for universities with ample room for cross subsidization from other sources of income. In Australia it is clear that the surplus from the teaching of international undergraduates underpins the research expenditure (including PhD scholarships and running costs).
Australia is special at least in so far that many of the PhD’s are foreign born. Foreign PhDs studying in Australia form 22% of total PhDs during 2010-2014 (with STEM: 27%, Medicine 15% and “Other” (mostly business): 20%). Australia benefits from this influx since almost 60% of the foreign PhD’s stay in Australia.

Australian and foreign PhDs from the top 8 universities who stay in Australia turn out to earn more if they have taken a medical degree. The wage premium is mixed for STEM and is the weakest for Business and Social Sciences. It turns out that the Australians from the most reputed universities leave (esp. with STEM degrees), while the foreigners (esp. in STEM) stay. This differential mobility of Australian and Foreign PhD students might be a function of Australian STEM PhD seeking post-doc experience in Europe/USA while the Foreign PhDs might be driven to take Post-Docs in Australia.

These are more general indications that the quality of education counts for personal earnings and likely also for the spill-over towards economic growth. This is further discussed in the subsequent section.

3. Competencies of graduates

3.1. The quality of education

The world has nowadays become familiar with the notion that education is not only essential for the development of a person, but that it also is an investment, which –like other investments- can pay off. Since the early 1950s schools are recognized as essential for economic development. The term human capital was born and countries which did well in education turned out to be the countries

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10 Data from M. Tani, unpublished research, based on Graduate Destination Survey (surveyed 4-6 months after graduation) and a national sample covering about 50% of the graduate population.
with the highest rates of economic growth. Causality was discussed: are high economic growth rates the cause for high investments in human capital or is it the other way around? It was shown to be both (Hanushek, 2012). Indeed, high growth countries also invest substantially more in education, but this causally increases economic growth. The investment notion implies costs and potential benefits, where the costs have to be made before benefits can be reaped. Education became also recognized as a fast track for growth by poor and middle income countries with Korea, Hong Kong and Singapore as prime examples.

Note that in public accounts education remained in most countries to be “consumption” despite its recognition as an investment. Ministers of finance continued to treat it as “spending”.

“Doing well” in education is more than enrolling children as was time and again established. Many economists tried to explain statistically the difference in economic growth rates across countries by differences in the levels of education achieved in the working population (in numbers). They became disillusioned. “Where has all the education gone” was the outcry of one of these studies (Pritchett, 2001). He found no effect of the number of years in education of the labor force on economic growth.

He was soon bypassed by researchers who included quality standards to those years. This was often done in the clumsiest way. They had so little to go by in terms of the quality of a year of education which a student has enjoyed. Barro and Lee (2010) and Hanushek (2012) are the pathfinders. They used the scores in the PISA (Project International Student Achievement) and the scores in the Project International Assessment of Adult Competences (PIAAC) respectively as an indicator of quality of the education system. The not so surprising finding is then that indeed the contribution of quality education to economic growth is substantial. This is nowadays an essential element for policy. For example, raising educational equality in countries like Vietnam, Laos, Cambodia, Myanmar, and -to a lesser extent- Indonesia is essential to bring economic growth to the same levels as have been achieved in the Northern East Asian countries (Phan and Coxhead, 2015).

Isn’t this a no-brainer that education is about learning and not merely about being enrolled? Quality has a face: the quality is better where more is learned. Excellence then also can exit from its shadows of a vague cloak which fits many appearances. Excellence is about better quality. The standards are no longer local or national. They are international standards as there is no reason why youngsters of other localities or other nations would learn less in a year of education.

3.2 Universities
Recent insights on the importance of graduates for socio-economic development put universities center stage. All quality education has a lasting impact on economic development, but it seems that university education in particular plays a central role in the present stage of globalized development in which routine work is more and more replaced by machines. This is the knowledge-economy where the creative use of knowledge to solve problem plays such a dominant role to realize economic growth (hopefully sustainable). Also for universities applies: learning does not automatically come with enrolment. Or, as Derek Bok, the Harvard President from 1971 to 1991 and from 2006 to 2007 recapped in 2014: “the number of college degrees is not nearly as important as how well students develop cognitive skills, such as critical thinking and problem solving”.

Research universities seem often not fully aware of the tremendous role of their graduates for economic development (beyond research jobs). They seem to take first and foremost pride in the quality of their research. They seem not to realize that research does not need to take place in a
university, but can well be housed in separate institutions, as happens for example in Germany where the Max Planck Institutions are independent organizations without an educational role and as happens in Australia with CSIRO\textsuperscript{11}. They point to the excellence in research, demonstrated for example by Nobel prizes or Fields medals won by their researchers or by the number of citations of publications of their researchers. They rely on rankings which are driven by research quality.

There is often less pride taken in the education quality. No doubt: this may also be due to the difficulties in making education quality visible.

Good research may be an asset to providing good education, if good researchers are intensely involved in the education process or vice versa students in the research process. But it is unlikely that there is an automatic one to one relation between good research and good education: this depends very much on the way this relation between research and education is organized.

We mentioned before that the quality of education in primary and secondary school in countries is assessed through the Project International Student Achievement (PISA), measuring language and math abilities of 16 year olds. Yet until recently international comparable data on the quality of university education were virtually absent. We have some impressions from what graduates think themselves about the education they received, but these are highly subjective. It is also difficult to compare them with the judgments in other countries: there is no standard by which the answers are measured\textsuperscript{12}. The same applies to employers’ judgments on the quality of the graduates that work for them. This is clearly an area for international research. OECD made an attempt to come up with an international comparable measure in the so called AHELO project. AHELO stands for “Assessment of Higher Education Learning Competences”. The then newly appointed Secretary General of OECD, Angel Gurria set out in 2006 to broaden the success of the Project International Student Achievement (which assesses learning at age 16) to higher education. However, the Governing Board of OECD which represents the Governments of the OECD countries decided to put the project put on the back burner in 2014 (after a very costly test case). This came as a surprise as the test stage clearly showed the feasibility. It appears that some of the participating Governments followed the resistance of the universities in their country (in particular those at the top) against international comparable measurements of the education output. Some universities feared to lose their top position (based overwhelmingly on research) if value added in learning would be included in the ranking indicators. These universities pushed their Governments to deny OECD the budget for a full implementation of AHELO, at least for the time being.

### 3.3 Components of graduate quality

There are two ways to establish what makes graduates “excellent”, i.e. what they need in the kitty bag to function well in society. One way is to ask graduates, their employers and other stakeholders (OECD, 2013c, p.56). The other is to measure traits of graduates and to analyze statistically how important these traits are for the earnings of the graduates. Both approaches have been used in the recent past. The conclusions are the same:

\textsuperscript{11} CSIRO still plays a major in the Australian R&D system. Some CSIRO labs are a cross between Max Planck and Fraunhofer institutes.

\textsuperscript{12} For example, the Centre for Higher Education in Germany measures student satisfaction with their degree courses for Germany, Switzerland and the Netherlands (CHE, 2014).
• Cognitive achievement and knowledge of the field are important. Yet equally important is the capacity to use that knowledge in “problem solving”.

• Most work is done in communication and cooperation with others. How to work in teams, how to communicate is an essential part of the job, for which the graduate needs to be prepared.

• Intercultural understanding is important as many graduates work in an international environment.

• Graduates need to have a good understanding of ICT.

Note that these traits go beyond cognitive skills and transfer into behavioral skills. Behavioral skills or personality traits or “character traits” are often grouped into “the Big 5”: Openness, Conscientiousness, Extraversion, Agreeableness and Emotional Stability (Goldberg et al., 2006). Seegers (2015) shows that German students majoring in different university disciplines have different personality traits. Also “economic traits”, like impatience, risk aversion, trust, altruism and positive and negative reciprocity were measured by Seegers (2015) along scales designed by Falk et al. (2014) and turn out to differ between the students choosing for different disciplines. Yet, once enrolled, the study does not “change” the personality of students. In other words: the university has not had an impact on non-cognitive traits. Unfortunately: the university students were not compared with a group who did not go to university. This is in contrast to the study of Schurer et al. (2015) for Australia. When comparing those who went to university with those who choose not to, university education turns out to offset a general decline in extraversion as people get older and boosts the development of agreeableness for men from disadvantaged backgrounds. It does not shape those personality traits associated with a strong work ethic and intellect. So universities did have an impact on the personality traits.

Universities who want to excel feel responsible for enriching graduates. But what exactly does that mean and what could be a viable way of looking at enrichment?

4. Should universities be accountable for value added?

In November 2015 Jo Johansen, the Minister of State for Education of the UK Government launched a Green Paper on teaching in the UK universities, stating: “Now that we are asking young people to meet more of the costs of their degrees once they are earning, we in turn must do more than ever to ensure they can make well-informed choices, and that the time and money they invest in higher education is well spent”. He argues that employers raise concerns about the skills and job readiness of too many in the graduate labour pool and that significant numbers of graduates are going into non-graduate jobs, to continue that “We will reward excellent teaching with reputational and financial incentives….by establishing a sector regulator: the new Office for Students”. The keyword is the TEF (Teaching Excellence Framework) which aims through assessments to put universities in a funding category.

The concern of the UK Government on learning mirrors that of President Obama when in 2010 Arum and Roksa (2010) published their book presenting evidence on more than 2,300 undergraduates at twenty-four institutions. “45 percent of these students demonstrate no significant improvement in a range of skills—including critical thinking, complex reasoning, and writing—during their first two years of college”. They argue “that for many faculty and administrators this will come as no
surprise—instead, this is the expected result of a student body distracted by socializing or working and an institutional culture that puts undergraduate learning close to the bottom of the priority list”.

The sleek Touchstone had added: would this be different in Australia or for that matter for the Netherlands?

The increasing worries of countries about the value added in learning at universities stands in shrill contrast to the opposition against the measurement of value added in the OECD’s AHELO project, mentioned earlier, the US and the UK among the first ones. The AHELO project would involve the measurement along international standards of the outcomes of university education. A pilot showed the feasibility of measuring general academic skills, economics and engineering (OECD, 2012).

A small number of Australian Universities participated. The response of students is particularly interesting: “.... students spoke about how the assessment had stimulated their thoughts regarding how the things they were learning in their degree related to the kind of work they would be undertaking upon graduation, and further on in their careers. Students found the test challenging as well as stimulating, with many indicating that there were sections of the assessment that made them realise how much they had forgotten of some of the fundamental issues covered in earlier years of their course”. Students also indicated the format of the AHELO assessment was relatively unique in their experience. First, the constructed response tasks were singled out as particularly different from their traditional thinking about what an assessment involved. Second, the online implementation of the test as a whole was a new experience in assessment for most students” (OECD, 2013a, p. 52).

Governments have used the purse strings to incentivize proxies of value added in universities. The Netherlands was the first country to move ahead in the early 1990s with university funding based on the number of graduates, when the average length of study and drop-out were at a (very) high level. Australia also introduced PhD funding per completed PhD (like the Netherlands). Yet better proxies of learning than “completed degree” are available now. It would be useful to reengage in the development of international comparative metrics on measuring university value added in learning, using the progress made in AHELO and PIAAC. This would benefit the students who now have to make choices for universities based on vague metrics like the reputation of the university or students’ satisfaction with degree courses as in Germany performed by the Centre for Higher Education of the Bertelsmann Foundation.

A better metric for the education value added would make it easier for the university administration and for Government to put education on par with research. Most of the better research universities in the OECD countries find it hard to develop career lines for teaching professors or administrators. More in general universities find it hard to invest in innovation in teaching, although there are many good examples in the UK and in Australia.

4.1 Comparing value added across students with different starting abilities

It is obvious that higher education needs some differentiation between more and less research intensive universities, as talents differ and as the requirements for the labor market differ. Different students (in terms of their competencies at the intake in university) benefit from different types of study (in terms of the research intensiveness of the university). Generally the research intensive universities are assumed to benefit the students with more competencies at the start of the studies. The student with fewer competencies at the intake of the study would “flunk” at a research university because of the norms set for passing the exam.

Suppose Australian universities (or for that matter, universities of other countries) would have measured value added, then they would have to confront themselves starkly with two questions:
- comparing value added from different initial levels of abilities;
- evaluating the differentiation between Australian universities.

Suppose university A attracts mostly students with competency level 80 at the start of the study\(^\text{13}\). And suppose that it raises the competency levels to 110. How to compare this to university B, if it is more selective in student in-take, say with competency at intake of 100 and adding value to 120? In Figure 2 the university B is evaluated to be superior because it only looks at competencies at completion, while for society as a whole university A might be doing better as it brings about a higher value added in competencies. This is a hypothetical example. It might very well that actually the research intensive university adds more value in competencies than the not-so-research intensive university. Interesting, isn’t it that such important questions have not been thoroughly researched!

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\(^{13}\) Competency is used here in an abstract way. The examination score for a student leaving high school (Year 12 ATAR in Australia, Year 13 A ‘level in England) might be used as an approximation for something which could be more precisely measured along PISA or PIAAC lines while including behavioral characteristics. The measure of competency might include the maturity of students who have followed alternative pathways for entry into higher education.
Please realize that the scale of measurement has been linearized and transformed from the ordinal results on a test into a ratio scale even though we know that the difference between an A and a B or a 6 and a 7 (depending on the grading system may not be “the same” as between respectively a B and a C or a 5 and a 6.

Hanushek (2012) asked the question what is more important to society: higher achievements in PISA of the lowest 30% of achievers, more attention for the mean, or higher achievements of the top group? In terms of economic growth it seems that the distribution of PISA achievement matters: higher achievements of the lowest 30% AND higher achievements of the top 10% turn out to be statistically significant in explaining economic growth, while finally also mean achievement counts.

To add further to the confusion: implicitly or explicitly it is assumed that there is a trade-off in countries between top-achievement and the level of achievement of the lowest 30%. However, the PISA experience for 53 countries rejects this assumption.

A better measurement of value added would give rise to better informed policy on the right kind of differentiation between different types of higher education. Often this discussion is highly polarized by “greedy” research universities who like to enroll a large number of students and may as a result be inclined to lower standards on the one hand and on the other equally greedy not-so-research intensive universities who aim at increasing their research budget and the corresponding status.

There is some support for the notion that high quality university research (measured along an international comparable standard) goes along with competent graduates, at least in the view of employers. Figure 3 depicts the satisfaction of employers with graduates in 18 European countries in correspondence to university research productivity in those countries. It shows some correspondence, even after the outlier Lithuania would have been omitted.

Figure 4. Employer Satisfaction and Research Productivity, 32 European Countries, 2012. Source: www.empowereu.org.

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14 Top publications are measured country wide without distinction to university size or other parameters.
At the same time this analysis of value added (realized competencies at the end compared to the competencies at the start of the study) might bring about a new discussion on the imbedding of education into research. Most research universities assume that education becomes truly academic if it takes place in an environment in which research takes place. Students are led into research with small steps, for example through capstones or a thesis. Few universities have decided that a special form of problem based learning, namely “research based” learning might be the best way to make education benefit from research. The on-going research of the university is the point of departure for such research based learning.

In my view universities and university organizations like “Universities Australia” want to be pro-active in responding to the still latent public demand for a value added approach. In the UK the Government now has taken the lead on this latent demand with the 2015 Green Paper. Wouldn’t it be nicer if universities themselves take the lead and come up with proposals on how to amend AHELO (and PIAAC) to demonstrate the contribution of universities to skills? Of course, such measurements remain crude and are imprecise. However, they are stellar better than what we have now: sheer numbers, sometimes enlarged with student satisfaction (like in Germany with CHE, 2014). Most of the quality control is on process, in the absence of measures of output. By adopting a value added approach universities could do away with the high administrative burden imposed by quality control.

5. Elusive equity

The preceding discussion on differentiation and value added hinges on notions of “equity”. OECD countries take pride in equality of opportunity: every child of whatever background should be able to “make” it in society. Equality of access to universities, independent of parental education or income is one of the yardsticks for equity. Yet, pre-university achievement may interfere. It is observed from the PISA results that “social background has a strong impact on skills in some countries... In England/Northern Ireland (UK), Germany, Italy, Poland and the United States, social background has a major impact on literacy skills. In these countries more so than in others, the children of parents with low levels of education have significantly lower proficiency than those whose parents have higher levels of education, even after taking other factors into account. ...but Japan, Australia, the Netherlands, Norway and Sweden combine above-average performance with a high level of equity”. In other words: greater equity does not come at the expense of a high average proficiency (OECD, 2013c, p. 30). Australia with its number 5 position in PISA in 2014, and an income inequality according to the GINI coefficient of .33 (2009), some 10 % larger than that of Western European countries, can be proud on this success.

The OECD’s Education at a Glance (a source of everything you want to know about facts on education) (2015, p. 86) tells us for Australia that in 2012 of the 24-35 year olds no less than 47% had completed higher education. Out of these 47% some 20 percentage points had a level higher than their parents, while 27 percentage points had parents who had completed higher education. This is a ratio of first generation graduates to all graduates of .42. Compare this to the highest on the 25 listed

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15 The lessons from AHELO are clearly described by Hovdhaugen (2013) from the Norwegian experience: it is important to make sure that a sufficiently large sample of students participates in the tests.
countries or regions. This is (South) Korea, with a ratio of .73. The lowest is the US of .36. Of course, these data have to be put against the background of the number of youngsters with parents with different levels of education. The US and Australia belong to the group with a high percentage of parents with higher education. The low figure for the US is consistent with the wide-spread concern on equality of opportunity in the US (Mettler, 2014 and Putnam, 2015).

There remains a substantial concern. Equality of access to higher education has decreased in the OECD countries for the birth cohorts born after 1980 (Ritzen, 2011). This is not to fault the universities, but rather the likely effect of more segregation in housing and schools, not captured in the PISA characteristics on low-achievers. To be sure: Australia does well in having a relatively percentage of low achievers in PISA 2012 (OECD, 2015, p. 199, 200).

Continental European countries have had difficulty in dealing with the UK and Australian experience in which tuition fees have gone up substantially in combination with a (income contingent or social) student loan system (ICL). Australia is the country of the invention of social loan systems (first introduced in Australia in 1989 when tuition costs started to rise). Since then many countries have followed this policy approach (Chapman et al., 2014).

Continental European countries overwhelmingly continue their policies of free higher education. The introduction of tuition fees, like in the Netherlands in the 1990s, is met with fierce resistance even when it is accommodated by quite generous social loan schemes. The substantial public subsidy for higher education turns out to benefit in particular the upper middle class. This explains in part the resistance against higher private contributions to higher education. Australia is a light house for Europe with high tuition fees and a social loan system to cover costs, retaining equity while creating a better “tertiary” income distribution (after taxes and Government benefits in cash or kind).

6. The Right Organization and the Right Incentives

Institutions matter. Legislation has impact: sometimes intended, often unintended. Australians know about this from their origin: the Black Act: “An Act for the more effectual punishing wicked and evil disposed Persons going armed in Disguise and doing Injuries and Violence to the Persons and Properties of His Majesty's Subject, and for the more speedy bringing the Offenders to Justice” (Citation 9 Geo. 1 c. Commencement 27 May 1723). The unintended consequence was: Australia as a country.16

Legislation and more in general, government policy likewise has intended and unintended consequences. Touchstone claims that universities deliver more competent graduates and higher quality research if they are more autonomous (i.e. given the freedom to organize themselves in terms of their internal decision making and their financial practices, their pedagogical approach and their staffing) provided they are well-funded. In turn competencies of graduates and the quality of the research output contribute to labor productivity. Managerial autonomy is important for research attractiveness and research productivity. Policy autonomy translates into relatively high education performance17.

Paedagogists have claimed from the onset of their profession that paedagogy matters. The home and the school environment contribute to the development of the personal traits (including cognitive

17 See: Ritzen, 2016.
development) through “paedagogy”: the way children are raised and taught. Paedagogists, like Maria Montessori and educational psychologist have taken this further into advice on the “right” school environment, the “right” curricula and the “right” teachers. The revolution (or should I say crisis) in pedagogy occurred when The Project International Student Achievement (PISA) in 2000 made the effects of schools visible in internationally comparable measures. It was heavily debated mostly by educationists and sociologists (Ritzen and Volante, 2015) as it would infringe on national sovereignty (allow me the non-academic, nor diplomatic expression: nonsense). Its measurements were criticized correctly as too restricted to what is called the cognitive. Behavioral elements were not measured, as the state of the art did not yet have reliable measurements to be applied on a large scale. Nobel Prize winner (in economics) Heckman later on advanced the notion that indeed the behavioral can be measured and is also changeable over the life time. More-over behavioral skills matter in life perhaps as much as (and in combination with) cognitive skills develop during the life time. Early (and later) paedagogists were right: yes “school” (and also university) has an impact also on behavioral skills.

OECD (2013d) notices that PISA results differ by country due to the degree of autonomy of schools (as an indicator of “paedagogy”) and due to differences in funding, underlining similar findings for universities. The Australian system seems to satisfy pretty much across the board the demands one would one to put on autonomy of universities (Ritzen, 2016b). However the incentives inherent in the organization may be too short run with the limited, five year periods of appointments of the university leadership. Also it appears that in particular policy autonomy is an important aspect (Hoareau et al., 2012) for the contribution of universities to innovation and less financial autonomy.

There are incidental cases in countries like the Netherlands where financial autonomy of universities has been misused for megalomanic real estate projects, taking money away from education and research. However, the alternative of state control over university investment policy is perhaps even more damning as the experience of several European countries shows where the budgets of universities have to be approved by the State (re-introduced in North Rhineland Westphalia) and where the Government is responsible for the housing of universities18.

Yet funding is also very important. In Figure 4 we show how strongly graduate competencies are related to university funding per student in different countries.

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18 The powers of most Australian universities (other than ANU, Bond and the two Catholic Universities) are determined by Acts of the State Governments (e.g. NSW, Victoria, Queensland etc). Like the UK, universities they are able to generate and retain a surplus. This gets reinvested in the Estate for new facilities and repairs and maintenance. There have been capital grants, most recently in the form of EIF grants from a now closed Sovereign Wealth fund. The funding of student housing is very liberal and many universities here have private deals, either as leases, licenses, and some public private partnerships. Several universities have S&P credit ratings which they use in securing borrowings to fund various projects.
The importance of funding per student (the combined income per student from public and private sources) for a top-rank in the Times Higher Education ranking system was established (Marconi and Ritzen, 2015). A university’s rank increases with between 4 and 9% for every percentage change in the expenditure per student. The lower figure (4%) emerges when we take into account that funding might well depend on the rank (a higher rank brings in more funding).

Funding differs substantially by countries. In many of the EU countries funding consists out of research block grants plus the funding per student. Research-block grants are allocated sometimes based on the historical background (in the Netherlands) or on a competitive basis. In the later case (completion) they go overwhelmingly to the top research universities. This is also the case in Australia, where the top 8 universities get the majority of grants. The UK evolution in funding by putting more emphasis on competition in research is likely to be followed by more and more countries, because it appears to increase the research output. Similarly the recent move towards competition in competencies in the UK (education results) might –in my view- strike home in other countries as a means to increase output.

In the 90s universities in the Netherlands effectively blocked a discussion on the national “demand” for university research, because this was considered to be “political interference” with research. Some 20 years later such a national debate is flourishing, with substantial input from many citizens. I believe that universities indeed should follow the demand agenda beyond what is looked at as “national priorities” (mostly based on economic sectors). No need to say that –like everywhere- demand will only invite supply if there is purchasing power, i.e. that additional resources are provided.

Figure 5. Graduate Competencies and University Funding, 2010, 17 European countries. Source: PIAAC and EEU.
It was a surprise to see that there is little or no cooperation in the PhD trajectory in Australia, while many European countries have invested substantially in “graduate schools” across universities, even though the Cooperative Research Centres have acted in part as Doctoral training centres for disciplines. The Dutch position in astrophysics (an Australian priority) itself is likely to be in part the result of getting all talents together in one top-school. Perhaps the continental scale of Australia makes it more difficult to argue for super specialist centres as exist in the Netherlands or larger regions of the UK.

More in general it is important to question the role of PhD training and its organization. It is a natural hinge between education and research. In Europe the steady increase in PhDs has not (yet) undercut their wage premium (Auriol et al., 2013). However, there are concerns about further expansion of the number of PhDs which have for example led to Dutch Government to abolish the funding of universities per completed PhD.

Touchstone acknowledges the great achievements of Australian universities and their vision for the future. The vision 2013-2016 of Universities Australia on “policy considerations to drive Australia’s competitiveness” and the “Clever Australia” Statement 2015 are powerful.

Yet, Touchstone feels that Universities Australia is not ambitious enough in stating its future and the way to get there. There is too little attention on the following three points:

- The added value in learning in universities,
- The relation between research and learning,
- The organization of universities.

Better metrics for education output might help to strengthen the incentives of the university leadership for focusing on the longer run. The relatively short periods of appointment of the university leadership induce a focus on the short run. This is enhanced by an absence of metrics of outputs which by nature take a longer duration to achieve. Innovations in the education process (for example, away from large theatre teaching toward small group research problem based teaching) take years before they are fully implemented. The proper evaluation of the university’s leadership should then no longer be based on the balance sheet realized but on the state of innovation processes in the university.

7. HE Politics

The future of Australia hinges on long-run policies supporting the cleverness of its population. Yet, in politics sometimes the long run turns out to have exceedingly short legs. When the sirens of today sing their enchanting songs, politics is easily captured. Few are the political systems who tie themselves to the mast to ensure the proper through fare between the Scylla and the Charabdis.

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19 The Dutch H index for astronomy and astrophysics is 191 compared to the Australian one of 172, see: www.scimagojr.com
Universities Australia ask for “bipartisan” politics as a means to steer through the cliffs.

All across the world, it would be important to come to political reforms which create a better safeguard for long-run education policies. One could think of the following practices of other countries which have been relatively successful:

- Parliamentary decision making on education and research is beyond the simple majority.
- Ministers of education and research are recognized as knowledgeable in the field in addition to having some experience in politics.
- Ministers of education and research are enticed to stay in office for longer periods.
- Ministries of education and research maintain a top non-partisan competency in evidence based educational and science decision making worldwide.
- Create Boards with authority to make decisions (Statutory Authorities) rather than as Advisory bodies to Ministers

Nordic countries (among them successful Denmark) generally consider education and science in parliamentary committees which are broadly composed and include the opposition. De facto more than a simple majority in parliament determines the outcome of these parliamentary discussions (the bi-partisan policy making advocated by Universities Australia).

Many countries have only ministers drawn from parliament as career politicians. It helps if ministers can be drawn from the outside provided they have some political experience (see: Jacqmin and Lefebvre, 2015).  

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20 I realize that such reforms may run into constitutional constraints. For example, in Australia both houses (Representatives and Senate) are elected and the Cabinet is composed out of elected Parliamentarians.

21 Jacqmin and Lefebvre (2015) also observe that the average period of stay of an minister of education in office in the EU (tenure at the job) is 2.5 years with a standard deviation of 1.7 (data from 2003 to 2011 for 20 countries). This is exceedingly short for engaging in long run policies, unless there is a substantial reliance on the competency of the Civil Service (as the UK has shown in successive changes from labour to conservative governments and back).
Countries which take their future serious should also ensure the maximum guarantees for politics to have a long run ambition.

8. Touchstone’s ballad

Universities Australia shows rightly in “keep it clever” to be proud of the achievements of the past. For the future, there is a concern on research:

“In view of accelerating investment in research and innovation by our Asian neighbours and traditional competitors, Australia could be close to the proverbial ‘tipping point’, whereby we are not able to achieve our goal of a high-wage, high-growth economy”.

“A national strategy that addresses all facets of the system, targets both supply and demand, and includes long-term financial commitments is needed in order to bring about cultural change and improve Australia’s research and innovation performance.”

Touchstone’s ballad however extends beyond university research: it is first and foremost about university education and the competencies built in universities graduates, with the PIAAC results as a wake-up call. Foreign students will continue to choose for Australia as long as they are convinced that they get – besides a good chance to immigrate- also an excellent education. Australians will continue to pay for their studies as long as they see that it benefits themselves and society at large through improved competencies. But the competition from Singapore, Hong Kong, Korea, Japan and China is getting stronger. In relative terms, Australia realized in 2013 an inbound mobility rate (the number of students from abroad studying in a given country as a % of total tertiary enrolment in that country) of 18%, similar to that of the UK and more than 4 times that of the US. Yet this is now lower than that of Singapore 20% (with many Australians opting to study there).

Touchstone would suggest Universities Australia taking the initiative in accounting for value added in competencies. This might be a good to signal to prospective students on the quality of Australian university education. It is also a method to break from the seemingly ever increasing quality insurance control mechanisms imposed on the universities. But most importantly: this might internally in the universities give rise to a better match between education and research and more concentration on “effective (i.e. competency increasing) education. It would provide a new platform for innovating university education.

In Europe the awareness of a tipping point was already growing at the end of the 20th century, leading to the European Framework Programs. Europe also engaged in 2000 in the so-called Lisbon Strategy aimed at making the EU the most innovative area in the world. Yet the EU Member States could not deliver on the promises for additional funding of public research and higher education, even before the economic crisis. The economic crisis of 2008-2015 made things even worse (Ritzen, 2016a) and it is likely that East Asia is increasing its edge vis a vis the EU despite the increasing funding on the EU level for the research and innovation through the program “Horizon 2020”. This might be a warning for Australia. A substantial public relations effort is required to ensure that the

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22 The US universities may be even more hurt by the financial crisis than the European ones (Douglass, 2010).
well-analyzed and documented conclusion about the central importance of universities for economic growth is translated into political action.

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